

1935 Convention of the International Association  
of Industrial Accident Boards and Commissions,  
Asheville, North Carolina



# Discussion of Industrial Accidents and Diseases



Bulletin No. 4

UNITED STATES DEPARTMENT OF LABOR  
DIVISION OF LABOR STANDARDS

UNITED STATES DEPARTMENT OF LABOR

FRANCES PERKINS, Secretary

DIVISION OF LABOR STANDARDS

VERNE A. ZIMMER, Director

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**ANNUAL MEETINGS AND OFFICERS OF THE INTERNATIONAL ASSOCIATION OF INDUSTRIAL ACCIDENT BOARDS AND COMMISSIONS**

Annual meetings			President	Secretary-treasurer
No.	Date	Place		
1	Apr. 14, 15, 1914.....	Lansing, Mich.....	John E. Kinnane.....	Richard L. Drake
	Jan. 12, 13, 1915 (1).....	Chicago, Ill.....	do.....	Do.
2	Sept. 30-Oct. 2, 1915.....	Seattle, Wash.....	do.....	Do.
3	Apr. 25-28, 1916.....	Columbus, Ohio.....	Floyd L. Daggett.....	L. A. Tarrall.
4	Aug. 21-25, 1917.....	Boston, Mass.....	Wallace D. Yaple.....	Royal Meeker.
5	Sept. 24-27, 1918.....	Madison, Wis.....	Dudley M. Holman.....	Do.
6	Sept. 23-26, 1919.....	Toronto, Ontario.....	F. M. Wilcox.....	Do.
7	Sept. 20-24, 1920.....	San Francisco, Calif.....	George A. Kingston.....	Charles H. Verrill.
8	Sept. 19-23, 1921.....	Chicago, Ill.....	Will J. French.....	Ethelbert Stewart.
9	Oct. 9-13, 1922.....	Baltimore, Md.....	Charles S. Andrus.....	Do.
10	Sept. 24-28, 1923.....	St. Paul, Minn.....	Robert E. Lee.....	Do.
11	Aug. 26-28, 1924.....	Halifax, Nova Scotia.....	F. A. Duxbury.....	Do.
12	Aug. 17-20, 1925.....	Salt Lake City, Utah.....	Fred W. Armstrong.....	Do.
13	Sept. 14-17, 1926.....	Hartford, Conn.....	O. F. McShane.....	Do.
14	Sept. 27-29, 1927.....	Atlanta, Ga.....	F. M. Williams.....	Do.
15	Sept. 11-14, 1928.....	Paterson, N. J.....	H. M. Stanley.....	Do.
16	Oct. 8-11, 1929.....	Buffalo, N. Y.....	Andrew F. McBride.....	Do.
17	Sept. 22-26, 1930.....	Wilmington, Del.....	Frances Perkins.....	Do.
18	Oct. 5-8, 1931.....	Richmond, Va.....	Dr. Walter O. Stack.....	Do.
19	Sept. 26-29, 1932.....	Columbus, Ohio.....	Parke P. Deans.....	Do.
20	Sept. 11-14, 1933.....	Chicago, Ill.....	Wellington T. Leonard.....	Do.
			R. E. Wenzel.....	Charles E. Baldwin.
21	Sept. 24-28, 1934.....	Boston, Mass.....	Joseph A. Parks.....	Do.
22	Sept. 30-Oct. 3, 1935.....	Asheville, N. C.....	J. Dewey Dorsett.....	Verne A. Zimmer.

1 Special meeting.

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Letter of Transmittal

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UNITED STATES DEPARTMENT OF LABOR,  
DIVISION OF LABOR STANDARDS,  
*Washington, February 10, 1936.*

MADAM: I have the honor to transmit herewith the proceedings of the 1935 convention of the International Association of Industrial Accident Boards and Commissions, which met in Asheville, N. C., from September 30 to October 3, 1935. Proceedings of the convention have been prepared for publication by the staff of the Division of Labor Standards.

VERNE A. ZIMMER, *Director.*

HON. FRANCES PERKINS,  
*Secretary of Labor.*

# Proceedings of the 1935 Convention of the International Association of Industrial Accident Boards and Commissions, Asheville, North Carolina

September 30—Morning Session

Chairman, J. Dewey Dorsett, President, I. A. I. A. B. C.

The twenty-second annual convention of the International Association of Industrial Accidents Boards and Commissions convened at the Grove Park Inn, Asheville, N. C., September 30, 1935, Mr. J. Dewey Dorsett, member of the North Carolina Industrial Commission, president of the association, presiding.

[President Dorsett introduced Mr. Harry McMullan, chairman of the North Carolina Industrial Commission, Mr. Matt Allen, representing the North Carolina Bar Association, and Mr. J. Y. Jordan, Jr., representing the mayor of the city of Asheville. These gentlemen delivered the addresses of welcome to the delegates.]

## President's Address

By J. DEWEY DORSETT, *member of the North Carolina Industrial Commission and President of the I. A. I. A. B. C.*

By reference to our program you will see that I have not called what I have to say to you a "Presidential address." I would rather have you consider my remarks as a sort of account of my stewardship. I cannot tell you how honored I feel in being the president of the International Association of Industrial Accident Boards and Commissions. I am proud of the distinction and I am deeply grateful for the opportunity you gave me a year ago to serve as the president of this association the past year, and my passport comes only because of the graciousness of friends who have likely mistaken my zeal and interest in compensation matters for a fitness to be president of this association.

You have already been welcomed to Asheville and North Carolina in sincere and eloquent fashion. Out of this meeting in the mountains of Carolina, let us hope to know each other better and accomplish something really constructive towards the better administration of workmen's compensation laws. Let us contemplate our common problems under circumstances of such felicity of climate that courage, optimism, loyalty, and wisdom will result.

Article 2 of the constitution of the International Association of Industrial Accident Boards and Commissions reads as follows:

The object of the association is to bring representatives of the various jurisdictions together at least once a year to discuss the problems and experiences arising out of the administration of workmen's compensation laws.

So, here in beautiful Asheville, I know that our deliberations will be under most happy circumstances.

These gatherings of compensation executives began over 20 years ago. The idea was generally hailed in its beginning as one that would make for a sane national unity in the administration of workmen's compensation laws without compromising the integrity and character of the several State jurisdictions. These meetings are a forum for the best compensation executive minds, and more than oratory has come out of them.

Before all of us arrived at our homes from the Boston meeting a year ago, our vice president, George Watson, of West Virginia, had died. We shall miss him at this meeting. We shall miss his fine personality and his wise counsel. After being notified of his death, I took up with the executive committee the matter of filling the vacancy by appointment, as the constitution allows. It was the opinion of the committee that we ought to leave the place vacant for this year, so no vice president was named.

At the meeting in Boston a year ago the association did not elect a secretary-treasurer as usual, but instructed the executive committee to confer with the Secretary of Labor as to recommendations, and to use its best judgment in the selection of a person to fill that important position. The Secretary of Labor subsequent to the Boston meeting created a new division in the United States Department of Labor known as the Division of Labor Standards. Mr. Verne A. Zimmer, of New York, was made the Director of this important division. Mr. Zimmer was at the time of his appointment director of the Workmen's Compensation Division of the New York Department of Labor. Secretary Perkins recommended that we consider Mr. Zimmer for the office of secretary-treasurer. Thereupon your executive committee unanimously elected him to fill the place, and what a happy selection we made. Those of us who know him know that he is a man of ability and one well versed in compensation matters, a splendid gentleman with a fine personality. In the past the secretary-treasurer has been paid a small salary for the services he renders in connection with his work for our association. You will be interested to know, I am sure, that our present secretary-treasurer is serving without pay, and no honorarium will be accepted by him for services rendered this association. The Secretary of Labor advised your president that one of the duties falling upon the Director of the Division of Labor Standards in her Department would be to cooperate fully with the I. A. I. A. B. C. I congratulate the Secretary for creating this Division within her own Department and for the selection of Mr. Zimmer to head the Division. This new Division can be of invaluable help to workmen's compensation administrators. The cooperation of the several jurisdictions with this Division is bound to result in administrative improvement.

Since my election as president I have put forth a vigorous and sustained effort to sell this organization to every State in the Union.

No State can rightfully assert that it has reached perfection in workmen's compensation administration because there is no "last word" in technique or procedure. There is room for improvement in the best, and there are none so bad as to be without some points of merit. What we want to get away from, I think, is the narrow, provincial view that our home State has some peculiar or unusual situation requiring one particular type of law and one specific method of administration. The fact is, workmen's compensation problems in every section of the country are practically identical, the difference being one of degree rather than of substance. If the officials of Maine, Georgia, Arizona, or Oregon sit down together and exchange experiences, they will find that each has the same difficulties to iron out. So, in respect to workmen's compensation there is no sectional problem, and the more States that pool their experiences the greater the opportunity of each to draw out ideas for constructive administrative improvement.

In giving a report of my stewardship, I shall not waste your time by reviewing what has taken place in the way of legislation affecting workmen's compensation and court decisions affecting workmen's compensation since we last met, and I shall not infringe on the duties of the several standing committees and discuss with you matters that will be covered in the reports that you are soon to hear. In addition to my report, I should like, however, to issue a challenge and make an observation or two. I consider it to be the duty of the men who bear the responsibility of leadership, men who are entrusted with power, to chart a course sufficiently liberal and far-sighted to enable the people to move steadily toward the goal of a fuller life without destroying the pillars of the temple. It is the duty of those who lead to steer the safe course, not worshipping the idols of antiquity nor losing their way in search of the fantastic.

From men like ourselves, it seems to me, must come the guardians in workmen's compensation matters, if there are to be any guardians, because ours are the hands at the helms, guardians of course, who march even as they guard, who progress even as they protect and preserve. Workmen's compensation must necessarily be a most important part of any social-security program. Forty-six of the forty-eight States now have workmen's compensation laws, and I want to congratulate the legislatures of South Carolina and Florida for having recently enacted this progressive legislation when they last met. That which we are trying to do in America at this hour is far more involving and implicating than merely to regain an economic status from which we may fall again at some future date. Vaster movements are in the making. Government itself, for once at least, is dedicating itself to life, liberty, and the pursuit of happiness. Statesmanship is trained upon a higher and more permanent program of life than that of bank structures and financial systems. It is being promised to man that he shall be the master, and all the little gods of our temporalities are gradually, even though reluctantly, beginning to capitulate. Those who have insisted that democracy exists to improve rather than exploit the masses sit by in eager expectancy as the social aims and ideals of a national administration are unfolded. America's controlling statesmanship has parked itself at this point. It is working out for human society a domination not for the privileged elect and selected few that would

promote fascism, not a control by the lower levels that would produce communism, but a democracy operating for the greatest good to the greatest number. Toward that objective present national determinations converge; toward that clearing America heads as it wearily makes its way through the welter of the wreckage of the unsocial and unspiritual materialism of yesterday.

Just a word concerning the program that has been outlined for this convention. One day will be devoted entirely to medical problems in the administration of workmen's compensation laws, with particular emphasis on occupational diseases. Another entire day, which is the day of our joint meeting with the International Association of Governmental Labor Officials, will be used in discussing topics with reference to safety and the prevention of accidents. I am particularly proud of our whole program, but to my way of thinking the two greatest problems facing us who administer workmen's compensation laws is to find the answer to the occupational-disease problem and to assist industry in its campaign to eliminate accidents and thereby reduce the cost of workmen's compensation. The subject of occupational diseases is increasing in gravity daily. For months past it has been the subject of intensive study by those who are trying to solve the problem. Silicosis, at the moment, is the outstanding occupational disease with which industry is concerned. It is not a novel disease, but it has increased alarmingly in recent years through exposure incident to the use of modern machinery. In several States silicosis and other occupational diseases have been the subjects for speculative damage-suit litigations between employer and employee, and in quite a number of the States such litigation has developed into a serious and demoralizing racket. In the light of recent court decisions, the present-day viewpoint is changing, and the prevailing belief is that occupational diseases where immediately traced to an occupational origin should be included as compensable injuries under specific conditions.

From the medical viewpoint, occupational diseases require diagnoses by highly specialized medical experts in order to make certain that the symptoms evidence a true occupational injury and not some other affection not chargeable to industry. Without special safeguards and provisions for expert adjudication of medical questions in controverted cases, compensation for silicosis and other occupational diseases would in practice be apt to develop into a system of compensation for disability and death from any and all diseases at a cost to industry which would be prohibitive and destructive in very many processes.

The true remedy for occupational diseases is not to be found in compensation and much less in suits for damages for theoretical negligence. The most potent and effective means of dealing with all occupational diseases, and more especially silicosis, asbestosis, and kindred dust diseases, is by prevention. The novel and complex problems confronting industry in which the hazards of silicosis and asbestosis are present can be solved most successfully by intensified industrial hygiene and sanitation. By the most thorough investigations on the part of medical boards, bureaus of hygiene, or State health departments we can find the proper preventive measures and regulations, which when promulgated and followed

can, and we believe will, greatly mitigate if not entirely eliminate the evils which confront industry as a whole.

So, I call your particular attention to Tuesday's program and to the symposium and round-table discussion on silicosis and asbestosis. We hope that the experts taking part in the discussions will work out for us the A B C's of the problem and give us a guide for the administration of our occupational-disease laws. Surely we must find an answer to the problems which confront us. We will make mistakes, of course. No human institution can avoid doing that unless either dead or dying. The accomplishment of this great objective calls for thinking and administration of a sort we have not hitherto found in government. It is a challenge that we as compensation executives must accept. Living in this home of the free and this land of the brave, we should shout for joy to be born to this day of a new pioneering.

Enactment by the recent Congress of the social-security program will certainly have some bearing on the interpretation of workmen's compensation laws. The Congress, through this program, has made provision for the protection of the American people against the many hazards of life over which they have no control—unemployment, old age, illness, and death of the breadwinner of the family. Unemployment insurance will afford protection against this greatest of all hazards. It will free working men from the ever-present fear of losing their jobs, which at all times threatens their welfare and that of their families. For several years it has been apparent that the system of workmen's compensation no longer represented insurance only against industrial accidents, for which it was originally designed. Through legislative enactment, judicial interpretation, and the action of administrative boards it has been broadened to include both health insurance and unemployment insurance without so naming them. In my opinion, workmen's compensation laws might easily face a complete break-down unless the tendency toward extending their scope to include life, health, accident, old age, and unemployment insurance for workers is promptly altered.

If the compensation principle is limited to its own proper sphere and is not enlarged to include all the ills of the flesh, it is practical, workable, and beneficent. If it invades foreign realms, it is bound to grow into a veritable Frankenstein that will harm principally those it is supposed to aid and at the same time will promote waste, fraud, and industrial demoralization. Compensation risks will become uninsurable. The cost to business will be intolerable.

As men and women of experience in compensation matters, we should endeavor to make the compensation highways a little better and safer by marking them with signs that point the way forward and in the right direction. "Over the top" then and to the attack against any who would capture and control these signs for their own less worthy purposes.

The workmen's compensation law is not an inanimate, burial-marking monument; it is a virile, living organism. It is not a "meal ticket" for doctors, lawyers, claimants, or administrators; it is a means for rendering able, efficient, conscientious, progress-making service to the people. It is not a political dispensing machine; it is a highly technical, business institution, operated for two diverse



groups, with constant relationships in the same body politic, requiring a background of training, a foreground of experience, ability, courage, honor, integrity, and an unprejudiced humanitarian outlook that can recognize the rights of all men and the obligation to every man, and yet can sense the power to destroy by abuse.

Now, with reference to the part that compensation administrators should play in the safety movement: one day of this convention is devoted to this subject. I know full well that many compensation authorities take no part at all in safety work. Their laws give them no authority along this line of endeavor. Be that as it may, when we know the facts, I believe that we have the moral responsibility of going beyond the law and assisting industry wherever we can in the prevention of accidents. The National Safety Council says that the cost of claims, medical service, hospitalization, and funerals for occupational accidents amounts to about \$590,000,000 for the 15,500 deaths and approximately 1,334,000 nonfatal injuries per year. Add to this cost the economic loss due to slowing up of production, spoilage of materials, and injury to machinery and you will have a total, estimated by one authority, of \$5,000,000,000 a year for the cost of industrial accidents, 12 times the value of property destroyed each year by fire and twice as much as we spend on our entire public-school system, and then you tell me that workmen's compensation administrators ought not to play any part in this great campaign for the reduction of accidents in industry? I beg to disagree with you.

The European countries were the first to enact protective laws for factories, railroads, and mines, and their workmen's compensation laws preceded similar legislation in the United States by many years. This placement of definite responsibility upon the employer for all work accidents started the safety movement. Business today is doing many things for the safety of workers. The well-being of the employee is an inherent factor in efficient production and not a philanthropic fancy. Leading manufacturers everywhere are engaged in campaigns to prevent accidents, and extraordinary dividends are being realized from safety investments by our industrial corporations. Many take the position, and correctly, that an accident in a plant is only the spectacular evidence of some underlying maladjustment in the same way that a headache is an alarm bell that calls attention to something wrong within.

As workmen's compensation administrators we are interested, of course, in the preservation of life and limb, not merely because we are administrators of a compensation law but because we are business men, industrial officials, citizens, human beings. I would not have you believe that the factory in this year 1935 is by any means a slaughterhouse. As a matter of fact, the statistics show that the factories of America are being made safer for the workers each year, and that actually more folks are hurt in the homes than in the factories, and everybody knows that the greatest safety problem of today is the death and destruction that comes annually from automobile accidents.

Now permit me to make one or two recommendations. I have in mind a matter which in my opinion deserves the careful consideration of this convention. From what I have learned as a commissioner

and through reading and in conversations with others, a situation exists in the States having no State fund that is most embarrassing to administrators of compensation laws and well-nigh unbearable for a large and ever-increasing number of employers. I refer to the arbitrary cancelation of compensation insurance policies and the inability of employers to promptly procure other coverage. It is not too much to say that the situation threatens to destroy confidence in compensation legislation. It is not unusual for a carrier to cancel a risk on the occasion of an accident resulting in a serious injury regardless of the fact that the assured's experience until then had been such as to have made the risk more than reasonably profitable to the insuring company. In many instances brought to my attention there was not so much as a temporarily bad-loss experience. Certain gestures have been made to meet the problem thus presented, but they have been little better than futile.

Probably what has been done in North Carolina is typical of the procedure followed in other States. An attempt was made under a voluntary agreement entered into with certain insurance companies to assign risks that had been declined by as many as three carriers. The plan provided no adequate remedy, as employers were compelled either to operate without insurance and subject to statutory penalties or to close their plants while being refused coverage by the required number of carriers and until coverage could be provided. At the last session of the North Carolina Legislature a law was enacted (ch. 76, Public Laws of 1935) which was intended to overcome the objections to the voluntary agreement feature of that plan. By virtue of this statute the Compensation Rating and Inspection Bureau of North Carolina, after a risk has been rejected by three carriers, can compel an insurance company to accept the risk. However, the bureau may demand a certificate of the division of standards of the department of labor, showing that the employer is complying with the rules and regulations of that department, and before coverage is placed, the bureau shall fix the initial premium (subject to the approval of the insurance commissioner) and require the payment thereof. So, although an employer may rest assured that coverage is possible—the possibility having been assured by law—he is still subjected to the risk of as much delay as formerly. That the insurance companies have not voluntarily submitted a better plan, one in keeping with the principles underlying the whole philosophy of compensation, is in my opinion a confession of weakness to say the least.

Premium rates are based upon elements of risk plus previous loss experience and are fixed by those who by virtue of their expert knowledge are presumed to allow for the bad as well as the good risks. This is as it should be, for employers are required by law to carry compensation insurance. Presumably, the carriers have, through the science of underwriting, met their responsibility. But *have* they? I say "No." Their consistent retreat from risks that are not in themselves most favorable is sufficient proof. Either their practice in this respect is a product of the greed that would "eat its cake and have it, too", or the public is paying for an undertaking service that is inefficient. The carriers exert their full power in opposition to exclusive State funds legislation.

Personally I believe in private enterprise, but I predict that unless the insurance companies, on their own initiative, put their houses in order and make coverage available without delay for all employers able to pay for it, exclusive State funds will invade and take over the entire compensation-insurance field within a very few years. Lest I be charged with criticising without offering a remedy, I wish to express a possible means of satisfactorily meeting this annoying and embarrassing condition. It occurs to me that the insurance companies, through the machinery provided by a proper underwriting system and in cooperation with the several accident boards and commissions, could evolve a plan whereby liability on all of the so-called undesirable risks can be prorated among the several carriers upon an equitable basis and without regard to the companies accepting them. Rates applying to such risks as well as plant standards could then be made a separate study. This is but a suggestion. However, I recommend the appointment of a committee by the incoming president of this association to study the problem, and with the sanction of the executive committee to present to the several accident boards and commissions an outline of suggested legislation designed to provide adequate and prompt protection for all insurable risks. I hope this convention will approve of such action.

I further recommend that this association seriously consider the amendment of our constitution to the end that membership dues for the several jurisdictions be reduced. I recommend that the dues be reduced by \$25 per year. Can there be any good reason for piling up a surplus in our treasury? And, speaking of the surplus in the treasury reminds me that this association is the owner of a \$1,500 Paterson mortgage and title guaranty bond. Interest on this bond has been in default for several years now. Meetings of the investors in the \$35,000 mortgage covering the property are occasionally held. The last meeting was called for September 11 at Paterson, N. J. Notice came to our association officials too late to attend the meeting. The secretary-treasurer, in his report, will probably give us some information concerning the status of this mortgage. I believe that we should put this matter in the hands of some good lawyer to the end that our investment be protected.

I thank you gentlemen for your very kind attention. I wish you Godspeed and all prosperity. I know our convention will be a most successful one.

## BUSINESS MEETING

[The president appointed the following convention committees:]

*Nominating committee.*—Mr. Armstrong, of Nova Scotia, chairman; Mr. Parks, of Massachusetts; Mr. Keener, of Arizona; Mr. McShane, of Utah, and Mr. Stanley, of Georgia.

*Resolutions committee.*—Mr. Nickels, of Virginia, chairman; Mr. Baker, of Kansas; Mr. Graves, of Texas; Mr. Walker, of North Dakota; Mr. Langley, of Idaho; Mr. Wise, of Michigan; and Mr. Russell, of Maine.

*Auditing committee.*—Mr. Murphy, of New York, chairman; Mr. Hughes, of Georgia; Mr. Nelson, of Missouri; Mr. Mathews, of West Virginia; and Mr. Wrabetz, of Wisconsin.

We will now have the report of Thomas P. Kearns, of Ohio.

## REPORT OF COMMITTEE ON SAFETY AND SAFETY CODES

By THOMAS P. KEARNS, *Chairman*

Your committee is pleased to submit the following brief report on progress of codes for which the International Association of Industrial Accident Boards and Commissions is sponsor.

A revision of code for use, care, and protection of abrasive wheels was completed and approved July 18, 1935. With a few slight editorial changes the revisions were confined to new regulations for coping wheels.

Definite progress in the development of specifications for exhaust systems can be reported, chiefly through the work of the subcommittee on fundamentals. This subcommittee has been very earnestly at work preparing a draft of a report, which undoubtedly will become the backbone of the entire project. The report is in the final stages of its development and should be sent to the sectional committee within the next month or two.

Several subcommittees on particular processes have been appointed, and as soon as the report of the subcommittee on fundamentals has been approved the principles in this report will be applied to these specific operations by the special subcommittee.

No revisions are under way or contemplated in the codes for mechanical power transmission apparatus, rubber machinery, or wood-working plants.

Relative to projects on which the International Association of Industrial Accident Boards and Commissions has representation on sectional committees, we report as follows:

A new edition of the building-exits code was approved by the American Standards Association on March 12 of this year. A new section on requirements for hotels and apartment houses is being prepared by the sectional committee, which will undoubtedly constitute a major revision of the code, but will be presented in the next edition.

A revised code on construction, care, and use of ladders, as well as a code on pressure piping, and three standards on industrial sanitation—industrial sanitation in manufacturing establishments, drinking fountains, and sanitary privies—have been approved by the American Standards Association, copies of which have been forwarded to all governmental agencies.

Provisions have been made and approved by the American Standards Association for pulverized-fuel systems, three on prevention of dust explosions—namely: starch factories, flour and feed mills, and grain elevators—and a new standard on prevention of dust explosions in woodworking plants. These standards are now in the hands of the printer.

Revision of the code on mechanical refrigeration is now under way, and work of formulating a code on compressed-air machinery is practically completed.

A revised draft on the pulp- and paper-mills code is now before the American Standards Association for approval, and as soon as the revision is acted upon it will be printed and distributed.

Continued progress is reported on the ventilation code, also the code for the protection of head, eyes, and respiratory organs of industrial workers; and it is recommended by the American Standards Association that, due to the very fundamental nature of this code, the draft prepared should be given careful consideration by this association.

Progress is reported on the work of compiling and revising several other codes and standards, which we did not deem it necessary to include in this

report, since a complete and detailed report prepared by Cyril Ainsworth, assistant secretary of the American Standards Association, on the status of all codes under the process of development is attached hereto and will no doubt be made a part of the proceedings of this convention, as has been customary in the past.

Your committee wishes to again emphasize the importance and necessity of more intensive and systematic effort on the part of the various compensation boards and commissions in connection with the administration of workmen's compensation laws.

Frankly, it is our candid opinion that these conventions do not give to the safety problem the time and attention its importance warrants. Nor do I think we fully sense the fact that the solution of that problem will make easier the solution of many other problems to which we are devoting even more time and attention.

There never was a time in the history of this association or the compensation movement when accident-prevention activities were more imperative than at present.

We are all aware of the fact that after a long period of depression, when manpower was at an exceedingly low ebb, the curve of accident frequency is certain to rise as employment increases. The upward trend was already in evidence last year, as the record clearly shows. But, I seriously doubt if there is general recognition of the fact that many new conditions born of our period of adversity are certain to intensify the hazards of employment, bring greater drains upon compensation funds, and make even more difficult of solution the many problems with which you are now confronted.

It is also probable that greater liberality of the courts in the interpretation of compensation laws and a broadening of the scope of coverage by reason of Federal-State activities will make future drains on the funds which have not been apparent in the past. This will mean an increase in administrative problems and an added burden for all compensation funds and the necessity for either heavier levies upon employers in the form of premium rates or more pronounced savings through accident prevention. There should be no room for argument as to which is preferable. The weight of logic is on the side of greater safety, with its added advantage of increased morale, lower labor turn-over, and the happiness and contentment that freedom from suffering and sorrow brings.

It follows that one of the most essential functions of these boards and commissions is to prevent accidents. The economic saving made possible thereby is certainly preferable to the heavy drain on the funds through compensation payments. Accident prevention would solve one of the greatest economic problems facing these bodies, and safety, therefore, becomes an essential policy in the administration of their funds. It should be obvious that our safety activities must be increased accordingly and a logical place to begin is in the deliberations of this association.

[Mr. Kearns here presented a report on the status of American Standards Association safety codes developed or under process of development under the procedure of the association in which the I. A. I. A. B. C. is interested as a sponsor or through representation on sectional committees. This report was compiled and transmitted by Cyril Ainsworth, assistant secretary, American Standards Association.]

## REPORT ON STATUS OF AMERICAN STANDARDS ASSOCIATION SAFETY CODES

## Projects for Which I. A. I. A. B. C. Is Sponsor

**B7 (1935).**—*Safety code for the use, care, and protection of abrasive wheels.*  
A revision of this code was approved July 18, 1935. This revision, with the exception of a few slight editorial changes, is entirely confined to new specifications for coping wheels. Copies of the new draft will be sent to all governmental agencies in accordance with the customary practice.

**B15 (1927).**—*Safety code for mechanical power transmission apparatus.*  
No revision of this code is under contemplation at this time.

**B28 (1927).**—*Safety code for rubber machinery.*  
No new standards are under consideration, and no revisions of existing standards have been undertaken.

**01 (1930).**—*Safety code for woodworking plants.*  
No revisions are under way.

**Z16.**—*Standardization of methods for recording and compiling industrial-accident statistics.*

Since an agreement was not reached at the time letter ballots on parts I and II were taken a little over a year ago, a conference committee was appointed to thrash out the differences of opinion which still exist and make recommendations to the sectional committee for further changes in the present drafts. The report of this conference committee should be reconsidered by the committee of statistics of the I. A. I. A. B. C. during this year's conference. A more complete report concerning this project will come from that committee.

**Z9.**—*Safety code for exhaust systems.*

Because it cannot be reported that complete drafts of the safety code for exhaust systems have been prepared for the sectional committee, it should not be assumed that the lack of progress reported in past years is still the situation in respect to this work. Considerable work looking toward the preparation of such a code has been accomplished during the past year. The key to the entire problem rests in the report of the subcommittee on fundamentals, which is very nearly completed. This subcommittee appointed about a year ago has had a very difficult task preparing a comprehensive report concerning the fundamentals of design and operation of exhaust systems, and which fundamentals are to be followed by the various subcommittees on particular industrial processes. The report is in the final stages of its development and should be sent to the sectional committee within the next month or two.

The report of the subcommittee on fundamentals is very technical and takes into full consideration the new principles which have been developed within the past 2 or 3 years in connection with the design of this type of equipment. When completed it will be the first thorough discussion of the practical and technical phases of the design and operation of exhaust systems.

Subcommittees in charge of the development of standards in the following industrial operations have been agreed upon and their organization is going forward: A, Abrasive cleaning; B, Chromium plating; C, Granite cutting; D, Rock drilling; and E, Spray coating.

The subcommittee on chromium plating has been completed and has as its chairman J. J. Bloomfield, of the United States Public Health Service.

The subcommittee on plan and scope, which recommended the original program, is now giving consideration to the expansion of the work of the subcommittee on chromium plating to include all plating processes. It is also considering the advisability of extending the scope of the subcommittee on granite cutting to include all stone-cutting operations.

Because of the fact that the exhaust committee felt that sufficient technical data was not available in connection with many of the toxic dusts, gases, and fumes that would come before its various subcommittees for consideration, it was felt that the committee should have available the advice of a group of experts with national reputation in the field of occupational diseases. This committee, therefore, recommended to the safety code correlating committee of the American Standards Association that a national advisory committee on toxic dusts, gases, and fumes be appointed in order that an advisory group could be coordinated which could give advice to many American Standards Association sectional committees on questions of threshold limits of particular toxic dusts, gases, and fumes under consideration, and advice as to whether

or not sufficient data existed to permit setting up standards. This proposed advisory committee could also advise sectional committees on whether research concerning these matters was necessary and possibly assist in carrying on such research if necessary.

After reviewing the report of the exhaust committee on this matter, the safety code correlating committee recommended to the American Standards Association that such a national advisory committee be appointed. This recommendation was approved by the standards council of the American Standards Association, and work looking toward the organization of this advisory committee is now going forward.

The chairman of the committee on exhaust systems is John Roach, deputy commissioner of labor of the State of New Jersey, representing the International Association of Governmental Labor Officials on the committee. It is his desire that the attention of the membership of the I. A. I. A. B. C. and the I. A. G. L. O. be particularly called to this project in view of the fact that the progress of the work to date, since the reorganization of the sectional committee and the assumption of sponsorship by the I. A. I. A. B. C., shows that from a technical point of view this will probably be the most difficult safety code to develop of any that have been placed before the American Standards Association.

As soon as tentative drafts are prepared and distributed for criticisms and comment, Mr. Roach hopes that the members of these governmental groups will give these drafts very careful consideration and through their representatives on the committees send in any points of view which they may care to express. He feels that the work of this sectional committee will never be completed. Changes in processes, and the development of new processes will make necessary revisions of old sections and development of new sections in this code from time to time, and while it may seem that the work is moving very, very slowly, to those who are actively engaged in the work, it is believed that considerable progress has been made in moving this project forward to completion.

#### Projects for Which the I. A. I. A. B. C. Has Representation on Sectional Committees

##### *A9 (1935).—Building exits code.*

A new edition of this code was approved by the American Standards Association under date of March 12, 1935. The sectional committee is now preparing requirements for exits in hotels and apartment houses, and this new section will undoubtedly constitute a major revision of the code, which will be presented in the next edition. Copies of the revised code have been sent to all governmental agencies throughout the country.

##### *A10 (1934).—American standards for safety in the construction industry.*

The very poor conditions of operations in the construction industry during the past year has made it impossible for the sectional committee to do any work on this project. The chairman of the committee hopes that the revival of activity in this industry, which now seems to be under way, will make it possible for proper appropriations to be made for members of the sectional committee to travel and thus be able to attend committee meetings and carry this work forward.

##### *All (1930).—Code of lighting factories, mills, and other work places.*

No revisions are contemplated at this time.

##### *A11 (1932).—Safety code for floor and wall openings, railings, and toe boards.*

At the present time no plans have been made to revise this code.

##### *A14 (1935).—Safety code for the construction, care, and use of ladders.*

A revised code on this subject has been approved by the American Standards Association April 11, 1935, and copies have been forwarded to all governmental agencies. This new code represents a very extensive research on the subject, provides for new forms of ladder construction, and represents several years of very careful study and research work.

##### *A17 (1931).—Safety code for elevators, dumb-waiters, and escalators.*

At a recent meeting of the elevator code committee it was decided to revise this code to embody some recommendations of the subcommittee on research and interpretation, as well as to make a fundamental change in the form and

arrangement of the code which the committee felt would improve the code from an administrative point of view.

The handbook for elevator inspectors was completed by the subcommittee and approved by the sectional committee. However, the sectional committee felt that in view of the proposed changes in the main code that the handbook should not be released for use and publication inasmuch as references to the main code would be changed, and it was exceedingly desirable that the handbook dovetail exactly into the structure of the main code.

The recent death of the chairman of the subcommittee on research and interpretations, M. H. Christopherson, who represented the I. A. I. A. B. C. on this committee, seriously upsets the progress of the work. Mr. Christopherson had been a key member of this committee and had been largely responsible for the very high quality of work which the committee had performed. As soon as a new chairman can be selected, the sponsors for this project, the American Society for Mechanical Engineers, the American Institute of Architects, and the United States Department of Commerce, intend to press forward the work so that the handbook can be released at the earliest possible date.

*A22.—Safety code for walkway surfaces.*

The sectional committee for this code has been entirely inactive during the past year. However, studies are now being made at the United States Bureau of Standards to determine whether or not new recommendations can be made to the sectional committee which will permit the development of a new draft of this code.

*A39 (1933).—Safety code for window washing.*

No revisions are contemplated at this time.

*B9 (1933).—Safety code for mechanical refrigeration.*

A revision of this code is now under way. Subcommittees have been appointed to prepare new classifications for refrigerants, the development of a model ordinance for recommendation to municipalities desiring to incorporate regulations for mechanical refrigeration in their building requirements, and to prepare a completely revised draft of the code for the consideration of the sectional committee.

*B13 (1934).—Safety code for logging and sawmill machinery.*

No revision is contemplated at this time.

*B19.—Safety code for compressed air machinery.*

The sectional committee for this project has been completely reorganized by the sponsors, the American Society of Safety Engineers, engineering section of National Safety Council and the American Society of Mechanical Engineers, a considerable number of sectional committee meetings have been held, several drafts have been prepared of standards, and work of the sectional committee has now reached the final stages.

*B20.—Safety code for conveyors and conveying machinery.*

The sectional committee has not been active during the past year, as the sponsor has found it impossible to secure attendance at meetings.

*B24 (1927).—Safety code for forging and hot-metal stamping.*

No revision of this code is under contemplation at this time.

*B30.—Safety code for cranes, derricks, and hoists.*

Due to economic conditions, which have seriously involved a number of the members of this code committee, it has not been possible to complete the work of this project although it had progressed to an advanced stage.

*B31-1 (1935).—Codes for pressure piping.*

This code was approved by the American Standards Association under date of June 11, 1935. Copies have been sent to all governmental agencies for their use and information.

*C1 (1933).—Regulations for electric wiring and apparatus in relation to fire hazards.*

A new edition of the national electrical code has been approved by the sectional committee, by the sponsor, the National Fire Protection Association, and is now out to letter ballot of the standards council of the American Standards Association.

*C2 (1927).—National electrical safety code.*

No revision of this code is under consideration at the present time.

*K13 (1930).—Code for identification of gas-mask canisters.*

No revisions of this code are under consideration at this time.



*L1 (1929).—Textile safety code.*

No revisions of this code are under consideration at the present time.

*P1 (1925).—Safety code for paper and pulp mills.*

A revised draft of this code has been submitted to the American Standards Association for approval by the sponsor, the National Safety Council. As soon as this revision has been acted upon by the American Standards Association it will be printed and distributed.

*Z2 (1922) (Formerly X2).—Safety code for the protection of the head, eyes, and respiratory organs of industrial workers.*

This code continues under revision, the principal emphasis being placed on provisions for respirators. The chairman of the sectional committee has appointed a special subcommittee on this section to consider objections to previous drafts and to study the information which has been collected. Because of the very fundamental nature of this code, the various drafts prepared by the sectional committee should receive the very careful consideration of your association.

*Z4.—Safety code for industrial sanitation.*

Three standards have been prepared and approved by the American Standards Association in this field as follows:

*Safety code for industrial sanitation in manufacturing establishments—Z4.1 (1935).*

Specifications for drinking fountains—Z4.2 (1935).

Specifications for the sanitary privy—Z4.3 (1935).

Copies of these standards have been distributed to all governmental agencies.

Under the original plans laid down by the sectional committee, the committee will now proceed to develop standards in other fields agreed upon, such as mercantile establishments, labor camps, bakeries, and so forth.

*Z5.—Ventilation code.*

Continued progress in the work of the subcommittee on fundamentals of this project can be reported. The new developments in the field of air-conditioning, which have brought forth new ideas in the entire subject of ventilation, have retarded the progress of the work of this subcommittee to a considerable extent. The subcommittee has made one report to the sectional committee, part of which was approved and part of which was returned for further consideration. It is essential however, that this subcommittee complete all of its assignments before progress can be made in the development of specifications for the ventilation of buildings in the various classifications.

*Z8 (1924).—Safety code for laundry machinery and operations.*

No revision is under contemplation at this time.

*Z12.—Safety codes for the prevention of dust explosions.*

Revised standards in this field and a new standard have been developed by the committee and approved by the American Standards Association as follows:

Safety code for the installation of pulverized-fuel systems—Z12.1 (1935). (Revised.)

Safety code for the prevention of dust explosions in starch factories—Z12.2 (1935). (Revision.)

Safety code for the prevention of dust explosions in flour and feed mills—Z12.3 (1935). (Revision.)

Safety code for the prevention of dust explosions in terminal grain elevators—Z12.4 (1935). (Revision.)

Safety code for the prevention of dust explosions in wood-working plants—Z12.5 (1935). (New standard.)

These standards have not as yet been printed, therefore none have been distributed to governmental agencies, but will be as soon as copies are received from the printer.

*Z13.—Safety code for amusement parks.*

Due to conditions within the industry, this sectional committee has been entirely inactive during the past year. Steps have been taken recently, however, toward reorganizing the personnel of the safety committee of the National Association of Amusement Parks, Beaches, and Pools, one of the sponsors for this code. This safety committee has been responsible for the preparation of the drafts now before the sectional committee. The sponsors expect to see that the work on this project is carried forward during the coming winter months.

Mr. K<sup>LAW</sup> (Delaware). The legislative committee is not prepared to render its final report at this time, the reason being that this is the first year that we have had as many as nine members on the committee, the membership extending from Utah to Maine. We have not had an opportunity to get together and formulate our recommendations to the convention. The first opportunity for a meeting of the committee was last evening, when four members of the nine were present. We discussed primarily plans that we would follow, and we feel it advisable to ask the convention's indulgence until some later day in the week in order that we might be prepared and able to present a report that would be the true deliberation of the members of the committee rather than a haphazard and hastily gotten up report that would not mean much to the association, nor would it mean that we had given proper consideration to the problems.

The main thing which we hope to give our attention to is to recommend a uniform provision covering occupational diseases that is in accordance with the suggestions made, and we hope that by Wednesday we shall be able to present a report to this convention that will be acceptable and will receive your consideration.

Mr. W<sup>ALTER</sup> (Pennsylvania). The committee on rehabilitation felt it was an appropriate time to review the practices that have developed in relation to the rehabilitation programs, so for that reason we have made a little study for the purpose of offering suggestions for improving these. As a result, the committee will submit a report involving certain suggestions having to do with the reporting of cases, payments of compensation when the rehabilitation factor is involved, problems relating to schedules in one-arm cases, and so on.

Problems such as these relate to the medical care and hospitalization of cases, especially the matter of continued treatment. All these suggestions are contained in a paper that I have prepared for Thursday morning, so I will not go into details at this time.

Mr. D<sup>ORSETT</sup>. Charles H. Weeks, chairman of the committee on electrical safety code, is with the Department of Labor of New Jersey.

#### REPORT OF ELECTRICAL SAFETY CODE COMMITTEE

By CHARLES H. WEEKS, *Chairman*

Your electrical safety code committee has had before it this past year its regular duty of keeping in touch with all important movements in various national and State organizations relative to electrical safety matters insofar as these movements come to the attention of members of this committee. Several such movements have been brought to our attention. Two of our committee members have sent in copies of interesting and instructive reports on which they have been engaged in their respective jurisdictions, and these will help give direction to our future work. One of these is an elaborate and comprehensive report submitted by Keogh covering 3 years of electrical accident experience in New York State, broken down into classes of electrical equipment concerned in these accidents, showing the severity and total compensation costs involved, also showing whether electrical workers or other persons were involved. The

other report, submitted by Mr. Wise, was a Wisconsin chapter I. A. E. I. bulletin containing, among other matters, some short case histories of typical electrical fatalities, both to electrical workers and to others.

This committee has kept fairly well in touch with developments affecting the national electrical code, since it is increasingly evident that this code must be the basis of all our factory electrical safety standards, unless this association undertakes the very large job of preparing a wholly new safety code, which would involve keeping it up to date. Our members appear to believe that the national electrical code, supplemented by sets of requirements found necessary and practicable for factory conditions generally, and for special factory conditions where these prevail, will give the electrical safety for which your committee is working.

Among the specific matters with which this committee is now keeping closely in touch the following are brought to your attention at this time for your approval and for any instructions you may wish to give.

1. We are keeping in touch with the work of the special committee on sales control of the International Association of Electrical Inspectors and hope to be able to endorse the recommendations of that committee for legislation on this subject. This is a type of social legislation under which none but safe standard electrical materials may be sold, thus preventing the distribution and installation of materials and equipment likely to cause injuries and fires, and incidentally preventing the "chiseling" in quality which other types of social legislation, also, are aiming to help prevent.

2. We are keeping in touch with the work of the special committee of the electrical committee of the National Fire Protection Association, headed by Dr. M. G. Lloyd, of the Bureau of Standards, which is now engaged in the editorial revision of the national electric code, and which is holding one of its meetings in Asheville this very week. We hope to be able to endorse the recommendations of this committee when completed. Some of the proposals placed before this editorial committee have been for the removal of mandatory specific rules from the national electrical code, and, of course, such a plan of action would make the code useless as the basis for our electrical safety requirements in factories, which we desire that the code continue to be.

3. We are keeping in touch with the current objections being raised to the approval by the American Standards Association of the 1935 edition of the national electrical code. The water works and sanitary organizations have entered protests to the American Standards Association and to the electrical committee against this 1935 edition on the ground that their valid objections to recognition were improperly overridden. We are endeavoring to secure additional facts on this controversy for consideration by our committee so that we may take our position on the side of safety.

4. We are arranging during the coming year to receive copies of the many valuable reports and papers of the International Association of Electrical Inspectors, so that important suggestions for code changes or for social legislation, arising out of the experience of these active electrical inspectors, may be bulletined to our I. A. I. A. B. C. members as regular information service by your committee.

5. We are planning during the coming year to prepare a series of supplements to the national electrical code, probably in the form of departmental orders; one will cover electrical installations generally and will supplement the code by calling for certain greater precautions in buildings or parts of buildings where many persons are regularly employed or congregated. The others will cover special locations in buildings where mechanical conditions, atmospheric conditions, or special conditions of any kind call for greater

precautions than the national electrical code provides as a minimum standard for all kinds of buildings.

The keynote of our committee work is the intention to cooperate with all organizations to assure that the electrical legislation which governs the safety of our electrical wiring shall be good social legislation, whether it is prepared by private organizations such as the electrical committee or by public organizations such as this one. We are aware of the fact that with all the precautions we shall find it practicable to introduce in our part of this social legislative program, there will remain a residue of hazard which will contribute to the cost of workmen's compensation insurance, but we hope to make the electrical contribution to this cost small. We know that employers generally would prefer to pay for good electrical installations rather than for compensation for electrical injuries.

Your committee requests your expression of approval of its work and program, and your suggestions for additional undertakings.

Mr. DORSETT. We will now have the report of the committee of statistics and costs by its chairman, Sidney W. Wilcox, chief statistician, Bureau of Labor Statistics, United States Department of Labor.

#### REPORT OF COMMITTEE ON STATISTICS AND COSTS

By SIDNEY W. WILCOX, *Chairman*

The committee on statistics has conducted its work by correspondence, because the calling of a meeting during the year was not feasible. The committee members, by means of letter ballot, have indicated their adherence to this report in its preliminary outline form.

I. The committee recommends for adoption certain subjects for investigation, listed below, and recommends the implementing of research on these subjects, not only by staff work on the part of State and Federal agencies, but also by entering into cooperative arrangements with graduate departments of universities and with such organizations as the National Council on Compensation Insurance, the Casualty Actuarial Society of America, the Personnel Research Federation, and other organizations. The committee is glad to learn that the United States Bureau of Labor Statistics intends to appoint a man trained in research who will give his whole time to accident-statistics problems.

The research subjects, which the committee recommends for the endorsement of the association, are as follows:

1. The reports of the sectional committee of the American Standards Association on definitions and rates and on the causes of accidents, with particular reference to securing agreement on uniform methods of reporting. (See Item IV.)

2. Other questions concerning uniformity of definitions and procedure.

3. Technique and program for securing statistics on the causes of accidents.

4. Relative benefits under the various laws.

5. The cost of various provisions of the compensation laws.

6. American remarriage table. The mention of this topic implies that the committee is to have jurisdiction over this question, which of course ties in with the work already done by Roeber and Marshall of the Casualty Actuarial Society.

7. The computation of frequency and severity rates and an appraisal of the relative importance of the findings of these rates as compared with other

lines of effort, such as those suggested in this list. The distinction between severity proper and the effect of liberal benefits and administration.

8. The extent to which industrial accident statistics should have to do with highway statistics in view of the hazards of fleet drivers and other industrial workers.

9. The interpretation of State and Federal accident statistics in the interest of accident prevention and of sound administration.

10. Technical problems encountered in the actual operation of a State accident statistics unit.

11. Mortality of permanent disability cases.

12. Statistics of occupational diseases.

13. Statistics of safety work: i. e., having to do with safety activities rather than with accidents themselves.

14. Judicial statistics in the field of workmen's compensation having to do with workmen's compensation hearings and court cases.

II. The chairman has gathered and tabulated information from the various States concerning the conditions of their accident-statistics units and problems confronting those units. The table will be circulated among the States for correction, and the final version published.

III. It is recommended that the membership of the statistics committee be enlarged to include a representative of at least one of the following accident statistics agencies in the field: The United States Employees' Compensation Commission, the Bureau of Mines, the Bureau of Navigation and Steamboat Inspection, the Bureau of Air Commerce, the Interstate Commerce Commission, the Bureau of Yards and Docks of the Navy Department, the Bureau of the Public Health Service, the Board of Engineers for Rivers and Harbors of the War Department, the Federal Emergency Relief Administration, the Public Works Administration, the Tennessee Valley Authority, the Women's Bureau and the Children's Bureau of the United States Department of Labor.

IV. The International Association of Industrial Accident Boards and Commissions is one of three sponsors of the study being made by the American Standards Association concerning the following subjects, which are being handled by a sectional committee under the chairmanship of Dr. Leonard W. Hatch.

*Definitions and rates* being given attention by a subcommittee of the sectional committee with Doctor Hatch as chairman of the subcommittee.

*Causes of accidents*, with H. W. Heinrich as chairman of the subcommittee.

The other two sponsors are the National Safety Council and the National Council of Compensation Insurance.

The committee recommends that the association give attention to the two revisions that are recommended by a special conference committee in part 1 of its proposed method of recording and compiling accident statistics, as follows:

*3.5.—Time charge for temporary disability.*—The total number of calendar days of disability, excluding the day on which the injury occurred and the day on which the employee returned, or was able to *return to work*, shall be charged for each temporary disability.

*R6.*—No matter at what time of day the employee is injured, if at the beginning of the next calendar day he is unable to perform his ordinary duties or some other duties in a regularly established job; i. e., one not set up only to prevent the case from being counted as a disabling injury, the injury shall be counted as a disabling injury.

The committee has been in active correspondence on these points, and will continue its discussion at a luncheon meeting today and at other meetings if necessary. It is greatly to be desired that a decision on section 3.5 and rule 6 may be reached by this association before this convention closes. This association was largely responsible for the initiation of the project to formulate

procedure. Your statistics committee requests permission to submit a further report on the unsettled points.

The two subcommittees have produced very competent and valuable reports, but the members of the sectional committee of the American Standards Association have not been able to agree on certain technical points, especially section 3.5 and rule 6. As a result, there has been a delay of several years in the actual promulgation of the standards. Your committee is planning to give aggressive consideration to the points at issue between the sessions of this association and hopes to make definite recommendation in time for action by the association before these meetings close. It is important that this be done. This association was largely responsible for the initiation of the project to formulate procedure. Your committee requests permission to make a further report on this matter in the next few days.

**Mr. DORSETT.** We will now have a report of the medical committee by **W. C. Horton**, medical director, North Carolina Industrial Commission.

#### REPORT OF THE MEDICAL COMMITTEE

By **W. C. HORTON**

Your committee, in conjunction with the officers of the association, has arranged for this meeting a medical program that is most timely as it anticipates problems that will arise in the administration of the occupational disease provisions of workmen's compensation laws. We feel much indebted to the outstanding men who are to be present and discuss papers dealing with this subject, and we would urge a full attendance at both of the sessions on Tuesday.

We should not be understood as advocating the administration of compensation laws by medical men; nevertheless, we feel that in many of the States one of the greatest needs of the administration board and commissions is the availability of competent medical advice in the consideration of the many medical questions—some of them quite perplexing—arising in connection with compensation claims. Medical testimony adduced at hearings is all too often conflicting. Without criticism of those who offer such conflicting testimony, we suggest that there is a responsibility resting upon administrators before deciding such serious questions to seek and to procure the advice of impartial and competent medical men in sifting the evidence. We recommend that thought be directed towards legislation that will sanction a degree of reliance upon such impartial opinions, thereby relieving commissioners, in part at least, of their now too great responsibility in this respect.

It is a matter of common knowledge that compensation-insurance rates are to a large extent based upon Nation-wide loss experience, and that the second largest factor in that experience is the cost of medical treatment. Unfortunately, the several compensation laws are not uniform in their provisions relative to the cost of medical care. In some of the States the industrial commissions are required to approve all medical bills before payment may be lawfully accepted, and the status of the claimant and local conditions must be considered in judging of the reasonableness of a bill. In those States there has naturally developed a study and supervision not permissible in other States. That is not as it should be. Any phase of compensation affecting all the States requires, in justice to all, a procedure that takes into account its universal application. We are not advocating the standardization of fees among the several States, but a study of underwriting principles to the end that States maintaining a proper ratio between the various elements of loss experience may enjoy the full benefits of their achievement—and may not be

either penalized by the unfavorable experience of others or required to yield their gains to others who do not merit them.

The consideration this convention will give to the subject of occupational diseases prompts us to suggest that the convention might appoint a committee to make studies with a view to evolving a uniform method of rating the content of dust, fumes, and gases in plants where there are such exposures, including both engineering and medical methods of control. Such studies might result in the recognition of standards for classifying plants with respect to hazardous and nonhazardous exposures, thereby assisting accident boards and commissions in their work of preventing occupational diseases as well as being helpful to the underwriting agencies in the matter of adjusting insurance rates on an equitable basis.

We urge this association to sponsor an educational and legislative program that will make possible in all the States a standard and rational method for ascertaining the percentage of loss of use in permanent injury cases. This is a matter worthy of the careful consideration of all doctors and administrators having anything to do with compensation laws. It is the opinion of this committee that in rating a permanent disability future efficiency as a workman and expectancy of life as well as the percentage of functional loss of use might well be considered. In all the States permanent injuries affect the future welfare of individuals, and individuals are the same wherever they are. This, we believe, suggests the need for the standardization we recommend.

Mr. DORSETT, Chairman Nickels, of Virginia, will read Mr. Stanley's report for the committee on forms.

#### REPORT OF THE COMMITTEE ON FORMS

By W. H. NICKELS, Jr.

The work of the committee has been particularly difficult in that each compensation jurisdiction has a different law, and it is necessary for the standard forms to be adapted to the particular requirements of each State and yet be acceptable to the several laws. Marked progress has been made, the forms heretofore approved having been found generally acceptable although not adopted in all of the States. Two States, South Carolina and Florida, have passed compensation laws since the last session of this body. The committee is glad to report that both of these States adopted the standard forms approved by this association. It is hoped that while some of these particular forms may not be exactly what the administrative authorities think they should be in wording, the authorities will consider whether or not they can be used in the routine procedure rather than to say that they are not entirely in accordance with their idea. The forms adopted have been prepared with a view to meeting the necessities of the law under each jurisdiction, and we believe that they will answer this purpose.

At a meeting of the committee in New York on August 8 a number of recommendations as to uniform forms were made and upon some of these a further study was recommended. The only suggested change in the forms already approved is in form no. 5—final compensation settlement receipt. These are to be inserted after the fourth line: "of which amount \$—— was paid for permanent disability", and to amend the fifth line to read: "In final settlement and satisfaction of all claims for compensation *due under compensation agreement or award* subject to review." And to insert after the seventh line of the

present set-up: "Temporary disability ceased on the \_\_\_\_\_ day of \_\_\_\_\_", and to insert after the last line of the present set-up: "Medical expense \$\_\_\_\_\_. Funeral expense \$\_\_\_\_\_." I had this form, which is no. 20 in our department, multigraphed and brought enough along to give each person a copy. The suggested changes are printed in capital letters.

Your committee recommends that these changes be adopted and further recommends that no other change be made in any of the standard forms adopted, and that no further forms be adopted until there is an opportunity for further study.

In this connection the standard form for reporting medical expense was suggested. Standardized death form, standardized forms for eye injuries, for posting notices by employers subject to the law and notices of rejection, X-ray reemployment examination report, occupational disease, etc., were also suggested. It was the thought of the committee that some of the suggested forms might be adaptable to the several compensation jurisdictions, but that further study of the laws would be required before a form that would be suitable for the particular purpose could be evolved.

The chairman of the committee was, on account of transportation difficulties, unable to attend the joint meeting of the committee on forms of the I. A. I. A. B. C. and that of the claims executive committee and has been unable on account of other duties to follow all of the recommendations made at that meeting. He feels that in view of the fact that he has impressed upon representatives of the Florida and South Carolina commissions the importance of the standard forms, and that these forms have been adopted in both of these States, which recently enacted compensation legislation, that he has at least in part discharged some of the duties of chairmanship of this committee. It is hoped that the new committee when named will proceed as expeditiously as possible in following the recommendations made by the joint committee at its meeting.

The following jurisdictions have adopted all of the standard forms or all of these applicable under the particular laws:

California, Connecticut, Florida, Georgia, Indiana, Kentucky, Louisiana, Maryland, Massachusetts, New Hampshire, New Mexico, South Carolina, South Dakota, Tennessee, Texas, Virginia, and the United States Employees' Compensation Commission.

In some of these States slight amendments to the forms were necessary because of the law of the particular State.

In the following States the standard forms have been approved in part:

Iowa, Kansas, Missouri, Nebraska, New York, North Carolina, Rhode Island, Utah, and Vermont.

There are 29 compensation jurisdictions in the United States that are active members of this association. Of these, 16 members have not seen fit to adopt any of the forms. It is recommended that the incoming committee communicate with these members with a view of attempting to get their cooperation in the adoption of such forms that apply under their laws.

It will be seen that 25 of the compensation jurisdictions, 9 of which are not members of this association, have adopted all or part of the recommended forms. Of the 48 States, all but Mississippi and Arkansas have active compensation legislation.

Mr. DORSETT. We will now have a report of the Secretary-Treasurer, Mr. Verne A. Zimmer, Director, Division of Labor Standards, United States Department of Labor.



## REPORT OF THE SECRETARY-TREASURER

By VERNE A. ZIMMER

Precedent in this organization appears to confine the secretary's report to a factual recital of vital statistics; in other words, the status of membership and the state of the exchequer. This makes for brevity and is therefore a commendable practice. I shall not depart from it to any material extent.

I should like to report that 21 States and 5 Canadian Provinces joined the fold last year, but it would not be even approximately true. It is entirely true, however, that in the past 12 months more effort has been exerted to extend our membership than in any previous period that I can recall. The spear point of this intensive campaign was none other than the dynamic president of this association. The immediate harvest was the entrance of two additional members, the States of Florida and South Carolina, both new in the field of workmen's compensation. As a deferred result, I am confident that several other States and Provinces will ultimately be listed in active membership.

There can be no question but that this association offers to any State a very tangible benefit and service in a most important administrative function, provided of course the participating representatives enter seriously into the discussion and deliberations on current workmen's compensation problems. There is practically no limit to the valuable material that any State can draw from this pool of experience found in this organization.

As of this date, our list of members is as follows:

*Active Members*

United States Division of Labor Standards.  
 United States Bureau of Labor Statistics.  
 United States Employees' Compensation Commission.  
 Arizona Industrial Commission.  
 California Department of Industrial Relations.  
 Connecticut Board of Compensation Commissioners.  
 Florida Industrial Commission.  
 Georgia Department of Industrial Relations.  
 Idaho Industrial Accident Board.  
 Illinois Industrial Commission.  
 Indiana Industrial Board.  
 Iowa Workmen's Compensation Service.  
 Kansas Commission of Labor and Industry.  
 Maine Industrial Accident Commission.  
 Maryland State Industrial Accident Commission.  
 Massachusetts Department of Industrial Accidents.  
 Minnesota Industrial Commission.  
 Missouri Workmen's Compensation Commission.  
 Nevada Industrial Commission.  
 New Jersey Department of Labor.  
 New York Department of Labor.  
 North Carolina Industrial Commission.  
 North Dakota Workmen's Compensation Bureau.  
 Ohio Industrial Commission.  
 Oregon State Industrial Accident Commission.  
 Pennsylvania Department of Labor and Industry.  
 South Carolina Industrial Commission.  
 Utah Industrial Commission and The State Insurance Fund.  
 Virginia Department of Workmen's Compensation, Industrial Commission.  
 Washington Department of Labor and Industries.  
 West Virginia Workmen's Compensation Department.  
 Wisconsin Industrial Commission.  
 Wyoming Workmen's Compensation Department.  
 Department of Labor of Canada.

New Brunswick Workmen's Compensation Board.  
 Nova Scotia Workmen's Compensation Board.  
 Ontario Workmen's Compensation Board.

*Associate Members*

American Mutual Liability Insurance Company, Boston, Mass.  
 W. F. Ames, Bethlehem Steel Co., Bethlehem, Pa.  
 R. M. Crater, American Telephone & Telegraph Company., New York City, N. Y.  
 Walter F. Dodd, 33 North LaSalle Street, Chicago, Ill.  
 E. I. duPont de Nemours & Company, Inc., Wilmington, Del.  
 Arthur Gaboury, general manager, Quebec Association for Prevention of Industrial Accidents, Montreal, Canada.  
 Industrial Accident Prevention Association, Toronto, Canada.  
 Leifur Magnusson, American representative, International Labor Organization, Washington, D. C.  
 National Council on Compensation Insurance, New York, N. Y.  
 Pennsylvania Self-Insurers' Association, Harrisburg, Pa.  
 Puerto Rico Industrial Commission.  
 William Schobinger, London Guarantee & Accident Company, New York City, N. Y.

I am glad to report that all active members except four and all but two associate members have paid their annual dues.

I have prepared for distribution a complete financial statement which speaks for itself. It will be seen that financially the organization is in a sound condition with perhaps the heaviest balance on hand it has had in some years. At the suggestion of the president, I communicated with a number of nonmember States to feel out the possibility of reducing membership dues as an inducement for securing larger membership. I have turned the replies over to the president, who will doubtless discuss this subject before the conference adjourns.

I reluctantly refer to the printing of proceedings of last year's conference. We barely got these books off the press in time for this meeting. This is perhaps a long-time record in a long series of long delays. I believe, however, we have now made arrangements that will insure publication of these proceedings at least within 3 months after the sessions. All of us appreciate that effectiveness of publication depends largely upon timely distribution.

In closing, may I make one further suggestion—the direct value of our conference is dependent upon the type and nature of our programs. It is a difficult matter for the president, the secretary, and the executive committee to formulate a program that will anticipate the lively interest of members from so many different States; and particularly so, when the members are somewhat backward in venturing suggestions. In the long history of this organization it is to be expected that practically all pertinent subjects have been discussed at times to some extent, but there is never any last word in a difficult subject like workmen's compensation administration, and there are always phases of the old topics which constantly develop new interests and new angles.

It would be very helpful if all of our members in the future would consider it a duty to submit to the president or the secretary not only their ideas as to subjects to be covered but their opinions as to the best method of presentation. For instance, should we, in the future, stress the round-table discussion method, or should we continue our past practice of presenting papers? Could we perhaps try out the good old-fashioned question-box plan and have the chair assign presented questions for impromptu answers or discussions?

I make these suggestions only to prompt your thought upon means for getting the most out of these annual conferences; out of your own experience

you will be able to offer more and better ideas. As President Dorsett has said, no State can rightfully assert that it has attained perfection in this difficult administrative field, and there is no State so backward in workmen's compensation procedure that it cannot contribute something of value to the common fund of experience. I may add that no administrator in a single lifetime can acquire all there is to be known of this complex subject. And, speaking now as something of a veteran in this field, I think we must guard against the easily acquired feeling that we have nothing more to learn about workmen's compensation. When we have reached that state of mind, we are, I believe, merely admitting an end of real usefulness as administrators. I am sure that not many of us will readily make such admission.

[Meeting adjourned.]

## October 1—Morning Session

Chairman, O. F. McShane, Commissioner, Industrial Commission of Utah

[President Dorsett, in the absence of Niels H. Debel, designated Mr. McShane of Utah as chairman of the session.]

Mr. McSHANE. Before starting our program, may I say that a mistake was made in the report of the committee on forms with reference to the United States Employees' Compensation Commission. The committee on forms moves to amend the report of yesterday, made by Mr. Nickels, by striking out the last paragraph and by adding the United States Employees' Compensation Commission to the list of jurisdictions that have adopted the standard form in part. I move the adoption of this amendment.

[There being no objection, the amendment to the report was adopted.]

I wish to say a word regarding the importance of this session. I regard it as the most important session of one of the most important conventions that it has been my privilege to attend. I think its importance is based upon the fact that at last, after 22 years, the question of occupational disease coverage is to the fore. The atmosphere is charged with the thought of giving complete and universal coverage to those who sustain injuries in industry, be their injuries due to accident or occupation, and I trust that good will come out of this meeting.

The first item on our program this morning is a discussion of workmen's compensation in relation to occupational diseases by Thomas N. Bartlett, manager of the claim division of the Maryland Casualty Co.

### Workmen's Compensation Legislation in Relation to Occupational Diseases

By THOMAS N. BARTLETT

If we quickly turn back the pages of history 13 centuries, to the year 636, we shall find that there ruled over ancient Lombardy a king by the name of Rothari. The Lombards had invaded Italy, and at that time the laws of the Lombards were mainly in the memories of unlettered judges, who only correctly remembered those laws which were frequently administered. It is hard to conceive of this condition in a country which had a scientific system of jurisprudence, a development from the laws of the Twelve Tables to the Digest of Justinian. Consequently, on November 22, 643, King Rothari, who was the first great legislator of his people, at the age of 38, codified the laws of Lombardy in 388 chapters. In these chapters are to be found at least the origin for the basic principles of compensation which I think history records.

King Rothari's edict applied to personal injuries received in brawls, fights, and feuds. Incorporated was a list of injuries with the amount of money to be paid for each, covering death, dismemberment, loss of sight, and other specific injuries. In some cases extra amounts were to be paid for disability. All injured parties would not receive the same amount for the same injury. A freeman received the greatest amount. Then the slave and household servant and several other classifications received lesser amounts. There was a provision for medical benefits. Payments were made in the monetary unit of the solidi which equals 12 shillings, or about \$2.92. At that time, however, a shilling was worth 5 to 10 times as much as it is now. The highest benefit, which was for death, was 60 solidi and equaled an amount from \$1,200 to \$1,500.

The motive was twofold. First, to fine the offender and thus create revenue for the King's court. All of the fine was not paid to the injured, but only part, the balance to go to the King. For death, one-half of the fine was paid to the King. Second, Rothari denounced the practice of adhering to the barbaric custom of resorting to a fight, or duel, or single combat to settle disputes. He fostered the wisdom of promoting compromises.

Even though the payments may be considered conservative, yet they may represent a fair comparison of values as between the seventh and twentieth centuries.

Who can venture an opinion as to the effect and influence, even though slow, on the generations which came and went through the centuries? Spanning these centuries to the middle of the nineteenth, we then see the influence, no doubt, of Rudolph von Jhering, a graduate of law at Heidelberg, professor of law at several universities, and one of the most renowned jurists of his time. Several of Von Jhering's claims to distinction, according to authoritative commentators, are based upon the fact that he universalized the Roman law. He was the founder of modern legal realism. He stood out in his treatment of the nature of legal rights by which he established the juristic basis for a social reconstruction of legal institutions. The outstanding work of Von Jhering, *Struggle for Law*, attracted wide attention. It has been published and republished, the last German edition being the eighteenth, and has been translated into 30 different languages.

Just a short while before Von Jhering's death, in 1892, Germany in 1884, by an act of its Reichstag, passed what has been accredited to Germany in modern times, the first compensation law.

But the first law, which provided for compensation "regardless of fault", while though perhaps somewhat crude in the light of present experience, was that of Switzerland in 1877. This law imposed upon employers responsibility for diseases which specifically and conclusively grew out of certain occupations where poisons or harmful substances were used. Later on in the Swiss law poisons and harmful substances were required to be listed. This list has been gradually enlarged and still is in use at the present time.

It was not until within the past 10 years that Germany extended the Accident Insurance Law, making compensable as if accidents had occurred, several specified miners' diseases and diseases caused by lead and a number of other substances, or by radio-active rays.

The Federal council was previously empowered to provide compensation for such occupational diseases as they should specify, but the council was not apparently convinced of the wisdom of exercising that power. It was not exercised until the minister of labor, who succeeded the Federal council, issued the order to make compensable the diseases above mentioned, in 1925.

In the meantime, Great Britain revised its original workmen's compensation law of 1897, and in 1906 was the first country to follow the example of Switzerland in providing compensation for certain diseases named by schedule.

Following Great Britain's example, practically all other European countries extended their compensation laws to grant coverage for diseases by a schedule and generally had special provisions differing from those applicable to accidents. Then later followed, comparatively recently, the compensation laws of South America, with their schedules and special provisions.

As we all know, the first laws to stand the test of constitutionality in our country were those enacted in 1911.

Insurance companies and employers from the very beginning of this new era, and upon the passage of the first workmen's compensation laws, cooperated wholeheartedly, and are now cooperating in the development of workmen's compensation legislation. In the light of all experience available, it was soon recognized in the beginning, and still is recognized, that the very best means should be taken to make the most thorough and accurate study possible of all the problems involved in this general plan of compensation. Every conscientious effort has been and is being made to emphasize its merits and to cure its weaknesses both as to accidents and occupational diseases, so that a sound, reasonable, and workable compensation system be perfected in our country.

In 1917 in compiling a report as to the general situation in our country regarding compensation legislation, I quoted from Von Jhering's *Struggle for Law* as to a statement of his to the effect that the abolition of slavery, of serfdom, the freedom of landed property, of industry, or conscience, had all been won by the most violent struggles, which had lasted for centuries, and that not infrequently streams of blood and rights trampled under foot marked the way which the law had traveled, for the law was a Saturn devouring his own children.

In that report I also made the statement that there was no doubt but that another very important feature of insurance was very close upon us, which I thought would ultimately be woven into the woof and warp of our industrial development, and that was compensation for diseases. I indicate that in our country within the space of 6 or 7 years one of the oldest branches of the law had been uprooted and disregarded in practically two-thirds of the United States by the substitution of workmen's compensation laws for the old common law of master and servant, which gave rise naturally to some confusion, discontent, and resistance. But I felt confident that the worker, individually and collectively, through labor organizations and physicians, attorneys, courts, boards, commissions, employers, and insurance companies, who were all affected, would unquestionably meet on some common ground and by the establishment of standards of justice, each rendering to the other his just

due, would rise from the then present state of bewilderment to prove the truth of Von Jhering's statement as its exception.

Parenthetically, I may say in passing, even now after 18 years of more experience in the development of compensation legislation, I still adhere to my opinion as expressed in 1917.

So, when nearly a quarter of a century ago the first compensation laws in our country were passed, the basic principles underlying their passage and the enactment of subsequent similar laws were well known. These basic principles were then, and no doubt still are, considered sound and logical.

The reasons in which these basic principles were conceived and subsequently gave birth to this new system of compensating employees for accidental injuries, arising out of and in the course of employment, are also familiar to us all. Both the principles and reasons have been practically universally accepted, no matter whether the motive was one or all, of an economic, a humanitarian, or a utilitarian expediency.

Recently, by reason of the rapid growth and development of our complex industrial life, with its attendant acute hazards more pronounced than ever before, intricate machinery, power-driven tools and appliances, and intensified chemical processes, we are now faced with just as serious and acute conditions in the dealing with occupational diseases contracted in employment as we were when common-law remedies for injury by accident were considered unsound, too expensive for industry, and unfair to the worker.

The acute conditions we are facing today are increasing in gravity all the time. They are uncertain and extremely complicated. The greatest contributing factor to this unwholesome condition has unquestionably been precipitated by diseases caused by breathing inorganic dust, particularly the diseases of silicosis and asbestosis. These are not new diseases, but they have been alarmingly on the increase, because of exposure to and the use of modern machinery and processes in everyday course of work.

I shall not attempt to minutely describe the various details outlined to us by the engineering and medical authorities as to the ramifications of many of the occupational diseases, and especially silicosis and asbestosis, which are by far the most dangerous of all, nor as to the latter to dwell upon the size of the particles of inorganic dust which causes the damage; the number of those particles which can be safely breathed in a given amount of air; dust counts and methods for counting; the percentage content of silica; the stages, if they may be so called, in the development of silicosis and asbestosis; the period of time in which inhalation of this inorganic dust produces a fibrotic condition of the lungs characteristic of silicosis or asbestosis. Suffice it to say that we must all recognize this fact: That the fibrotic condition of the lungs known as silicosis and asbestosis does not develop suddenly. It is not immediately disabling, as in the case when an accident occurs. These diseases creep on as thieves in the night, slowly and stealthily. Once the disease manifests itself, development is sure and certain over a long period of time. In the light of research thus far made, there is grave doubt that it can be arrested, and certainly thus far there is no known cure for silicosis.

Consider the chaos brought about by court decisions. Just a few of these may be mentioned to prove the confliction and confusion facing us:

**Occupational Diseases Not Covered Under the Usual Workmen's Compensation Policies. Policies Cover Accidents Only**

- (a) *Belleville Enameling and Stamping Co. v. U. S. Casualty Co.*, 266 Ill. App. 586 (Ill.).
- (b) *U. S. Radium Corporation v. Globe Indemnity Co. et al.*, 178 Atl. 271 (N. J.).

**Occupational Diseases Sometimes Held to be Accidents. Negligence Considered Under Workmen's Compensation Laws in Determining Whether or Not a Disability Was Caused by Accident or Disease**

- (a) *Victory Sparkler and Specialty Co. v. Francks*, 128 Atl. 635 (Md.).
- (b) *Gunter v. Sharp and Dohme*, 151 Atl. 134 (Md.).
- (c) *Cambridge Mfg. Co. v. Johnson*, 153 Atl. 283 (Md.).
- (d) *Sinsko v. Weiskittel & Sons*, 163 Atl. 851 (Md.).
- (e) *McNeely v. Carolina Asbestos Co.*, 174 S. E. 509 (N. C.).
- (f) *Cannella v. Gulf Refining Co.*, 164 Southern, 406 (La.).
- (g) *Simmons v. Etowah Monument Co.*, 157 SE. 260 (Ga.).
- (h) *Tex. Employers' Insurance Assn. v. Barron*, 21 SW. (2d) 78 (Tex.).
- (i) *Turner v. Va. Fireworks Co.*, 141 SE. 142 (Va.).

**Construction of Statutes Relating to Occupational Diseases**

- (a) *Burns v. Ind. Comm.*, 191 NE. 325 (Ill.).
- (b) *North End Foundry Co. v. Ind. Comm.*, 258 NW. 439 (Wis.).

**Liability of Successive Employers and Carriers**

- (a) *Blanchard v. Ind. Comm.*, 228 Pac. 358 (Cal.).
- (b) *Plecity v. McLaughlin Hat Co.*, 164 Atl. 707 (Conn.).
- (c) *DeFilippo's case*, 188 NE. 245 (Mass.).
- (d) *Tawleather Corp. v. Great American Indemnity Co.*, 156 Atl. 840 (N. J.).

**Is the Compensation Law the Exclusive Remedy?**

- (a) *Gordon v. Travelers Insurance Co.*, 287 SW. 911 (Tex.).
- (b) *Webb v. Tubize-Ohatillon Corp.*, 165 SE. 775 (Ga.).
- (c) *Barrencotto v. Cooker Saw Co.*, 194 NE. 61 (N. Y.).
- (d) *Adams v. Acme White Lead Works*, 182 Mich. 157 (Mich.).
- (e) *Jones v. Rinehard & Dennis Co.*, 168 SE. 483 (W. Va.).
- (f) *Mabley & Carew Co. v. Lee*, 193 NE. 745 (Ohio).

**At Common Law, There Was No Liability for Occupational Diseases**

- (a) *Innes or Grant v. G. & G. Kynoch*, 1919 Appeal Cases, 765, 773 (England, House of Lords).
- (b) *Adams v. Acme White Lead Works*, 182 Mich. 157 (Mich.).
- (c) *Gordon v. Travelers Ins. Co.*, 287 SW. 911 (Tex.).
- (d) *Ewers v. Buckeye Clay Pot Co.*, 163 NE. 577 (Ohio).
- (e) *Sylvester v. The Buda Co.*, App. Court, 1st Dist., July 5, 1935 (Ill.).

**Constitutionality of Occupational Disease Statutes**

- (a) *Parks v. Libbey, Owens, Ford Glass Co.*, 195 NE. 616 (Ill.).
- (b) *Boshuizen v. Thompson & Taylor Co.*, 195 NE. 625 (Ill.).
- (c) *Boll v. Condie Bray Glass & Paint Co.*, 11 SW. (2d) 48 (Mo.).
- (d) *Vallat v. Radium Dial Co.*
- (e) *Navarro v. Illinois Steel Co.*



### Various Other Phases Involved in Occupational Disease Cases

- (a) *Hendrickson v. Continental Fibre Co.*, 136 Atl. 375 (Del.).
- (b) *Dille v. Plainview Coal Co.*, 250 NW. 607 (Iowa).
- (c) *Jerner v. Imperial Furniture Co.*, 166 NW. 943 (Mich.).
- (d) *Wolfe v. Mallinckrodt Chemical Works*, 81 SW. (2d) 323 (Mo.).

Then witness the wholesale discharge of employees even though not disabled. Think of the avalanche of common-law actions, spurious and real, for claims involving millions of dollars and, in some instances, resulting in bankruptcy to employers. Study the abnormal and adverse conditions confronting industry, the workers, State authorities, commissioners, and not only those directly affected or interested but the public generally.

It is only natural in this dilemma that a plan for compensation for occupational disease should be looked to as the solution to the present difficulties, just as such a plan was deemed to be the solution to the problems existing even centuries ago, and certainly in modern times, when the redress was common-law actions for accidentals injuries sustained in employment. As to many occupational diseases, there has been, by court construction or amendments from time to time of our compensation laws, coverage granted for occupational diseases, but these diseases were then not nearly so acute nor were silicosis and asbestosis considered. The compensation laws, however, were originally intended as substitutes for the old common law and the old employers' liability laws which applied only to accidents. But the principle underlying compensation laws was that industry owes compensation for all injuries for which it could truly be held responsible without considering the question of negligence.

Therefore, if the basic principles underlying the passage of compensation laws to apply in cases of accidents are sound, the solution for the occupational disease problem may be found in appropriate legislation. A worker is just as much disabled if he contracts an occupational disease which is peculiar to, characteristic of, and arises out of the work to be done in connection with specific exposures and directly related thereto, as if he sustained a broken leg as the result of an accident arising out of and in the course of his employment.

The true rule is, and should be, that industry should compensate for those diseases only, which in individual cases can be medically traced to an origin in a "trade risk." That is to say, a risk not of ordinary life, but specific to and created by some process or occupation in industry. The British and all European authorities go a bit further, holding that occupational diseases for which compensation is to be paid cannot practically be defined in general terms, but must be specified and based on prevailing medical opinion; that further, the terms and conditions governing the payment of compensation for such diseases can thus only be equitably made when those terms and conditions are varied to fit the needs according to the peculiarities of the different diseases.

Just as all accidents to the worker are not compensable regardless of how, when, where, or under what circumstances they happen, the test being, did the accident arise out of and in the course of employment? Just so in occupational disease cases, compensation should not be paid if the disease cannot be medically traced to an

origin in a "trade risk", so as to prevent communicable diseases—common colds, eye strain, tuberculosis, and many other diseases common to ordinary life, regardless of occupation, being swept in as occupational diseases.

A worker who falls from a ladder at his home while hanging a picture and breaks his leg is not entitled to compensation under the compensation act. Neither should a worker be entitled to compensation for a disease which is not strictly occupational, and which disease cannot be medically traced to an origin in a "trade risk."

If legislation providing a plan for compensation in occupational diseases is the solution, should we not endeavor to have the best legislation to carry out the bona fide intent and purpose?

Are we to find, however, the best solution by hastily amending our present workmen's compensation laws to include occupational diseases without any special provisions as to such diseases? I think not. There is such a wide divergence between an accident and a disease as to cause and effect, time and place, immediate knowledge and result, that from every point of view it warrants the sound and logical belief that special provisions are needed to regulate and provide a plan for compensation for occupational diseases, and more especially as to silicosis and asbestosis.

The provisions of the law governing compensation for occupational diseases should differ radically from those governing compensation for occupational accidents and need to be clearly distinguished. This can be accomplished in two ways: First, by having the provisions relating to occupational diseases enacted as another part (to wit: 2, 3, or 4 as the case may be) of the workmen's compensation law. Secondly, by adding a special chapter or a new and entirely separate article. By either method the provisions should be correlated in such a way as to avoid duplication from the administrative and other similar requirements which could apply to occupational diseases as well as to accidents.

This year 44 legislatures convened. More than 75 bills bearing on occupational diseases were introduced. At this writing new laws and amendments have been enacted in the following States:

New York.—All-inclusive plan, effective September 1, 1935.

North Carolina.—Schedule plan with special provisions for silicosis and asbestosis, effective March 22, 1935.

West Virginia.—Silicosis only, effective March 8, 1935.

Nebraska.—Occupational diseases peculiar to the smelting or metal refining industries, effective May 25, 1935.

By legislative enactments commissions are to be appointed to study the occupational-disease problem in the following States: California, Maryland, New Hampshire, and Michigan.

North Carolina is the first State that has passed an occupational-disease law which provides for a definite schedule, amending the compensation law with provisions dealing specifically with and applying to silicosis and asbestosis. This has been done by an entirely new section. It justifies the belief that it has been the result of an intelligent and careful study of the problem by all parties interested, and has evidenced a sincere effort to substantially relieve a most tense and quickly developed acute situation.

North Carolina in blazing the trail has contributed much constructively to the solution of the occupational-disease legislative problem as a whole, as well as demonstrating a thorough study and understanding of its local problems.

Either in a special part, chapter, or article for occupational diseases, or as appropriate amendments to an existing compensation law, there are many provisions which must be considered:

Accidents are sudden events that can be fixed definitely as to time and are generally clear cut as to causes and consequences. Occupational diseases, however, are slowly occurring injuries. They are not sudden in their effect. They are not clear cut as to causes and consequences, and extremely difficult to trace, because other influences disassociated with the alleged occupational disease have led to disablement or death as an intervening cause. Therefore, occupational diseases by reason of their marked difference from an injury by accident must of necessity be treated differently. They require special provisions for fulfilling the bona fide purpose and intent in making them compensable. Some of these special provisions are of major importance, others collateral, but just as essential.

The collateral provisions, although highly important, are so numerous that time will not permit a detailed discussion of them. I shall just mention some.

There should be definitions covering; disablement, disability, silicosis, asbestosis, medical board, and similar terms.

Then there should also be special provisions as to: Filing of disability and death claims; aggravation of disease or other injuries—proration; relationship and dependency; employer responsible for compensation; average wages; medical benefits (especially as to silicosis and asbestosis, because of no known cure and to avoid temptation to overtreat, or to experiment, or to gain knowledge from a research point of view); removal of employees from dusty occupations; compensation, when removed from occupation during period of obtaining other employment, if not obtainable with present employer; misrepresentation of the employee as to previous disability or exposure; subrogation; period of exposure (at least 2 years in State unless employee employed by same employer during the whole time within the limitation period of exposure provided under the law); disablement or death within a fixed time after last injurious exposure; commission's or board's approval of employee engaging in employments exposing him to hazards of dust (if approval not obtained, compensation not payable); waivers; limited compensation; records; postmortems; awards; appeals.

Some major factors to be considered are as follows:

#### SCHEDULE PLAN RATHER THAN ALL-INCLUSIVE PLAN

Most of the compensation laws in European countries have schedules. Some of our States having occupational-disease coverage adopted the schedule method. At present most of the schedules do not name silicosis and asbestosis, the two diseases which have recently precipitated most of the trouble. Schedules can be enlarged from time to time when new occupational diseases become known.

An all-inclusive plan may give rise to granting coverage for diseases which may not be occupational as, for example, pneumonia,

bronchitis, asthma, kidney disease, heart disease, arthritis, sciatica, high blood pressure, cancer, and various other illnesses common to the human race generally.

When an act gives blanket coverage by the use of the phrase "any and all occupational diseases", or similar language, it is vague, indefinite, and uncertain. Commissions, boards, and referees are required to make their own definitions and rulings without any legislative guidance. This leads to much litigation for court interpretation. There immediately arises doubts and uncertainties, which foster unnecessary and expensive litigation and places an added financial burden upon employers, employees, boards, commissions, courts, carriers, and all interested parties.

Any all-inclusive plan, or even a schedule plan not carefully developed, is apt to give and result in such a blanket coverage of diseases generally as to make such an act tantamount to health, old age, and life insurance. This would certainly be far beyond not only the intention, but also beyond the ability of industry to provide for its workmen, indiscriminately, at the high level of benefits provided for under our compensation laws. It is often pointed out that in our country we have some compensation laws with "all-inclusive coverage" which have not been so broadly construed. This is not entirely accurate, especially in view of the experience in Connecticut, Wisconsin, California, Massachusetts, and the acute conditions in Illinois and Missouri. Employers and their insurers not knowing what they are liable for, the conditions of their liability, its limits, and probable cost, has resulted in many risks not being able to get insurance and the carriers reluctant to provide protection because of the peril of ruinous liability.

I need but mention several specific examples, among others, as to the seriousness of the problem generally. In Massachusetts the statutory law has practically covered all injuries indefinitely arising out of and in the course of employment since its enactment in 1912. It took much expensive litigation before it was held that silicosis was covered with the resultant difficulties.

Witness also the confusion in Illinois where one section of the occupational disease law was held to be unconstitutional because of uncertainty and indefiniteness. Under this section the court pointed out that it was a matter of speculation as to whom the law applied and the occupational diseases which were covered by it.

There has recently been handed down a decision in the case of *Sylvester v. The Buda Company*, in Illinois, holding that at common law there can be no recovery for occupational diseases. This case has been appealed to the supreme court and will be argued in the fall.

If the Supreme Court of Illinois ultimately holds that silicosis is not caused by poisonous chemical minerals or other substances, then it does not come within the construction of section 2 of the occupational disease law in the Burns' case. An employee contracting silicosis may not recover either compensation or damages. He cannot recover damages under section 1 of the occupational disease act because that has been held to be unconstitutional.

When a schedule plan is adopted, the workers, employers, and insurance carriers know definitely the specific diseases covered, and they also know definitely what they are entitled to and obligated for.

This unquestionably means a better approach to financial certainty for industry and insurability. It avoids many uncertainties, waste, and disappointment for the workers because of speculative litigation when indefinite and general terms are used.

Dust diseases are in a special class. They are of exceedingly slow contraction. They are exceptionally difficult to diagnose and are so often complicated with other diseases. The more serious of the dust diseases are progressive, incurable, tending inevitably though slowly to become worse. They call for special treatment from every point of view, underwriting, engineering, medical, claim, legal, and statistical. It is imperative, therefore, that in any compensation plan for occupational diseases there should be special sections and provisions to apply to dust diseases.

How much better it is to deal with compensation for injuries other than accidents by legislation which is specific and clear as to meaning, stating exactly what it means and what diseases are covered, and upon what terms and conditions.

#### ACCRUED LIABILITY

Another serious problem to solve in any legislative plan is, when shall the act take effect, particularly as to silicosis and asbestosis, or any other disease which is contracted over a long period of time? When an accident occurs it is sudden. It can be definitely established as to time and place. If a compensation act becomes effective on July 1, no compensation is payable for an accident happening before July 1, even if the disability resulting from such accident occurs after July 1.

As to occupational diseases, and especially those of the progressive type and slow contraction, by reason of the indefiniteness as to time, place, and disability, the problem is so complicated that it is difficult to avoid legislation which will not be retroactive in its effect.

Insurance is protection against future hazards. Industry cannot afford to pay for losses which have accrued, and neither can the insurance carriers afford to give coverage for past liabilities accrued before the law became effective. It is practically actuarially impossible to determine and fix rates which will afford protection to an employer for his liability under the law for diseases contracted years before the law became effective, even if the intent is to give protection for the accrued liability, regardless of the legal aspect as to the retroactive feature.

No reserves have been created to meet the extra burden. No premiums have been collected prior to the passage of the act with which to pay losses subsequent thereto. Reserves cannot be created and premiums cannot be charged or collected at a time when there was no coverage or liability.

As to dusty occupations, one approach to the solution may be a provision in the law for a waiting period of 2 or 3 years before it becomes effective as to benefits. In this way reserves can be provided for the new obligations. All provisions as to preventive and administrative measures can be made effective soon after passage. The various State departments—labor, hygiene, health, etc.—will then have an opportunity during the waiting period as to benefits to correct all hazardous conditions injurious to the health of the worker.

Even though this may not meet the full requirements, yet it would unquestionably be better than to precipitate the coverage at once with no preparation.

### COSTS

I think we are all agreed that any legislation must be such as will accomplish the objectives, and yet prescribe certain limitations that will make it possible for insurance to be obtained and the protection desired given. This must be accomplished in a way that will not prove too crushing a blow to industry. We know that compensation for silicosis and asbestosis will greatly increase costs. In some occupations and classifications involving silicosis it has been demonstrated that cost for compensation has amounted to about nine times the cost for compensation for accidents. If we add to that the cost of an all-inclusive plan there is grave danger that the cost will be prohibitive.

It is almost impossible to estimate rates. There are no statistics available to guide. Everyone should be awake to the gravity of the problem in initiating a plan of compensation for occupational diseases, and particularly the progressive type of gradual contraction. All should avoid the delusion that the problem can be solved by insurance, or otherwise, except at a very heavy cost.

A hypothetical case was worked out based on the benefits of a pending silicosis bill in New York, which was vetoed by the Governor. A foundry, 20 employees, 4 of whom were found to have the first stages of silicosis, 2 were found to be disabled (second stage), and 14 were in sound health. It was estimated that there should be a per capita charge of \$500, making the group charge \$10,000 as a deposit premium. For the 4 employees impaired, \$1,625 per employee, group charge, \$6,500; for the 2 disabled employees (second stage), per capita charge, \$8,750, group charge, \$17,500; for the 14 in sound health, per capita charge \$154, group charge \$2,156; a total premium of \$26,156. However, the premium on a similar risk, which was found to have no impaired or disabled employees, would be reduced from a deposit premium of \$10,000 to a final premium of \$3,080. It is to be noted, too, that the per capita charge would not likely be required after the first year of insurance; that is, after the accrued liability for the past exposure had been liquidated.

This estimate was based on the limited benefits under the silicosis bill and which applied only to silicosis and were not estimated under the present New York act with its full benefits for all occupational diseases, including silicosis, as for accidents. The above estimate was for silicosis alone. It does not take into account any increase in cost over the above estimate, where occupational diseases plus silicosis are to be added under the present provisions of the New York Compensation Act, as amended, making it all-inclusive as to all occupational diseases.

At this writing two plans developed by the Compensation Insurance Rating Board of New York were submitted to the Insurance Department of New York. It was proposed that the employer and the insurance carrier by agreement be allowed to select either one of these plans that would be most suitable to the peculiar conditions of the risk.

The first plan provided for a fixed rate per \$100 pay roll. In addition, the employer was required to pay \$300 in every case resulting in death or causing disability for 4 months or longer. Several rates from the schedule are: Ore milling, \$10; silica grinding, \$20; foundries, \$8; stone cutting or polishing, \$18; asbestos goods, \$12; cleaning buildings, \$17; rock excavation, \$9.

Plan 2 contemplated a rate per \$100 pay roll. In addition, a deposit on a per capita basis from which deposit all silicosis losses were to be paid. As silicosis is progressive, based on the assumption that the time of progression covers a period of 7 years, then at the time the law became effective six-sevenths of the liability for losses in the first year had already accrued.

Silicosis losses were to be paid from this fund, which each employer had deposited. The payments the first year were to the extent of six-sevenths from the fund and one-seventh by the carrier. The payments the second year from the fund five-sevenths, by the carrier two-sevenths, and so on. The deposit fund was to be treated as a revolving fund, to be replenished when impaired or exhausted. If such fund exceeded the amount of the claim charges, then the surplus returns to the policyholder.

Both of these plans are the result of an effort to deal just as effectively as possible in the light of present experience with the accrued liability.

There were questions as to whether the deposit constituted a fund in the nature of a premium, or whether or not it was to be regarded as a trust; whether it would be subject to an expense loading; whether or not the fund would be taxable. These are just a few high lights.

At a conference called by the superintendent of insurance, New York, to consider these two rating plans, industry pointed out that while it appreciated everything was being done to meet the situation fairly, yet if the proposed rates were approved there would be no risks to cover. That as to the per capita deposit, industries could not afford after 4 or 5 years of depression to make any such deposit and that the cost would force many industries to cease operations.

#### SPECIAL MEDICAL BOARDS

The act should provide for a medical board which would have authority lodged in it to determine all controverted medical questions. (In view of recent developments, it would unquestionably be desirable to give such a board authority to determine all purely medical questions in claims for injuries resulting from accidents as well as occupational diseases.)

Needless to say such a board should be composed of the very best in the medical profession. The board should be appointed by the Governor, by and with the advice and consent of the Senate. The physicians on such a board should devote their entire time to the board's work. The powers of this board as a fact-finding body on medical questions should be final and equal with the powers of the industrial commission or accident board in that respect.

Findings should be final and conclusive, unless upon review and further evidence presented the finding or conclusion was proven to be manifestly erroneous, or unreasonable, or due to fraud, undue influence, inadvertence, or mistake of law or fact. This board

should have supervision of all examinations, if impossible to make all examinations and to determine the nature and extent of disability.

#### SPECIAL PROVISIONS AS TO SILICOSIS AND ASBESTOSIS

The medical board provided for in the act should have such authority as to be able to get in detail the previous medical history and exposures of workers that are so highly essential to the proper diagnosis of silicosis and asbestosis.

If the medical board cannot make complete physical examinations of claimants, or the members are not specialists, or the medical board is not equipped to make the necessary examinations, then under supervision of the medical board cases should be referred to competent specialists. All necessary X-rays should be taken and such other examinations or tests made that, in the opinion of the medical board, are deemed advisable.

Autopsies should be provided for in all fatal cases.

One difficulty in properly diagnosing silicosis and asbestosis is the fact that these diseases are frequently complicated with tuberculosis. This makes it imperative that not only should the proper X-rays be made but in arriving at any diagnosis there should be the complete medical history and exposures of the worker from the time when he began work and covering all employers.

#### PREEMPLOYMENT EXAMINATIONS, INTERIM EXAMINATIONS AND EXAMINATIONS WHEN LEAVING EMPLOYMENT IN DUSTY OCCUPATIONS ONLY

Any plan should provide for preemployment examinations, interim examinations, and examinations when leaving the employment. Such examinations, however, should apply only to dusty occupations.

Examinations should be made only for the purpose of protecting workers from the hazards of disease. Where workers are found to be susceptible to diseases to which they may be exposed, or manifest symptoms thereof, such workers should not engage in employment subject to that exposure. Such workers should be removed to another occupation wherever in the judgment of the medical board such action is deemed advisable.

No plan for physical examinations should be general in its scope. It should not apply to all workers regardless of exposure. This would savor of maintaining selective standards for all workers, which is not the intent. In other words, the sole purpose of all examinations, as provided for in the law under the jurisdiction of the medical board, should be only for protection and prevention.

#### EXCLUSIVE REMEDY

When compensation laws were first passed, it seemed to be generally accepted that the workmen's compensation benefits would be the exclusive remedy; that the old damage suit would be gone forever. We need not spend much time debating whether or not the intention has been carried out. I think we will all agree that it has not. Much of the confusion arising today has been brought about by a revival or reincarnation of some of the old abuses.



Where compensation is provided for all recognized occupational diseases, it should be distinctly made the exclusive remedy for all "injuries by disease arising out of the employment." It is not equitable to hold employers liable, regardless of fault, for all known occupational diseases, and yet leave such employers subject to exploitation in common law suits for damages for other diseases unknown, or speculatively, by ingenious and far-fetched theories attributed to the employment, with the resultant needless and expensive litigation. Furthermore, the legislature, in the light of prevailing medical authorities, should determine specifically what diseases industry should be liable for, and not leave that determination to be arrived at by emotional legislation, for courts and juries are often swayed by passion and prejudice.

### PREVENTION

The solution to the whole problem is to be found in prevention. The conditions brought about by the machine age are such that we must resort to the machine to cure the ills produced by machines. Remove the dust hazards and most all other hazards wane in seriousness.

There are two very important steps to be taken: One, to remove dust and other hazards from the work places. The other is to remove the worker from the exposure at the first indication of a manifestation of the disease, except perhaps in cases of elderly or highly skilled workers for whom a forced change of occupation might create more disastrous results than the exposure to the dust hazard.

There should be by proper legislation a strict and forceful regulation from an industrial, hygienic, and sanitary standpoint. There should be special provisions in the law, under the proper department, to study occupational diseases, to develop ways and means of control and prevention, so that such a body could recommend to the legislature for enactment such specific measures as would be adequate.

Regulations for the prevention of occupational diseases should emanate from a competent bureau of industrial hygiene. For only by the most thorough investigations on the part of medical boards, bureaus of hygiene, or State health departments can there be evolved the proper preventive measures and regulations.

Almost 2 years ago, when it became apparent that the subject of occupational diseases was increasing in gravity, the Association of Casualty and Surety Executives appointed an advisory committee of five on occupational diseases to study the entire problem. Last year this committee compiled tentative suggestions for provisions to be considered in formulating any plan of compensation for occupational diseases. In developing these suggestions the committee realized that they required such flexibility and elasticity as to fit the needs in each particular State, but that they could be used as a basis to be amended and adjusted to fit the problems in specific jurisdictions. This committee is still at work, and anyone desiring further information can communicate with the Association of Casualty and Surety Executives, 1 Park Avenue, New York City.

All statutes which impose on industry indefinite duties for protection of health of the employee, and obsolete provisions in the light of present-day developments, should be repealed. In order to com-

ply with constitutional requirements all preventive measures enacted by the legislature should be specific, definite, and certain. Legislative powers should not in any plan be improperly and illegally delegated.

No plan for compensation for occupational diseases will ever be adequate or fulfill its ultimate purpose if prevention does not stand at the head of the list as the most important phase of this subject. The best solution is not to be found in providing payments for occupational diseases, and certainly never is to be found in the present method of common-law actions for damages.

If through engineering departments, in cooperation with the State departments of health, labor departments, and other constituted legal bodies, there can be evolved proper preventive measures and regulations which, with the special provisions for compensation in occupational disease cases, are enacted as a part of direct and specific legislation, then many of the evils with which we are presently confronted will be remedied and there will not be such a serious recurrence of those evils. Unstinted cooperative efforts by legislatures, industry, labor, all State authorities, insurance carriers, yes, even the public generally, will be a most important step toward the best solution of all problems involved.

Mr. McSHANE. On behalf of those present, I wish to thank you for your illuminating discussion, Mr. Bartlett.

Inasmuch as one-half of the morning's time has elapsed and there are several further discussions on this program, it would seem inadvisable to enter into any discussion or ask questions at this time.

The next subject on the program is The Cost of Workmen's Compensation for Industrial Diseases, to be discussed by Voyta Wrabetz, Industrial Commissioner of Wisconsin.

## The Cost of Workmen's Compensation for Industrial Diseases

By VOYTA WRABETZ

The underlying theory of workmen's compensation acts is that industry shall pay for the damage it causes. This, of course, should not apply only to accidental injuries but to all injuries which are caused by accident or by occupational exposure.

From the standpoint of responsibility as to cause, there really is more justification for requiring the payment of compensation in the case of occupational diseases than there is in the case of accidental injuries. More than 75 percent of all accidents are humanly preventable, or rather more than three out of four accidents are due to someone's carelessness or neglect. Our experience shows that about 87 percent of accidents are caused by the human element. A large part of these accidents are attributable to either the injured employee or to his coemployee. In these cases we do not question the industries' obligation to provide compensation benefits and to provide safety devices or to maintain safe practices in production.

Contrasted to accidental injuries we have diseases of occupation in the development of which the employee usually cannot contribute anything to its prevention, nor does he acquire it from carelessness. The disease comes upon him insidiously; he frequently scoffs at the idea that he is becoming diseased; he does not realize

what is happening to him until it is too late. In this development the employee usually contributes nothing as a causative factor. He is working in a place of employment provided by his employer. He works with materials given to him by his employer. He does not know the ingredients of the materials with which he works and to which he is exposed. These diseases come to him as a result of doing his employer's work in the place and manner prescribed.

In the case of accidents, the employee may be justly chargeable with at least a part of the cause, but in the case of disease, the entire causative factor belongs to the employer, and therefore all the more reason that this employer should provide compensation benefits. The full burden for providing employment free from disease hazards must rest with industry, and in the absence of such protection industry should meet its compensation burden.

The Wisconsin Legislature included diseases of occupation under its Workmen's Compensation Act in 1919. The enactment provided benefits for all diseases having their cause in employment. Merely having a disease should not spell liability. Under the workmen's compensation law benefits follow only when the probable cause lies in the work the employee has done.

Disease may or may not be caused by employment. Many persons develop tuberculosis without demonstrable cause, but when tuberculosis is caused by a particular employment then liability attaches. The same is true of pneumonia, hernia, and even to a greater degree the most dreaded of all—silicosis. Under the Wisconsin law compensation benefits are provided for every type of disability that arises out of the worker's occupation, whether such disability is typical or not.

There is no hard and fast line of demarcation between injuries sustained through accidents and other types of injuries including diseases of occupations. Many so-called occupational diseases may well be disabilities due to accidents, such as carbon-monoxide or benzol poisoning or exposures leading to a dermatitis. This fact was recognized from the beginning, and accordingly our statistical tabulations and studies include all diseases of occupations. There has been no change in statistical assignment of injuries in the various classifications and therefore the figures are comparable from year to year. Our statistics department has a complete record of all nonaccident cases since 1920. In that year nonaccident cases were 1.14 percent of all compensation cases. This ratio increased gradually until 1928. The following year a rather abrupt increase occurred, the percentage increasing that time to a level of approximately 3 percent. It must be borne in mind that these figures include all nonaccident cases. If the tabulations were limited to the typical occupational diseases, the total costs and percentages would be much smaller.

In the 15-year period, 1920-34, the Industrial Commission of Wisconsin closed its records in 285,742 workmen's compensation claims. Of these 5,489 were classified as nonaccidental. While indemnity and medical costs in all cases amounted to \$63,201,928, a total of \$1,615,846 is accounted for by diseases of occupation and nonaccidental types of injuries. For the year 1934, the total cost of nonaccidental injuries was \$188,649. Of such costs, \$81,932, or about 43 percent, was strictly attributable to silicosis.

During the depression many lines of industry reduced their total employment from 20 to 50 percent, and workmen's compensation losses due to accidents decreased in about the same proportion. On the other hand, diseases of occupations have continued to appear in comparatively larger numbers with relatively high compensation costs. This is due to the fact that diseases, particularly silicosis, have continued to develop even though the exposure has ended, leading to ultimate disability. Under this situation, statistical comparison of costs of diseases of occupation with total compensation will, of course, show what might be a decided increase in the former. The statistical record does not indicate that cost due to diseases of occupation is alarming. Theoretically, employers and insurance companies may become frightened, though actual experience offers sufficient proof to the contrary. In administration this problem is not mysterious and does not present questions any more difficult than in the case of accidents.

I do not place any importance in the statistical comparison between accidental injuries that follow more or less immediately after occurrence of accidents and diseases of occupation, which are usually contracted over a long period of continued exposure. Such comparison adds but little to the subject.

Just as in accident statistics, the study of costs in diseases of occupation provide the stimulant and point the way to ultimate illumination. The high cost of silicosis, especially in our iron mines, foundries, and granite works, has provided a tremendous urge in the campaign of prevention. In several of our large foundries more money is being currently spent to eliminate the silica hazard than would be spent for compensation. In one plant particularly, the dust count has been reduced below the point of dangerous concentration. In this plant, while more cases of silicosis may appear because of past exposure, certainly no new cases will develop. The same is being accomplished in our iron mines. We feel that the future will show practically the entire elimination of at least that disease.

Industry is investing large sums of money in accident-prevention work with the result that the accident ratio is being continually reduced. In the field of diseases of occupation employers may be assured of even more positive results. In Wisconsin we are over the peak of costs in this regard. What has been done in the past 2 or 3 years in the way of dust elimination at the source is already showing a marked decrease in the number of cases, and this decrease will continue to the vanishing point.

To bring this about much needs to be done. This is particularly true in the use of materials which have toxic effects. A notable contribution in this field is being made by the Du Pont Co. in the establishment of its Haskell Laboratory of Industrial Toxicology to study the toxicity and potential dangers of its chemical products both in their manufacture and their subsequent use, with the purpose of reducing the health hazards.

I believe that compensation laws should provide unlimited coverage for all types of diseases and disabilities caused by employment, because there is a more direct and positive responsibility on the part of industry in such cases, and more particularly because the high

costs of such cases will more surely bring about their elimination, a result most devoutly to be desired.

Mr. McSHANE. The next subject for discussion is *Methods of Administration in Occupational Diseases*, by Verne A. Zimmer, Director of the Division of Labor Standards, United States Department of Labor.

### **Methods of Administration in Occupational Diseases**

By VERNE A. ZIMMER

I am going to depart from the practice of reading a paper and discuss this subject informally, and endeavor to bring out some discussion from the floor.

It seems to me that in Wisconsin we have the most complete answer to a problem that has excited more attention in the last 2 or 3 years than any other single thing in the compensation world, namely, the cost of an occupational-disease program.

Mr. Bartlett gave what I thought was a very complete and, for an insurance man, I might say, a rather comprehensive résumé of occupational-disease costs. I detected, however, the usual overconcern of insurance companies that the industrial boards and commissions would run wild in administering occupational-disease laws and place awards on headaches, toothaches, stomach aches, and other things not connected with the industry. Later I would like to have Mr. Wrabetz inform us as to the particular measures or procedure they have developed for the adjudication of occupational-disease cases.

I have long been of the opinion, not shared by all of you, I know, that every workmen's compensation board should be equipped with a competent and impartial medical staff. I think the size is not so important as the quality. I believe that all States should adopt the policy of prorating the cost of administration upon the industry. Many of them do it now and, incidentally, I am glad to see that the new States enacting compensation legislation adopted that policy. Unless we had a system of assessing the administrative cost to the carriers in New York, we would not be able to have a medical staff. That probably is true in many of the other States and I don't think we will ever get very far in administering occupational-disease legislation until we do have these facilities in every State. As Mr. Bartlett has just said, approximately 12 States and, I believe, all of the Canadian Provinces now cover occupational diseases under their workmen's compensation laws. There are at least four legislative committees now studying occupational diseases and they will report to the legislatures as to how the States may approach the field of occupational diseases. I am sorry that those committees have not sent their representatives here, because I think that out of these discussions there will come just as good information for these people as is available anywhere.

I would like to hear an expression of opinion from some of the other States that have a long history of exclusive occupational-disease coverage either by construction or by actual provision as to their methods of administering occupational disease claims. I would also like to get an expression of opinion from those States that

have a direct settlement plan and have schedule coverage of diseases. Mr. Wrabetz, will you tell us briefly how occupational diseases are handled in Wisconsin?

Mr. WRABETZ. We handle diseases of occupation in the same manner as we do accidents. We require that reports be filed when there is no question about the diseases and their connection with the occupation which occurs in a very high percentage of cases. The matter comes to our office in a purely routine manner with the final report showing the disability, the compensation paid and always, of course, accompanied by a doctor's report, one on each disability. Whenever there is any question we have a hearing about the claim and it must be established, just as in the case of accidents, that the disability occurred out of the employment.

Mr. ZIMMER. How does the claimant do that?

Mr. WRABETZ. By filing an application. He appears before one of the commissioners with an allegation that he sustained lead poisoning. The first thing to be decided is the hazard of lead poisoning. He must prove two things; first, that he has lead poisoning; and second, that he was exposed to it at his place of employment, and that there was no other source of exposure. Take the case of pneumonia. We have had in our past 16 years of administration, probably two or three cases of lobular pneumonia. I recall one very clearly. A man was sent on an errand right in the midst of a blizzard. He was subjected to a terrific exposure, wet, cold, snow, and he was out for a matter of 5 or 6 hours. Immediately upon coming in he had a chill and in the normal time developed pneumonia. There was no question as to what caused it. As a matter of fact, the insurance company did not raise any objection to paying this claim.

Mr. ZIMMER. How can claimants prove the hazard if disputed by the carrier?

Mr. WRABETZ. The employer must give us the proof. For instance, if it involves exposure to chemicals, we require a definite report on the chemicals used.

Mr. ZIMMER. Take the case of lead poisoning: Suppose you have a claimant who alleges that he got lead poisoning from fumes in the air and the carrier asserts there is no such hazard in the plant. What do you do to get at the facts?

Mr. WRABETZ. That is a question of proof, and in difficult cases a man is usually represented by an attorney.

Mr. ZIMMER. But if neither claimant nor attorney can get the proof, how would you find the facts as to exposure? Do you have on your staff a medical examiner or chemist?

Mr. WRABETZ. No, but what we do in cases of that kind is to appoint an independent examiner. We appoint an independent physician who specializes in the particular phase at issue. We can make our own studies of the air conditions.

Mr. ZIMMER. By someone on your staff?

Mr. WRABETZ. Yes; by someone on our staff.

Mr. ZIMMER. I was particularly interested in your statement, because last fall in New York City I attended a meeting of industrial

men, sponsored by an association of insurance carriers. The program at that meeting was pointed toward the promotion in States of what Mr. Bartlett referred to as divisions of industrial hygiene. But this association of carriers definitely and very vigorously asserted that such divisions should be in the public health service of the State and not in the department of labor.

Of course it would appear that if there is a problem of a hazard to be solved and the elimination of that hazard, it does not make much difference what agency does it. However, I feel very strongly that a State industrial-hygiene unit should be definitely lodged in the labor department. It has been argued that in most States the departments of labor did not have the confidence of the general public and employers to the extent that the public health service had. Perhaps that is true, perhaps it is not. My observation is that if the labor department does not rate very high in a State, the health department does not rate much higher.

One of our New England States, as you perhaps know, a year or so ago passed an act providing for an industrial-hygiene unit and lodged it in the public health service with the definite proviso that none of its findings would ever be available for use in personal liability compensation cases, or, as I understand it, in public liability cases. Judging from our experience in New York, I think that was rather unfair. In 8 out of 10 of the cases that come up on the calendar the question arises as to where such conditions exist. The referee says to the claimant, "You will have to produce some proof that you were exposed to that hazard." The claimant answers, "How am I going to get it? They won't let my doctor or lawyer in the plant, so how can I prove it?"

You know how that happens. It emphasizes to me the importance of having the services of a compensation board technically trained and of medical men to go out and ascertain what the hazard is, if the decision is to be just to the claimant.

I do not think there is much to the argument that employers would be afraid of the labor department's industrial hygiene sections carrying on studies in their plants. I do not want to boast about the industrial-hygiene section attached to the Department of Labor in New York. While in my opinion they have been doing a pretty good job, I have heard people on the outside say they do not. If they do not do a good job, it is not because they do not have entree to the plants because employers do not voluntarily solicit their help. Every day on the occupational-disease calendar the referee says, "I want the industrial hygiene man to go in that plant and bring back a report on conditions."

The insurance companies and employers take that move for granted. There is no suggestion that it is bad ethics. However, I do not think it is free from criticism.

May I get one more response from a State having occupational-disease coverage?

Mr. PARKS (Massachusetts). Massachusetts has been operating an occupational-disease law for 23 years next July 1. While we have difficulty sometimes deciding which insurance carrier is liable, we haven't had a great deal of difficulty. The first case that the Massachusetts Supreme Court decided is in 217 Massachusetts, a case 22 years old. It decided that lead poisoning in our State was an in-

jury within the meaning of the act and we have been adjudicating lead-poisoning cases and all other cases of occupational diseases ever since that time. I am somewhat surprised that we are asking questions as to just how it is done.

These cases are handled just the same as an accident case. The employee does not have a great deal of difficulty in suing. We have no difficulty in getting access to the workshops in our Commonwealth. They do not lock the doors on employees when trying to get some information. If they do, we do not go to the hygiene department or public health service, we send our own inspector down into that factory with the authority of the Commonwealth, and the doors are wide open to him and he brings back his report. Then we send our impartial doctor in there to make an investigation and to bring back his report. Many times in a controverted case the employee almost sits back and has the case pleaded for him. If he doesn't get it as easy as that, of course, we present the evidence in the regular way, showing what disease he is suffering from, what the exposure was when disability occurred, which insurance carrier was liable, and compensation is awarded.

The difficulty we are having now is in silicosis cases, and that trouble is to determine which insurer is liable. Just before I left home a case in point came up before the review board on which I was sitting. I think the exposure for one insurer was 15 years but the worker had not become disabled yet. Another insurer went on the list, and after 28 hours' exposure, the man was laid up and disabled. According to the case which I have just mentioned, 217 Massachusetts, the present injury is covered by the language of our act. We have no schedule or specific act covering full liability, but in Johnson's case, where a man had contracted lead poisoning before the act went into effect, the supreme court held that while the man got his disease before the law went into effect, the added effects on top of what had been accruing over 20 years caused the disability and incidental personal injury, hence he was awarded compensation.

That is our difficulty, to decide which insurer is liable and how much must be charged against that insurer, in order to award compensation. It may be of some interest to you to know that the last legislature passed 11 other important amendments, one of them being this: We now set up a board of medical referees of three members, and occupational disease cases will be referred to that medical board after, I think, October 15 of this year. They will examine the employee and then make a diagnosis. That diagnosis will be final as to whether he is suffering from an occupational disease or not. That may be of some help to us, but we are adjudicating these cases of occupational diseases and have been for the past 22 years in the area we cover.

MR. McSHANE. I want to ask Mr. Parks if in determining liability for an occupational disease he has a great deal more difficulty than he has in determining liability for conditions arising out of an aggravation of preexisting conditions?

MR. PARKS. They are both difficult. I think it is a 50-50 proposition.

MR. WRABETZ. Did you define that silicosis case you mentioned?



Mr. PARKS. There is a division in the board as to whether that 28 hours' exposure is a material exposure. There is a feeling among some members that it was not sufficient to stick that particular insurer, that the other insurer of 15 years' exposure should pay the claim.

Mr. ZIMMER. Mr. Parks mentioned a medical board. I think none of us, not even the labor representatives, will seriously challenge the benefits of a medical board. However, I do not feel that the judicial function of the workmen's compensation board of a State should be delegated to medical boards, though their reports and findings are of great value in advising the compensation boards. I do not believe that medical boards should necessarily make the final decision on a fact that may well be controverted or challenged by equally eminent medical authority on behalf of the opposing side.

Mr. McSHANE. The next subject on the program is Methods of Medical Examination for the Rating of Permanent Disabilities, by Dr. George Mehler, Medical Department, New York Department of Labor.

### Methods of Medical Examination for the Rating of Permanent Disabilities

By Dr. GEORGE J. MEHLER

Physicians engaged or specializing in industrial accidents have not only an unusual opportunity for bringing to other physicians in the community a clearer understanding of how to estimate disabilities resulting from injuries arising out of or in the course of employment, but it is also the physician's interpretation of their observations of the injured's condition which represents the real authority upon which the compensation departments rely in making their findings.

The objective signs obtained in healthy members must be thoroughly understood and recognized in order to appreciate the variations caused by disease or trauma. If diseased, or injured, the pathological causes of the changes detected by the examiner must be considered. It must be borne in mind that the present law does not take vocation into consideration when estimating any permanent handicap resulting from an industrial accident; namely, a violin player or a watchmaker receives the same number of weeks for a permanent partial disability as a bricklayer or an unskilled laborer. Another point to emphasize is, that an award for a permanent loss of a member is not contingent upon whether there is a decrease in the injured's wages or not.

Permanent disability is divided into two classes—permanent total and permanent partial.

Permanent total disability consists of those cases where the injured is and will be completely disabled for the rest of his life. The loss of both hands, or both arms, or both feet, or both legs, or both eyes, or of any two thereof, complete paralysis, and insanity constitute permanent total disability. Such cases are not difficult to evaluate and consequently will not be considered in this paper.

Permanent partial disability means the permanent impairment or loss of a certain member of the body which is the end result following a temporary partial or temporary total disability.

Permanent partial disability may be the result of trauma to the bony system, articulations, or joints, muscles including the fascia, vascular system, nervous system, including organs of sense and the thoracic, abdominal, and pelvic visceral system. Experience and statistics show that the vast majority of cases of permanent partial disabilities are confined to the various members of the body. Being cognizant of the short time allowed me today, and considering the extremities of the body as the more important phase of the subject at hand, I will confine myself to their consideration.

The term "loss", from a compensation standpoint, means loss by amputation or loss of use caused by impaired mobility in a joint or joints, weakness on account of motor-nerve involvement, or loss of muscle substance.

The compensation law of the State of New York places the following values in terms of weeks upon the various body members, as follows:

Arm, 312 weeks	Second finger, 30 weeks
Leg, 288 weeks	Third finger, 25 weeks
Hand, 244 weeks	Fourth finger, 15 weeks
Foot, 205 weeks	Great toe, 38 weeks
Thumb, 75 weeks	Other toes, 16 weeks
First finger, 46 weeks	

Where there has been a complete amputation of an entire member, there is no controversy relative to the percentage loss; but in cases in which there has been an amputation, or where there is a loss of use of a part of one or more members, there frequently arises a difference of opinion regarding the final estimate.

Amputation of an upper extremity at or above the wrist constitutes a proportionate loss of the arm, and amputation at or above the ankle constitutes a proportionate loss of part of the leg. Where the amputation is distal, or through the carpal-metacarpal articulation, loss of the hand is considered; and where the amputation is through the tarsal-metatarsal articulation, loss of the foot is recommended.

You will note that the law states a proportionate loss, and consequently the translation into terms of permanent partial disability of an injured member where the amputation is located between two joints in a major member, or where there is a complete or partial ankylosis of a joint or joints, has led to no degree of accuracy, but frequently to a wide discrepancy of opinion. It is my conviction that the compensation law should be framed upon the experiences collected not only at the industrial commissions, but that outside medical men of good training and sound judgment should also be consulted; and, through conferences, the above named would arrive at definite decisions which could be embodied into proposed laws for presentation to the State legislature for approval. Let some specific amount be laid down for each and every condition resulting in a permanent loss or impairment; namely, the loss of the thumb and first finger, so much of a hand, the loss of the great and other toes so much, the loss of a leg between the ankle and knee so much, ankylosis of a wrist or ankle, and so forth, so much.

The expression that the loss of use is the same as loss by amputation must not be too liberally construed, for a partial ankylosis of

a joint or joints is not the same as a partial amputation of the respective member, nor is a complete ankylosis of a wrist and all the fingers equivalent to a proportionate loss of part of the arm. However, where there is found a complete or total loss of use of one or more phalanges of a digit, then the loss is the same as by amputation of one or more phalanges. For instance, in a given case of ankylosis of the distal joint (phalanx) of a digit, the estimated loss is placed at 50 percent loss of the digit—the same as by amputation—and where two phalangeal joints show complete loss of mobility in the same digit the condition is equivalent to the loss of the entire digit as by amputation.

Amputation or loss of use of two or more digits of the same member or one or more phalanges of two or more digits of the same member, is proportioned to the loss of use of the respective hand or foot. The law in the State of New York has recently been amended to read that the partial loss of use of one or more phalanges or two or more digits shall constitute a proportionate loss of either a hand or foot. This new amendment applies to industrial injuries sustained on or after July 1, 1935.

On examining a case the exact location of the amputation must be carefully noted, and it must be stated whether it is through the joint or through what part of the bone, either entering or approximating the joint. If amputated otherwise than through a joint, inspection, palpation, and manipulation of the stump are not sufficient for purposes of accuracy in determining the exact amount of bone loss, and it is therefore recommended that X-rays of the injured and opposite uninjured member be taken for comparative purposes. It is manifestly apparent why this precaution should be taken, as the law states that if there is a substantial portion of a phalanx (bone) missing, it then must be considered the same as the loss of the entire phalanx. X-rays are also of great value in determining the nature of the surface of the residual bone. The stump must be examined as to whether it is sufficiently cushioned and whether it is sensitive. If the cushion is not ample and the surface of the stump is painful, either from an imbedded nerve filament or sharp edge of underlying bone, reamputation is indicated before recommending a final disposition of the case on a permanent partial loss basis.

Loss of use of a member or impaired mobility is caused by many conditions, viz, extra- or intra-articular changes, loss of tendon, motor-nerve involvement, painful and contracted scars and hysteria. Extra-articular changes due to adhesions can at times be broken up under anesthesia, and in estimating the amount of impairment we must consider that on forcible manipulation more mobility can be obtained than on voluntary movement, and this fact in an honest claimant should be given due consideration in determining the functional loss.

Intra-articular changes consist of destruction of the articulating surfaces of the bones, loss of cartilage and osteo-arthritic deposit, or fusion of the bones entering into the formation of a joint.

Loss of tendon, if not apparent from the history and usual physical examination, should be made certain of by electrical stimulation of the muscle supplying the tendon in question.

Motor nerve involvement is accompanied by loss of use and atrophy and should be electrically demonstrated.

A good deal of importance must be attached to scars, viz, nature of the scar, size, age if possible, and above all the exact location must be noted as well as its attachment. We very frequently find adherent, contracted, and painful scars interfering with the mobility of a member and unless they can be corrected they constitute a real causative factor in permanent partial disability cases. In cases of a complete muscle rupture such as the biceps, weakness in the arm is produced, and if surgical intervention fails to bring about a desired result, the estimated loss by the State's physician in New York State is placed at 25 percent loss of use of the arm.

In determining hysterical loss of use, the examiner will have to include not only a general physical but also a neurological examination. Frequent examinations should be the rule, tests for malingering applied, and whenever possible hospital observation should be recommended.

I remember one case in particular which I repeatedly examined over a period of 2 years. The original injury was a contusion with fracture of the distal phalanx of a second finger, without any other injury or infection of the fingers or hand. As time went on there was a gradual contraction of all the fingers into the palm and at the final examination all the fingers and thumb were flexed in a fixed condition into the palm with marked secondary changes from disuse, including atrophy of the interossei muscles, and the man was awarded for 100 percent loss of use of the hand at the final adjustment hearing of his case. I should recommend an early settlement of cases in which there is any evidence of real hysteria instead of indulging in prolonged litigation.

The examination of an injured claimant should always be preceded by the usual routine questions regarding age, occupation, previous injuries, nature of the accident and injuries claimed, all present complaints, length and kind of treatment, and amount of time lost.

Before examining an injured extremity the claimant should be requested to expose the entire injured as well as the uninjured member.

The amount of use he has in the injured member while preparing himself for the examination should be noted. The part is then inspected, and any condition transgressing from the usual should be studied. In the case of a shoulder injury he is requested to carry out voluntarily flexion, extension, abduction, adduction, circumduction, and rotation; both arms to go through the movements at the same time and any impairment as compared to the normal is carefully recorded in terms of percentage.

In case of an elbow, after the same preliminary inspection a request is made to extend and flex the elbow and carry out the rotary movements of the forearm. This latter is best obtained when the elbow is semiflexed. In cases of the wrist, flexion, extension, adduction, abduction, and circumduction are carried out.

Coming to the fingers, the injured is requested to complete a fist, flexing the fingers from full extension to full flexion. The movements of the interphalangeal joints permit only of flexion and extension, and these movements are more extensive between the first

and second phalanges than between the second and third. In the thumb, in addition to flexion and extension, we find abduction, adduction, and circumduction, and it is well to remember that abduction and adduction cannot be performed when the thumb is flexed. Our next step in the examination is palpation of the part, noting any irregularity, either superficial or deep, localized areas of tenderness or pain, crepitus, and any evidence of circulatory disturbance. Manipulation of the part is next in order, and by force we endeavor to carry out the movements of the respective part, paying particular attention if there is voluntary resistance encountered or if the impairment is due to some mechanical interference.

Measurements are made to determine the amount of atrophy or shortening if present, enlargement of a joint, and also the size of scars.

All X-rays should be examined, and any mark of identification on the films such as number, date, and name of radiographer should be mentioned in the findings or report.

In cases of injury to a lower extremity the movements of the hip, knee, and ankle as well as the metatarsal-tarsal articulation and the phalangeal joints of the digits should be carried out both voluntarily and forcibly.

The hip movements are flexion, extension, adduction, abduction, circumduction, and rotation, and the injured should be examined in the upright, sitting, and recumbent positions.

The movements of the knee are flexion and extension, and these two movements differ from those in the elbow joint, because the axis around which motion takes place is not a fixed one but shifts forward during extension and backward during flexion.

The ankle movements are dorsal and planter flexion and the foot must be at right angles to the leg when these tests are made. Inversion and eversion, although strictly speaking not ankle movements, are nevertheless taken into consideration when estimating the amount of impairment in the ankle and are designated as lateral movements. The metatarsal phalangeal joints permit of flexion, extension, abduction, and adduction, and the interphalangeal joints are limited to flexion and extension.

In estimating permanent partial disabilities in terms of percentage loss it is necessary to take certain factors into consideration; namely, the length of time that has elapsed since receipt of injury, age of the claimant, whether further improvement will take place as the result of further or different treatment, and whether the injured has made an honest effort to return to some useful occupation.

During the past 18 years I have examined approximately 90,000 cases of industrial injuries, and considering the fact that my findings were acceptable to the employers or their representatives and to the injured employees, and also bearing in mind the fact that when an appeal was filed, the findings were affirmed by the higher courts in the majority of the cases, I feel that the method employed by me in arriving at an opinion relative to the amount of disability should be given some consideration.

I have prepared a list of schedule losses of permanent partial disabilities that will fit almost every case of compensation injury to the various members as follows:

As previously mentioned, an amputation at or above a certain joint constitutes a proportioned loss of use of the member. Let us therefore consider the arm, hand, leg, and foot in the order named, taking the location of the amputation as the determining factor.

	<i>Percent</i>
1. Amputation at the shoulder.....	100 of the arm.
2. Amputation at upper two-thirds of humerus.....	100 of the arm.
3. Amputation at lower one-third of humerus.....	95 of the arm.
4. Amputation at elbow.....	95 of the arm.
5. Amputation between elbow and wrist.....	90 of the arm.
6. Amputation at the wrist.....	85 of the arm.
7. Amputation distal to the wrist.....	100 of the hand.
7A. Amputation through metacarpal bone of thumb....	60 of the hand.
8. Amputation of thumb and four fingers.....	100 of the hand.
9. Amputation of thumb and first finger.....	70 of the hand.
10. Amputation of thumb and second finger.....	60 of the hand.
11. Amputation of thumb and third finger.....	50 of the hand.
12. Amputation of thumb and fourth finger.....	45 of the hand.
13. Amputation of first and second fingers.....	55 of the hand.
14. Amputation of first and third fingers.....	45 of the hand.
15. Amputation of first and fourth fingers.....	35 of the hand.
16. Amputation of second and third fingers.....	40 of the hand.
17. Amputation of second and fourth fingers.....	30 of the hand.
18. Amputation of third and fourth fingers.....	25 of the hand.

In cases 8 to 18 the amputation was through or slightly distal to the metacarpo phalangeal joints. Where the amputation is through the proximal joint, the percentage loss of use of the hand should be estimated at a slightly lower percentage.

Taking the above-mentioned cases as starting points and where the amputation is not so extensive but includes the distal joints of two or more digits, then 50 percent of the above-mentioned percentages is just and adequate. To illustrate my point more clearly, if the complete loss of the thumb and complete loss of the first fingers is estimated as equivalent to the loss of 70 percent of the hand, then the loss of the distal phalanges of the thumb and first finger, which if taken separately, is equal to the loss of one-half of each digit, the percentage loss of the hand is one-half of the 70 percent loss, or 35 percent loss of use. In arriving at these figures, we take into consideration the amount of weeks' loss of the various digits involved, add them up, and allow an additional 10 percent of the hand (244 weeks) for the loss of grasp.

We will now consider permanent partial disability cases due to loss of function of an upper extremity.

	<i>Percent</i>
19. Ankylosis of the shoulder (complete).....	85 of the arm.
20. Ankylosis of the elbow.....	85 of the arm.
21. Ankylosis of the wrist.....	75 of the hand.
22. Ankylosis of middle and distal joints of a digit.....	100 of the finger.
23. Ankylosis of the middle joint of digit.....	75 of the finger.
24. Ankylosis of a distal joint of digit.....	50 of the finger.
25. Loss of rotation of shoulder.....	40 of arm.
26. Abduction of shoulder limited to horizontal line.....	40 of arm.
27. Abduction of shoulder midway between horizontal and complete.....	20 of arm.
28. Loss of pronation and supination of the forearm.....	30 of arm.
29. Paralysis of musculo-spiral nerve.....	80 of hand.
30. Paralysis of ulna nerve.....	60 of hand.

Any deviation from the above in the amount of impairment should be translated into terms of percentage, using the above as a basis.

If any other factors or complications such as atrophy or involvement of more than one major joint are present, this will also have to be taken into consideration in arriving at an estimate. Next in importance from an industrial standpoint are the legs and feet.

	<i>Percent</i>
31. Ankylosis of the hip in good position.....	85 loss of leg.
32. Ankylosis of knee in extension.....	70 loss of leg.
33. Ankylosis of ankle in good position.....	80 of loss of foot.
34. Loss of lateral mobility of ankle.....	40 of loss of foot.
35. All motions of ankle one-half of normal.....	50 of loss of foot.
36. Paralysis of peroneal nerve.....	85 of foot.
37. Flexion of knee to a right angle.....	40 of leg.
38. Loss of rotation at the hip.....	40 of leg.
39. Extension of the knee limited to between right angle and full.....	60 of leg.
40. Flexion of the knee between full and right angle.....	25 of leg.
41. Loss of planter and dorsal flexion at ankle.....	40 of foot.
42. Each 1 inch shortening of the leg.....	15-20 of leg.

In estimating a percentage loss of the foot due to involvement of two or more toes the percentage is lower, due to the fact that industrially considered the toes are not deemed as important as the fingers. For example, the thumb is valued at 75 weeks, which is practically one-third the amount allowed for the entire hand, whereas the great toe is valued at approximately one-half the thumb or between one-fifth and one-sixth of the foot.

Permit me to present to you a hypothetical case, which will illustrate the various points I have endeavored to bring out. John Smith, painter by occupation, age 46. The claimant denies any previous injuries and disease.

He alleges that on September 10, 1933, while working on a scaffold he fell a distance of 10 feet, injuring his left ankle, left hand, and right arm. He was removed to Bellevue Hospital, where he remained for 2 weeks. Subsequent to his discharge from the hospital, he received physiotherapy treatment for a period of 4 months. He returned to work on February 16, 1934, and has been working steadily ever since. X-rays number 3,145, Bellevue Hospital, dated September 10, 1933, of the left hand, right arm, and left ankle in the A and P and lateral views, show a comminuted fracture at the base of the distal phalanx of the left first finger entering into the joint, and a complete fracture of the head of the radius and the olecranon of the ulna with slight lateral displacement (right arm). The X-rays of the left ankle are negative for bony injury but do show swelling of the soft parts. X-rays dated November 8, 1933, number 3,788, Bellevue Hospital, show good callus formation and good position of the fractured head of the radius and the olecranon of the ulna, and the X-rays of the first finger show a beginning ankylosis of the distal phalanx. Examination, August 16, 1934.

At present claimant complains of pain and weakness in the left ankle, stiffness in the left first finger, and inability to fully use the right arm at the elbow.

It is noted that while the claimant was undressing for the examination there was a distinct impairment of the right arm at the elbow, and that in removing his collar he did not use the first finger of the left hand.

Examination of the left ankle as compared to the right shows one-half inch enlargement. On manipulation I found no impaired

mobility in dorsal or planter flexion or lateral mobility of the ankle. I found no restriction in the great or other toes and no impaired mobility referable to knee or hip, and there was no defect in gait. In my opinion there is no disability referable to the left foot.

Examination of the left hand shows a deformity of the distal phalanx of the first finger, and there is loss of mobility in this joint. There is a mild enlargement of the middle joint, and there is 50-percent limitation in flexion at this joint. I find no involvement of the thumb or other fingers of this hand. The above-described conditions are permanent and estimated at two-thirds loss of use of the first finger. This finding is predicated upon loss of mobility in the distal joint, which in itself entitles the claimant to 50 percent of the finger. The  $16\frac{2}{3}$  additional is given on account of the 50-percent impairment in flexion at the middle joint.

Examination of the right arm shows deformity and enlargement of the elbow amounting to  $1\frac{1}{4}$  inches as compared to the uninjured arm. The arm is held semiflexed at the elbow. Voluntarily the claimant does not flex the arm beyond the right angle, and there is 50-percent limitation in extension at the elbow. There is complete loss of the rotary movements of the forearm. I find no restriction in the shoulder or wrist, and the fingers are fully but not firmly flexed into the palm of the hand, causing a diminished grasp. On forcible manipulation the same amount of restriction is found.

The above-described conditions are permanent and estimated at 60 percent loss of use of the right arm.

The method in arriving at the 60-percent loss of use of the arm in this particular case is as follows: We find a 50-percent limitation in flexion and 50-percent limitation in extension which added together give a total of 100 percent. In addition we have 100 percent loss of use of rotary movements of the forearm, which gives a total of 200 percent. Dividing the 200 percent by 3 (movements at the elbow) gives a total of  $66\frac{2}{3}$  percent. Estimating the loss of all mobility at the elbow as equivalent to 85-percent loss of use of the arm, two-thirds of this gives approximately 60-percent loss of use of the arm.

Mr. McSHANE. We will now hear from Dr. O. L. Miller.

## DISCUSSION

Dr. MILLER (North Carolina). You have heard the discussion last night about a desire for uniformity for rating disability. Now, in North Carolina we have had a compensation law for 5 years only. In our first year we had a clinic where we brought together as many doctors as we could and brought a disabled man before them and asked for an opinion. We found that in cases involving a broken arm or back there was a variation in the opinion of the doctors of from 15 percent to 75 percent. Now, of course, when such variations as that are offered the commissioners are at a loss, since they base their award on what they hope is an honest opinion on the part of the doctors. If, for instance, there is in Asheville a rate of disability of 25 percent, and the commissioners see approximately the same thing in Wilmington with a rating of 75 percent, they are certainly in trouble.



When we begin operating under a compensation law, there are a good many angles to be ironed out between the compensation commissioners and the doctors. The doctors are inclined to be, and, I believe, are a little high-minded; the commissioners have the law with them. We have had four high-class gentlemen on our commission in North Carolina who calmly and quietly cultivated the medical profession to the end of bringing them into line and finding out what they want to know—if the disability the man has is basis for rendering an award. I should like to say, and I think I can speak for the whole medical profession, we must have three of the best commissioners in the United States.

This morning we are going to bring before you an actual case of an injured man and recite to you something of his experience and possibly hand out three or four cards right quick to some doctors and we want you to give us a rating. You don't have to put your name on the card. I would like to know how you would rate this case.

Now, this man is 56 years of age, injured July 2, 1930. A piece of timber fell across his back and neck. He sustained a fracture and dislocation of the fifth cervical vertebra, as you will see when you push the X-ray film before you. One week after the accident he had a plaster cast applied to his neck. After that he was in the brace for a few weeks and for 3 or 4 months thereafter wore a collar. No particular cord was involved, no sector, a little weakness in the extremities, but no motor paralysis. I will now show you the film. (Slide.) The fifth cervical vertebra is fractured and tilting forward on the sixth. As time went on considerable fusion occurred. This is the present status of this man with the fifth cervical vertebra forward on the sixth, but not so apparent. Excellent fusion occurred between the fifth and sixth, and some between the sixth and seventh, and some between the third and fourth. That is the structural appearance of this man's neck. Early in the game he held it in a streptic position, holding it on the side. Now he can hold it on either side. The question of change of status is up on this man now before the commission and I am going to ask Drs. Freibeig, Herbert, Meers, and Mehler to give me an estimate of the disability. [Patient exhibits himself to audience.]

Dr. MILLER (to patient). Now tilt your head on the shoulder, bending as far as you can. Now, on which side would you rather hold it?

The PATIENT. This side.

Dr. MILLER. Put your arms before you. Now down. Now lean forward and drop your head. Roll your head about on your neck sharply.

Dr. MEHLER. I wouldn't want to make an opinion unless I could strip him. How about his reflexes? I would like to know if there are any neurological involvements. [Dr. Mehler makes an examination of the patient.]

Mr. McSHANE. Has a neurological examination been made recently?

Dr. MILLER. Not recently. The picture you see here is of the man's reflexes as demonstrated by the doctor and are in as much detail as I have been able to get.

Dr. MEERS. What is he able to do in the way of light work?

Dr. MILLER (to patient). Are you able to do light work?

The PATIENT. I try to cook a little when I am able to, and when I am not able to the children cook.

Dr. MILLER. Now, I am going to take up the cards and see how you doctors have rated this man. One rating is 75-percent, another 90-percent permanent injury. Dr. Mehler, I will ask you to elaborate on your opinion.

Dr. MEHLER. My opinion is 90-percent permanent disability. I estimate he will be permanently disabled the rest of his life. From the superficial examination I made he has positive ankylosis. I would not testify whether or not he has a Babinski. He is getting secondary changes in the center phalangeal joint, and I believe in a very short time he is going to have certain head symptoms as vertigo or dizziness. The only thing this man could do would be to get a sitting occupation near his home.

Dr. MILLER. Our commission holds that, when you rate as high as 90 percent, the man is totally disabled, and this man has been held so by all commissions. Effort has been made to bring this rating down to as low as 60 percent, but they are still holding this man on permanent.

Now, the next case is of a man 37 years of age, injured March 14, 1934, while carrying a sack of cement. He stumbled and fell on his left hand and the sack of cement came down on his fingers, bruising the four fingers and the palm and back of the hand. In general, he sustained no fractures nor was there any evidence of bone injury. Later there was some periosteal thickening on the second mesocarpal bone on this hand and that is all we have seen in the picture so far.

His treatment has consisted of a lot of massage, physiotherapy, and so forth. Apparently, he has had considerable hemorrhage in the back of his hand about the tendons and at that time a type of tenosynovitis. He had a lot of physiotherapy, and the fingers were put in various splints in an effort to flex them with traction, and an alternating massage. This went on for 4 or 5 months and things stayed at practically a standstill. On January 2, 1935, he had an exploratory operation on the back of his hand to see if we could learn something. These tendons were explored to see if we could improve their sliding ability. We found they were bound down by adhesions to all structures there and had the fingers held in extension. I lengthened them, and we attempted to bring the fingers over for gripping. I did a carpectomy of the central carpal phalangeal group and shortly after that I instituted physiotherapy. His progress has been very poor. Treatment has been discontinued, and he is now up for permanent disability rating on the hand. The X-ray shows this periosteal hemorrhage on the base of this mesocarpal bone. The latter picture is the same thing.

I would like Drs. Krenshner, Shaver, Saunders, and Morgan to make an estimate of this man's hand. I don't think the operation has hurt him and I don't know whether it helped him or not.

Dr. KRENSHER (Illinois). Has there been any improvement in the last 6 months?

Dr. MILLER. Yes, some. The first index finger has always been better than the others. Of course, in illustrating these cases there is

no effort made to discuss the matter of treatment in a specific case, as doctors discussing the case would like to do.

Dr. LITTLE (New York). I think the unfairness to an audience of this kind is that you are asking the doctors to pass on a disability, and you are not saying whether it is an anatomical disability or an industrial disability.

Dr. MILLER. I don't know whether I could distinguish between the two in order to answer your criticism. We know there is an anatomical disability. I believe in rating the disability we are allowed to take into consideration the anatomical disability and the industrial disability or rather capacity of the hand. Do I make my point clear?

Dr. LITTLE. Well, I maintain that an industrial accident commission has a little different view of industrial disability and anatomical disability of the hand of this man for instance. There is not much that he can do industrially.

Mr. McSHANE (Utah). Our court has ruled that we can confine ours to the anatomical.

Dr. SWEENEY (Pennsylvania). In the State of Pennsylvania you are required to estimate both the anatomical disability and the extent of the accident as an entity in a gainful occupation. I would like to have Drs. Mehler and Krensher cover these points. It may be that we need some supplement on that; but as it stands today, if this case came to court, we would try to interpret it from a functional standpoint because it would not matter much what the hand looked like anatomically if he could use it.

Dr. WINNECOFF (North Carolina). It is my impression that where a disability exists to the man, we should interpret purely on the basis of function. If that man is a piano player, he is totally disabled, but for some types of labor he might have a certain capacity. I have tried in making estimates to make them on function, and that is what I have used in rating these disabilities in North Carolina.

Dr. MILLER. We have ratings of 90 percent, 25 percent, 65 percent, and 75 percent offered. Dr. Krensher is going to discuss these ratings.

Dr. KRENCHER. In the rating I made I didn't consider whether this man should go back to the same job he had before, or whether he should go back to some gainful occupation. It seems to me that offers another phase, the rate at which he has improved in the last year. Of course, we are to rule on his permanent partial disability at this particular time with some idea of improvement in the future. We find that patients with bad hands or extremities will ultimately get a good result with proper treatment carried on over a sufficiently long period of time.

In our experience we know that after a year, or 2 or 3, if a child has no returning of functions—I am speaking of infantile paralysis now—and he has had no treatment, and you put him under treatment, he will get the same result. However, if at the time the child had the proper type of rehabilitation treatment and has not improved, then no course of treatment will do anything for this child afterward. I rated this man with a 65-percent disability because I think he can do more than half the things he did before. He thinks he has a neurological involvement. However, that should be tested. The man

can hold your hand pretty firmly. He has supination and pronation, flexion and extension, abduction and adduction of the thumb, and he can almost bring the index finger and thumb together, which I think is an important thing for a man to hold certain objects.

Dr. MEHLER. In this particular case I notice that the doctors examining this man overlooked the point I made mention of in my paper. In making an examination, you must not direct your attention entirely to the part that is injured. You must look at the rest. This man has secondary changes in his shoulder. Taking the shoulder, he has between 10 and 15 percent disability. In the hand, I would estimate 25 percent, and in arriving at the arm I would take the number of weeks, 15 percent of 315, and then take half of that and add it to 75 percent of the hand, and that figures up to about two-thirds or 70 percent disability of an arm. I would recommend deferring decision on this case on a permanent basis, due to the fact that the condition is not yet permanent. It may get a little better, but I doubt it, and it may get worse, and as time goes on he is going to get more secondary changes.

Mr. DORSETT. Dr. Mehler, I would like to ask you this question: As a medical expert, when you go about your duties in rating a man's disability, why do you have in mind the compensation that he might receive, or why do you mention medical opinion with money values?

Dr. MEHLER. Because if I have an amputation of a proximal phalanx I have lost a third of the finger, but from a compensation standpoint, I have lost a half finger, and in arriving at a rate, for instance, if a man had 50-percent loss of the use of a hand, would you interpret that as 50 percent of the member; where the disability is confined to a member that must be translated into terms of schedule loss?

Mr. DORSETT. Is it material to the doctor as a medical expert what the compensation law will give a man?

Dr. MEHLER. No; we recommend it and the award is made by the commission.

Mr. DORSETT. Then why should the medical expert take into consideration the money value when arriving at the physical condition?

Dr. MEHLER. We do not take value into consideration. Weeks and money is what I am thinking of. We do not interest ourselves in the rate.

Dr. KRENSHER. I think in a case of this kind, we have no right to believe that man had his shoulder hurt. The sack fell on his hand and that man has had his arm in a sling for a year and a half. That shoulder probably has not been up there during that period until Dr. Mehler just put it up today. No, he cannot put his hand back of him, he can put it up this way but I do not have any right to consider this because I think the anatomical position of the muscles or the restriction of the shoulder should not be taken into consideration.

Mr. McSHANE. I am going to ask you, Doctor, if, as a matter of fact, the condition of the shoulder is not due to the injury and if the condition of the shoulder itself is the same as if the cement had not fallen on the hand?

Dr. MEHLER. If you tie a man's arm to his side he is going to get secondary changes and loss of use. He has no direct trauma, but this

is a direct sequence of the injury to his hand and as such is compensable in my opinion.

Dr. KRENSHER. If he had had the same amount of physiotherapy it probably would be disabled.

Dr. MILLER. This patient has had treatment, and we think the shoulder is a byproduct of the treatment and probably a little arthritis is developing in the shoulder from the health condition of this man. Incidentally, I have tried to rate this hand at 60 percent. The commission has already ruled this hand at 82½ percent.

The next case coming up is a young lady, aged 18, who on April 2, 1934, struck her right elbow on some machinery. The elbow became sensitive around the inner epicondyle. Pretty shortly after that her arm was put in a cast to relieve the discomfort. She had a diagnosis of hysteria. I first saw her 5 months after the original injury. There was a palpable mass rolling over the inner condyle, and when you touched it it precipitated a disturbance in the hand. There are no fractures. The X-rays will be shown here. There was no fracture in the right elbow. She early developed in this treatment a supination of the ulna. The neurologist saw her early in the case and made a diagnosis of this. We called his attention to this disturbance around the epicondyle. He saw no objection to an exploratory operation but saw no advantage of it. On September 6, 1934, which is more than a year ago, an exploration was made and as soon as the incision was deepened, it was found it was riding in and out over the condyle quite loose and free, so it was transplanted and forwarded over the elbow after the method which places the nerve between the special muscles of the condyle.

After the operation she was seen October 6, 27, and November 13. She was soon back to the use of the hand without tremor. Her case was closed on November 17, 1934. The tremor returned on the 19th. She was seen again November 21, and feeling that there was still something around the epicondyle, another exploratory operation was performed, and I found the nerve there comfortably placed where we had put it during the first operation, and there was no evidence of returning symptoms. The nerve was O. K. She had no tremors during December, January, February, March, and April into 1935. On April 18, 1935, she was returned to work, and in a very few weeks the tremor returned as before and has been with her continuously since. She has been seen by two different neurologists. You know how long their reports are, so I will not take the time to read them to you, but the first neurologist stated hysteria and the second stated he thought there was a connection between the ulna nerve and median nerve and that is making this tremor or tremor impulses and that it is a true organic disturbance in this arm.

I am going to ask Dr. Mehler to lead us in this discussion and that the other doctors take part. [Patient exhibits her hand and arm to the audience.] There is a slight erythema on the ulna aspect of the arm. This young lady was an employee in a cotton mill.

Dr. KRENSHER. Is she working now?

Dr. MILLER. No, sir; she is receiving benefits under the compensation law. I will now read some of the opinions that have been handed in. The first is 75 percent; I believe that was 75 percent of the hand.

Mr. DORSETT. I believe that would be in the arm.

Dr. MILLER. One says 80 percent of the forearm and hand, or 60 percent of the entire arm. Another says nothing flat. Another says pure hysteria and something about dislocation of the ulna nerve, so there we stand, from nothing to 80 percent, and in this meeting we should start to get the ratings down. Of course, with the human equation entering in on both the side of doctors and patient, there is difficulty in doing it.

Dr. MEHLER. My diagnosis is hysteria, and I thought the nerve was loosening from its environment. Now I don't see how it could be translated to a partial loss of the member. It is not permanent. I believe I should say this girl is partially disabled. She can do all work except that requiring the right hand. Taking the right hand, I think she is permanently disabled, but she can do work with her extremities excluding the right hand.

Dr. GRAY (New York). I have always maintained that the medical profession makes itself ridiculous before the court and the commission, and the experts here are pretty nearly doing the same thing—going from a low percentage to 90 percent. In my opinion the medical men should examine this woman and tell the loss of anatomical power and the loss of function of the arm while it is in flexion, extension, and supination. Then it is up to the commission to estimate how much industrial disability exists. It is up to them to estimate the amount of disability from a permanent standpoint. I don't think that a doctor should go on the stand and say this woman has a 10-percent loss because some other doctor just as intelligent will say she has a 75-percent or 100-percent loss. That is not the function of the doctor. We are not prepared to know whether she can do mill work. I don't suppose that half of the men who saw this woman knows what work she did. I believe you are trying to put too much on the medical profession when you ask us to estimate permanent disability from an industrial standpoint.

Dr. DONAHUE (Connecticut). In my estimate I put down 75 percent at present. Now that can be interpreted in various ways. These various tests make me think of what Charles Mayo once said. "I would rather have a man with 30 years' experience examine a patient for 5 minutes than a man with not much experience take a long time for the examination." Of course these estimates are only approximations. In the case of this young lady, there is a definite injury to the ulna nerve, in my opinion. I think if she is put to work at her usual occupation, she would improve. Even though she cannot use the injured hand now, she could do her work with the other hand, I think, and that would be greatly beneficial to her. If I should make an attempt to estimate this, I would give that considerably more time. There is a partial organic lesion there, in my opinion.

Dr. MILLER. Now the next case coming up is the case of Jacobus. This man was injured July 1924. He has a fracture at the head of the right tibia involving the knee joint. He had a break and then had an open reduction shortly after that and a fragment of bone was pulled back down. This is the location after it was pinned down, and I will show you the appearance of it today. There is a fairly smooth articular surface. [Patient exhibits his leg to the

audience.] He can flex his knee about 10°. I am not going to attempt to pass any cards on this case. Dr. Mehler, do you mind making a try at a rating on this man?

Dr. MEHLER. My estimate would be 40 percent.

Dr. GRAY. Now I would think he lost about 75 percent of the flexion of the knee with a certain amount of disability of the joint. That is the way I would estimate it, and then that goes to the commission and they figure out what the man can do. He has lost 75 percent flexion and has one weak joint. I think 20 percent from a doctor's standpoint is all right, but at the same time I think it is up to the commission.

Dr. MILLER. As we work it in this State, this man has been awarded 30 percent of the leg.

Now in the report of another case, a boy aged 23, 9 months ago, fell from a telegraph pole to which he was belted. The pole broke off at the bottom and he injured his back. He was taken to the hospital, where he stayed in bed 12 days, and then was allowed to walk about the hospital for 3 weeks. The back was strapped for 4 months. He had suffered a dislocation of his left hip, which was reduced after he entered the hospital, and the man now says his hip is all right. The X-ray shows curvature changes in the fifth lumbar vertebrae and abnormal position of the spinal process. Of course, he does have a pretty sharp sacroiliac angle, which in deep studies of the back must be taken into consideration from a clinical standpoint. Now in studying a back any sacral angle as acute as that, if it is not already in a state of strain, is susceptible to strain. He may go along very well, and if he gets a little shake-up, a chronic strain may begin.

(To the patient.) Lean forward, straighten up, turn around to both sides, drop your shoulder on both sides, stand on one leg and draw up this leg to your chest. There is nothing to be seen by further exposing him.

Dr. MEHLER. I think the proper test for low back pains is proper rotation of the hips. (Dr. Mehler put patient through hip-rotation movements.)

Dr. MILLER. Now we are going to start a discussion of this case, and we would like to have Dr. Mehler give us a rough estimate of this disability and to give some idea as to the surgical approach.

Dr. MEHLER. In this particular case from the examination I made, I can't say much.

Dr. MILLER. Do you think the trauma played any part in it?

Dr. MEHLER. I don't think so. This vertebra comes down a little here but it is loose normally. I don't see an anterior displacement.

Dr. MILLER. There has been no bony injury to the structures of the back. The doctors have studied it and they have concurred with Dr. Mehler's opinion, and he has a rating of 25 percent. Of course, could criticize our commission for allowing 25 percent when he fell from the telephone pole and sometimes if you allow them a little something like that it is beneficial.

Dr. BAY (Maryland). Permanent or total?

Dr. MILLER. Permanent partial. This is on the whole body.

Dr. STEPHENSON (Virginia). Of the whole back?

Mr. McMULLAN (North Carolina). Of a general nature.

Dr. MEHLER. When you say 25 percent do you stop at a given period or give him so much money or carry him on indefinitely?

Mr. McMULLAN. If it is temporary, it will be for a certain number of weeks. Total disability is for 350 weeks in this State.

Dr. MILLER. Incidentally there is a surgical fusion on this man. Now, he had a twisting fall, deranging, so several have thought, the right sacroiliac joint. He walked, giving away on that right side with a feeling that there was something loose in his sacroiliac area. As you well know, it is very difficult to disassociate symptoms in the sacroiliac back and the low back. I feel that way and anatomically this all looks well, but this boy has some atrophy of the right leg. He had a right sacroiliac fusion on August 27, 1934. On April 17, 1935, he had a lumbar sacral fusion because of persistent symptoms in the low back. He has worn a little plaster belt in recent months and he still wears it. He has, of course, limited motion in forward bending, but he goes down pretty well and he hasn't had much exercise to make him go down. Lying on the table flat he can raise himself to nearly a normal sitting position and does it very promptly. He still uses a cane, walks and limps a bit on his right leg. He has hardly had time for thorough consolidation of the graft.

If the insurance companies and the people who would influence our thought are right, then we should fuse the backs in cases of this sort. If the patient profits by the fusion, the doctor should pay no attention to what the insurance company thinks, or the commission. We have the feeling that we are the boss. The commission is the boss in a certain field and you are the boss in your clinical judgment. We had better have Dr. Mehler advise us as to the attitude we should take toward these backs. If the surgeons think a fusion is not indicated, why should they be done?

Dr. MEHLER. In the majority of cases there should be a thorough X-ray examination. Unless the X-ray shows an increase in the deposits, we conclude there were no injuries of the bony part and no aggravation of the spine. We diagnose most cases lumbar myelitis. We are opposed to fusion unless there has been a fracture that would absolutely necessitate the immobilization of the spine. We have seen trauma where fusion is performed and the patient has a stiff back for the rest of his life. We have seen some very sad results. There was a doctor who in every case of back strain would put a plaster cast on. When the man came back, he certainly had a tough time getting back to work because he had an immobile back. Often a fusion examination will disclose much imitation inflexion of the pelvis due to muscle soreness and myelitis, and I think that unless there has been a distinct bony injury that fusion is not indicated.

Dr. MILLER. But if a man has a definite fracture in the facies around the fifth and sacrum, you wouldn't deny a fusion?

Dr. MEHLER. I wouldn't deny it in that case at all.



Dr. MILLER. I believe where there is a mechanical disturbance clinical men are going to disagree. Do you think from your New York experience we are justified in fusing more frequently?

Dr. MEHLER. We have 300 cases a day, and a doctor is not assigned to any particular case but in many instances we make a request that the man be sent back for reexamination and upon the next examination we make a notation. We follow all these cases closely. Frequently if a doctor has a case which I examined a month ago, he will call me over. Now a man with a stiff back with a 50 percent disability can't do any lifting after a fusion operation. So we have found in 90 percent of the fusion cases they are not going to help, for the man is going to be disabled to do all work requiring the bending of the spine, and we, therefore, discourage them.

Dr. MILLER. I had a case of a nurse with a low back injury who didn't know she was under compensation. We got a wonderful result in less than a year from fusion. Now another fellow comes along and knows he has compensation, and will not get such a good result. The doctor sometimes will put the insurance company to the expense of a fusion and then rate the case as high as it ever was.

Dr. MEHLER. We have seen cases where a fusion operation was performed and the fusion showed a defect, and that is even more unfortunate.

[Meeting adjourned.]

## October 1—Afternoon Session

Chairman, Dr. W. J. McConnell, Director, Industrial Health Section, Metropolitan Life Insurance Company

Dr. McCONNELL. The subject for this afternoon's symposium and round table discussion is the occupations which cause lung fibrosis, silicosis, and asbestosis. We are very fortunate in having a distinguished group of men from different sections of the United States and Canada to participate in this symposium, men who are recognized as leading authorities in etiology, pathology, and diagnosis of these diseases.

The first subject of the symposium is entitled, *Essentials in the Diagnosis of Silicosis and Tuberculosis*, by Dr. Leroy U. Gardner, director, Saranac Laboratory for the Study of Tuberculosis, and representative of the United States Government at the conference on silicosis held at Johannesburg, South Africa, in 1930.

### **Essentials in the Diagnosis of Silicosis and Tuberculosis**

By Dr. LEROY U. GARDNER

Pneumoconiosis should be defined as a condition of the lungs resulting from the prolonged inhalation of dust. Only when this condition is due to a type of dust capable of producing serious and progressive changes in the lungs can a pneumoconiosis be considered as a disease. At the present time only two kinds of dust are generally recognized as possessing such irritating properties. Silica, commonly found in nature as quartz, is a notorious offender, and asbestos, a silicate of magnesium, is as bad if not worse. Some of the other silicates may possibly cause trouble, but assumption of harmfulness without proof is quite unwarranted. As industrial surveys become more frequent, we shall be in a better position to evaluate the hazards involved.

A diagnosis of either silicosis or asbestosis depends primarily upon a reliable history of adequate exposure to silica or asbestos dust, and upon the demonstration of characteristic changes in an X-ray film of the chest. Physical findings are important in the detection of complicating infections and in estimating disability if it is present. The roentgenogram is often sufficiently characteristic to make one suspect either of these two conditions, but unless the suspicion can be confirmed by a history of exposure to either dust, a positive diagnosis must not be made.

What constitutes an "adequate exposure?" A man must be exposed day after day for a period of years to relatively high concentrations of dust. In the usual industrial concentrations of silica dust

it takes from 5 to 20 years to produce silicosis; and from 7 to 11 years in asbestos to produce asbestosis. In rare cases, where the dust concentration is excessive, the time may be shortened to 2 years. Not only time but dust concentration is an essential factor in exposure. The determination of dust concentration is a technical engineering problem involving the use of special apparatus, but there are certain operations where it is safe to assume that dust concentrations are high unless somewhat elaborate precautions are being taken to prevent the formation of dust or its inhalation by the men. Mining in hard rock, particularly where dry drilling is involved, cutting and polishing granite, grinding with sandstone wheels, and sand pulverizing are notoriously hazardous occupations. There are other industries such as foundries, potteries, and paint-manufacturing plants that use silica and may have silica hazards in certain departments.

The fabrication of asbestos apparently involves considerable danger, particularly when it is handled in a dry state. It is used in the manufacture of fireproof textiles like curtains, brake linings, steam packings, and conveyor belts. As building material it is made into shingles, wallboard, and insulation, and it has various uses in electrical work.

While a history of employment in any of these industries that use either silica or asbestos should put one on his guard to suspect pulmonary disease, he should enquire further to make certain that the particular occupation actually involved an exposure to dust. A patient might say, for example, that he worked in a pottery, but on closer questioning disclose that he was actually engaged in decorating the finished product. On the other hand, a man whose X-ray film showed an apparent silicosis gave his occupation as an axe manufacturer. Subsequent questioning disclosed that his office was a small room loosely partitioned from the one in which axes were ground. Finally, the occupational history must include not only the individual's present or last occupation but a chronological record of the time spent in every job since leaving school. Silicosis is a chronic disease that may last for years; persons who become incapacitated frequently find light work. Record of employment as elevator man or 10 or 15 years previously often presents the key to a case of chronic pulmonary disease.

To summarize: A proper occupational history involves a complete record of the individual's industrial employment. It should include the duration of each job, with details as to the types of work that may involve exposure to dust. Where doubt exists, the kind of dust should be determined by consultation with the employer. In many industries, information is becoming available as to the actual concentration of the dust in different parts of the plant. This may or may not be available to the doctor who sees a patient in private practice.

The other important basis of the diagnosis of silicosis or asbestosis is a characteristic roentgenogram of the chest. The shadows seen on the film are cast by pathological lesions in the lungs, and hence the latter are of fundamental importance. The changes produced by uncombined silica are very different from those caused by asbestos dust, and hence they must be described separately.

## PATHOLOGY OF SILICOSIS

While there are certain preliminary changes produced in and about the lymphatic system of the lung by the inhalation of silica, the disease, clinical silicosis, does not begin until nodules of fibrous tissue develop in its parenchyma or functional portions. These nodules are quite characteristic. In the absence of infection, they are uniform in size and distribution. They measure from 1 to 5 or at most 6 mm in diameter. They have sharply defined borders and are surrounded by normal lung. They are composed of masses of very dense, hyaline, fibrous tissue in whose centre is usually a collection of silica particles.

In certain individuals the nodules are more numerous in localized parts of the lung, and they tend to become confluent. It seems probable that such reaction occurs because the particular portion of the lung had been damaged. Perhaps a pneumonia did not completely resolve and left a small amount of scar tissue in which the inhaled silica particles were entrapped and consequently produced an unusual amount of reaction in the local area. Perhaps the scar tissue of a healed tuberculous focus persisted to have the same effect. While due in most cases to infection, the process has healed and the mechanical effects of tissue distortion are responsible for the effect. These two conditions, the generalized discrete nodulation and the generalized nodulation plus localized conglomerate foci, constitute the changes found in simple or uncomplicated silicosis.

Within limits silicosis is a progressive disease even after exposure has ceased. When more particles have been inhaled than can be segregated in the lymphatic system, they accumulate in the walls of the air spaces and are not eliminated to an appreciable extent. Remaining in the lung these particles continue to excite the formation of scar tissue. Nodules that have already started to form increase in size but probably not a great many new ones develop. A generalized nodulation that is either undetectable or is barely visible in a roentgenogram taken when a man leaves a dusty trade usually progresses to well marked proportions in subsequent years. Since progression is practically inevitable, it seems to make little difference whether a person in this condition remains in his occupation or not. Continued exposure simply means more nodulation.

Another characteristic feature of this disease is its tendency to increase the susceptibility to tuberculosis and possibly other pulmonary infections. Tuberculosis may arise from a reactivation of latent foci already present in the lung or it may develop from a fresh implantation of bacilli from external sources. A variety of pathological pictures is produced that are either superimposed upon the generalized nodulation of silicosis or are so intimately combined with the silicotic reaction that it is impossible to separate the two processes. The following manifestations are generally recognized:

1. The *primary complex* of childhood tuberculosis consisting of one or more subpleural tubercles with associated foci in the lymph nodes in the mediastinum. These are usually healed and partially calcified by the time a person enters a dusty occupation so that they play little part in the development of subsequent disease. They can become reactivated by silica so that subjection of children to such employment would entail grave responsibility.

2. The more or less completely healed foci of *adult type tuberculosis* that occur most commonly in the apex of the lung. These frequently enclose and

retain more dust than other portions of the lungs so that the silicotic nodulation becomes unduly prominent in their immediate vicinity. They may surround a small cavity in which living tubercle bacilli survive for a long time. The silica accumulated in the walls of such cavities tends to penetrate into their degenerated centers. The bacilli then take on new capacity for growth and spread of the disease ultimately follows. As a consequence it is not good practice to employ young persons with even an apparently healed tuberculous focus in a silica industry. As they grow older the chances of viable bacilli being present in the quiescent focus progressively diminish and the risk of reactivation decreases.

3. *Bronchogenic spreads.*—The most common pathway for spread of chronic tuberculosis in the nonsilicotic individual is the bronchi. Such extensions are manifested by the formation of clusters of tubercles in the terminal branches of some of the tubes. The tuberculous lesions may develop as exudative or pneumonic foci or they may be proliferative, i. e., consisting of tuberculous granulation tissue in various stages of organization. The difference is probably due to the local dosage and to the degree of tissue sensitiveness that happens to obtain at the time of dissemination. Such extensions have their origin in older cavities that are usually situated in the upper part of the lungs. The same type of disease may occur in the silicotic lung but the acute pneumonic form is quite rare.

4. *Miliary tuberculosis* in which great numbers of minute tubercles develop as a result of accidental blood-stream invasion occasionally occurs as a terminal event in the silicotic subject. Many of the tubercles localize in normal portions of the lungs, but in addition many of the silicotic nodules become infected and their centers caseate. About their periphery there may be a rim of tuberculous reaction.

5. *Perinodular tuberculosis.*—The centers of many of the silicotic nodules are caseous and about their periphery is a zone of inflammatory tuberculous exudate. There is no generalized tuberculosis but an older localized focus is found at some point in the lung. Whether this condition usually follows a miliary tuberculosis as just described, or whether it can also be produced by bronchogenic dissemination is not altogether clear. It can be produced experimentally by intravenous injection of tubercle bacilli into silicotic rabbits, and it is occasionally observed in roentgenograms of living subjects. By the time such persons die and come to autopsy their lesions have progressed to an advanced stage so that they are difficult to analyse. In the only case from which the writer has had opportunity to study tissues, the lesions seemed to have developed from a bronchogenic spread.

6. *Silico-tuberculosis.*—This consists of a massive, focalized area of chronic disease composed of an intimate combination of silicosis and tuberculosis. The dust reaction is composed of nodular and diffuse hyaline fibrosis in and about a matrix of tuberculous granulation tissue. Caseation is minimal, and when it occurs calcification often follows rather quickly. Cavities never form in many cases; in others they are a rather late manifestation. Chronic, adhesive, fibrous pleurisy is a regular complication. By a slow peripheral extension the reaction may come to involve wide areas in the lung. Such lesions occur in the upper or midportion of the lungs; not infrequently they are bilaterally symmetrical. Elsewhere throughout the organ one usually finds discrete nodules of simple silicosis, although in many cases they are not infection. Such disease may result from reactivation of a latent focus of preexisting tuberculosis. This seems particularly likely when the focus occurs in the upper lung; if the focus occurs in some other part it possibly comes from exogenous sources. Dyspnoea is a prominent symptom but manifestations of intoxication (night sweats, tachycardia, fever, loss of weight, etc.) and the presence of tubercle bacilli in the sputum often fail to appear until the disease has progressed for years.

### ROENTGENOLOGICAL APPEARANCES IN SILICOSIS

The character of the shadows cast by these various pathological changes can now be described. The terminology and description used to designate the different appearances is that suggested by a committee whose report was published in the United States Public Health Reports, August 2, 1935.

1. *Nodulation of simple silicosis* is characterized by "discrete shadows not exceeding 6 mm in diameter, tending to uniformity in size, density, and bilateral distribution with well defined borders surrounded by apparently normal lung shadow. The outer and lower lung fields characteristically show fewer nodules."

2. *Conglomerate disease of simple silicosis* is characterized by "conglomerate shadows that appear to result from a combination of or consolidation of nodulation usually with associated emphysematous manifestations" (localized increased transparency and contrasting intensification of the trunk shadows).

When infection is added to the picture, any of the following may occur upon a background of generalized discrete nodulation:

3. *The primary complex of childhood tuberculosis* with its isolated calcified, subpleural tubercle or tubercles and associated calcification in the lymph nodes at the root of the lung.

4. *Localized healed tuberculous foci* either apical or basal in distribution characterized by "localized discrete densities with or without string-like shadows."

5. *Clustered foci of aspiration tubercles* characterized by "mottling." "The shadows vary in size, have ill-defined borders, and lack uniformity in density and distribution."

6. *Military tuberculosis* supersimposed upon extensive generalized discrete nodulation may be very difficult to identify in a roentgenogram. The diagnosis is more often made at the autopsy table. As previously mentioned, the next group—

7. *Perinodular tuberculosis reaction or soft nodulation* may follow either bronchogenic or blood-stream infection of the silicotic nodule. Roentgenologically "the nodular shadows described under simple silicosis (1) have now assumed fuzzy borders with or without irregularities in distribution." Associated mottling (5) may also occur in localized areas.

8. *Chronic silico-tuberculosis* is manifested by "massive shadows of homogeneous density not of pleural origin symmetrically or asymmetrically distributed."

The last type of shadow produced by the lesion of chronic silico-tuberculosis is difficult to differentiate from the conglomerate shadow of simple silicosis (2) where the active phases of the infection have entirely disappeared. Serial films, clinical and bacteriological examinations, overexposure to penetrate the dense homogenous mass in the hope of detecting areas of cavitation or calcification, may all be necessary to make the distinction. One observation of such cases is not sufficient to establish a diagnosis.

The changes mentioned comprehend the various phases of the disease, silicosis. Previous to the development of characteristic nodulation in the pulmonary parenchyma, inhaled silica dust accumulates in the lymphatic system of the lung and causes a relatively slight amount of reaction in the surrounding connective tissues and some enlargement of the lymph nodes and nodules. Since lymphatics run through the walls of blood vessels and bronchi, these structures appear slightly thickened. In a roentgenogram such changes are manifested as an *accentuation of the linear markings* in the lungs. However, this reaction is not specific; it may be produced by many types of dust, by chronic infections, and by cardio-vascular disease. Even though an individual has worked in a silica industry a simple increase in the linear markings of his lung fields does not constitute a basis for a diagnosis of silicosis. To have the disease there must be nodules in the parenchyma of the lung. The linear exaggeration in the film might be due to silica, and it might be due to other forms of irritation. It cannot be emphasized too often that without parenchymatous nodules a diagnosis of silicosis is unwarranted.

## PATHOLOGY OF ASBESTOSIS

Inhaled asbestos particles are not collected in masses within the lung tissue. They come to rest in the walls of the terminal bronchioles and excite the formation of scar tissue in this location. The result is a cuff of fibrosis in and around these small tubes. As this contracts it narrows the tube and finally prevents the air from penetrating into portions of the lung supplied by the bronchiole in question. This portion collapses and then undergoes fibrosis as a result. Not all of the bronchioles are involved; some remain patent and their peripheral air spaces remain distended. In cutting across an area of advanced asbestosis one finds an extensive obliterating fibrosis including isolated foci of apparently normal air spaces. Such a picture is difficult to analyze, but the evolution of the process has been observed in experimental animals. A characteristic feature of asbestosis is the occurrence of large numbers of the so-called "asbestos bodies" in the scar tissue. They are golden yellow in color, due to their high content of iron. They are formed by the development of a hausted deposit upon the surface of the mineral fiber. A great variety of bizarre forms can be found.

Upon cross-examination the uncomplicated asbestosis lung usually shows bands of gray fibrous tissue situated beneath the pleura with prolongations into the deeper portions. The interlobar septa are thick, and careful examination reveals deposits of slightly pigmented fibrous tissue along terminal bronchi that happen to be cut longitudinally. Cross section of these structures appear as ill-defined areas of fibrosis. Nodular reaction is absent. The lymph nodes at the root of the lung are not appreciably involved.

The relationship of asbestosis to infection is not clearly established. In the cases that have died and come to autopsy, tuberculosis has been found in many instances though it is apparently not as frequent as in silicosis. Others have shown a complicating bronchopneumonia while still others have developed cardiac complications. Surveys of asbestos workers still alive in this country have not disclosed significant amounts of complicating tuberculosis. There is urgent need for a study of more cases.

The roentgenographic appearance of asbestosis is characteristic but not so striking as that of silicosis. The normal markings in the middle and lower portions of the lung are partially obscured by a fine diffuse haze, giving the film a ground glass appearance. Still later in the course of the disease the appearance is that of very fine stippling that obliterates most of the normal markings. The pleural shadow is definitely thickened. In some of the advanced cases the heart is enlarged, and radiating from it into the lung fields is a series of heavy fibrous bands. The picture has been referred to as the "porcupine heart." The presence of air-containing spaces throughout the areas of fibrosis apparently allows the transmission of a sufficient number of X-rays so that the shadow of the fibrous tissue is not extremely dense but assumes the characteristic ground-glass appearance.

Manifestations of tuberculosis and other infections in asbestosis are similar to those in silicosis. The occurrence of localized dense homogenous shadows and mottling suggests infection.

The clinical aspects of silicosis and asbestosis cannot be discussed in detail in this paper. However, a few points deserve mention. In simple silicosis with no areas of conglomeration there are practically no symptoms. Many cases are discovered in routine surveys that have developed to an apparently alarming degree without the knowledge of the subject. They show no evidence of dyspnoea nor incapacity for work. However, individuals with conglomerate foci do complain and often suffer severe limitations on physical effort. Dyspnoea is the cardinal symptom but is associated with localized fibrosis. It may be the emphysema that is associated with such reaction which is responsible. The effect of other factors like loss of elasticity of the lung and interference with the pulmonary circulation need further study. The purely mechanical effect of replacement of functional lung by areas of fibrosis is inadequate to explain the clinical picture.

To depend upon the clinical picture of intoxication or the presence of tubercle bacilli in the sputum for a diagnosis of tuberculosis in a silicotic subject is a mistake. The complication is usually well advanced before these manifestations develop. Roentgenographic evidence of infection is often present for years before a diagnosis can be substantiated by these methods.

The question as to the frequency of cardiac complications in silicosis is frequently raised. While many observers stoutly maintain that disease of the right heart is unduly common in silicotic subjects, it is debatable whether its frequency is greater than would be expected at the age when silicosis is most often fully developed (40 to 60). Probably it is rarely produced by simple discrete nodulation. In cases of extensive conglomerate disease or of widespread silico-tuberculosis so much of the pulmonary capillary bed may be destroyed that embarrassment of the lesser circulation is more readily conceivable.

The severity of the clinical picture in asbestosis seems out of all proportion to the apparently slight diffuse haziness seen in a roentgenogram of the chest. However, the widespread fibrosis seems to destroy a sufficient number of alveolar walls to seriously interfere with pulmonary function. Interchange of gases can no longer take place and the contracting scar tissues compress and obliterate the capillary blood vessels. Marked dyspnoea and secondary right heart disease are the usual results.

Recommendations for the treatment of cases of silicosis vary with the experience of different students of the disease. It is the writer's belief that no treatment or change of occupation is necessary in the case of the man whose roentgenogram, perhaps taken in a routine industrial survey, shows only widespread discrete nodulation without localized shadows indicative of infection. The man is clinically well. He should be told that he has some dust in his lungs and to report for another examination in a year. This should be done to be certain that no infection is developing. Such advice will allow the man to continue to earn his living at his usual trade. He already has a disease that is slowly progressive and little more damage will result from further exposure. To advise otherwise makes him neurasthenic and often places him in the bread line, for others may not care to employ him.



The person with localized conglomerate lesions frequently has symptoms and cannot work as hard. A lighter job should be found for him, preferably with the same industry where he has worked and perhaps developed his disease. To discharge him would invite a suit for damage. If he suffers in loss of income, it is fair that he be compensated.

Where symptoms and incapacitation are due to active infection the individual cannot continue in employment. If the case is one of open tuberculosis with bacilli in his sputum he is a source of danger to his fellow workmen. He should be hospitalized and given compensation. If his infection is inactive and he has not yet become incapacitated, light work may be found for him in parts of the plant other than those where dust is generated. If he is a young man with an active focus of infection, hospitalization may afford some benefit. Although it is not generally recommended, the writer feels that he personally would wish to give treatment a trial.

Now that the hazard is being recognized, it is the obligation of industry to prevent the formation of dust. But in some operations the production of a certain amount of dust is apparently unavoidable. Where this is the case the writer believes that it is unsafe to employ a young man (under the age of 30) with any roentgenographic evidence of tuberculosis no matter how well healed his lesion may appear. As to older men there is some conflict of opinion; some authorities think that the healed focus will attract an undue amount of dust and lead to the formation of a conglomerate focus of silicosis that is a potential source of disability. But in a clean plant where the dust concentration is below the danger level, the healed focus of tuberculosis, in the writer's opinion, confers immunity against exogenous reinfections. The old focus, after this age, is quite apt to be sterile and incapable of reactivation. More experience in following these cases is obviously needed before definite rules of guidance can be formulated.

Dr. McCONNELL. The next subject is the Relationship of Asbestosis and Silicosis to Disability, by Dr. R. R. Sayers, medical officer in charge, Industrial Hygiene and Sanitation, United States Public Health Service.

## Relationship of Asbestosis and Silicosis to Disability

By Dr. R. R. SAYERS

The discussion of this interesting but rather complicated subject may best be preceded by offering acceptable definitions of the factors under consideration.

The committee on pneumoconiosis of the industrial hygiene section of the American Health Association gives the following definition:

Silicosis is a disease due to breathing air containing silica ( $\text{SiO}_2$ ), characterized anatomically by generalized fibrotic changes and the development of millary nodulation in both lungs, and clinically by shortness of breath, decreased chest expansion, lessened capacity for work, absence of fever, increased susceptibility to tuberculosis (some or all of which symptoms may be present), and by characteristic X-ray findings.

A similar definition for asbestosis would define it as a disease due to the breathing of air containing asbestos particles, characterized anatomically by symmetrical and diffuse fibrotic changes throughout both lungs, and clinically by shortness of breath, decreased chest expansion, cardiac embarrassment, lessened capacity for work, absence of fever, increased susceptibility to pulmonary infection (some or all of which symptoms may be present), and by positive roentgenological evidence of generalized pulmonary changes.

The term "disability" as used in this discussion may be defined as a decreased capacity to do the work required of the individual in the course of his usual occupation and/or an increased susceptibility to respiratory infection causing a loss of time from work which may reasonably be considered as primarily the result of the pulmonary fibrosis. Disability attributed to simple fibrosis resulting in a decreased capacity for work usually is considered permanent and continuous. In cases of early silicosis in which there is no decreased capacity for work, there is an increased susceptibility to respiratory infection that intermittently may result in disability. When tubercle bacilli are the cause of the infection, the disability is usually considered total and permanent.

Attention is called to the fact that the definitions stated do not specify that a diagnosis of silicosis or asbestosis necessarily means disability. Both are slowly developing conditions and clinical and roentgenological evidence of pulmonary fibrosis may in some cases exist for several years prior to the demonstration of any decreased capacity for work.

The information available from the literature on methods for determining the disability due to silicosis or asbestosis is limited. Particularly is this so in the case of asbestosis. Therefore, the discussion of this subject is necessarily based chiefly on data relative to silicosis.

In the absence of infection, disability due to the pulmonary fibrosis associated with silicosis is primarily dependent upon loss of functional lung tissues. This replacement of alveolar tissue by scar tissue leads to decreased oxygenation of the blood. Not only does the abnormal fibrosis decrease the available alveolar space for the interchange of gases, but such spaces as remain function less efficiently, due to the loss of normal elasticity of the lung and delayed inflation and deflation.

The embarrassed heart action is likewise dual in character. There is an increased load on the right heart in forcing blood through the fibrosed lung; and the pulse rate, to maintain efficient circulation during exertion, is necessarily abnormally increased in Nature's effort to get the most from the limited alveolar space available.

It has been suggested that the excessive absorption of silica or asbestos over a long period of time may exert some toxic influence upon the various body tissues, but to date sufficient data are not available regarding such action to measure the specific effect produced. Such conditions as nephritis, arteriosclerosis, digestive or nervous disturbances have not been shown to be produced or to be measurably affected by the action of these compounds.

Disability associated with cases of asbestosis and silicosis which are complicated by infection is not only usually more pronounced but also offers a more difficult question for analysis.

Studies of workers in occupations entailing an exposure to silica dust have shown an increase in loss of time, due to respiratory infection, when compared with similar groups in nondusty atmospheres. Including tuberculosis as well as the common respiratory infections, the data furthermore suggest that the severity of the infection is increased in about the same degree as the incidence. In the granite industry it was found that the severity, when measured by the duration, of cases lasting 8 days and longer, for the group of hand pneumatic cutters exposed to high concentrations of silica dust, was about four times as great as the same for a group exposed to the minimum amounts of industrial dust.

While it may not be practical in the individual case to determine the excessive incidence and severity of respiratory infection which may be attributed to the presence of fibrosis resulting from silica or asbestos exposure, a reasonable estimate may be established through consideration of data collected on specific occupational groups. The following table shows the reported incidence of attacks of disabling respiratory disease in two groups of anthracite coal miners. (Table No. 1.)

TABLE No. 1.—*Number and percent of anthracite miners at work, giving a history of repeated attacks of disabling respiratory infection*

Group	Total number	Number	Percent
All without anthraco-silicosis.....	2,095	1,019	50.1
All with uncomplicated anthraco-silicosis.....	510	351	68.8
All with complicated anthraco-silicosis.....	106	75	74.5

The increased susceptibility to tuberculosis particularly manifested by those with silicosis constitutes a marked potential disability. Available literature cites but few cases of death resulting from silicosis or asbestosis uncomplicated by infection. Gardner has stated that 75 percent of those who contract silicosis die of silicosis complicated by pulmonary tuberculosis. In the observations made upon hard-coal miners, it was found that nearly 40 percent of those with anthraco-silicosis who had worked in rock a goodly portion of their time for a period of 25 years or more manifested evidence of pulmonary tuberculosis as a complication. The following table by Britten, based upon the report of the Registrar-General of England for the years 1921-23, indicates the increase in mortality from pulmonary tuberculosis among various trade groups, those exposed to silica dust showing the highest rate. (Table No. 2.)

TABLE No. 2.—*Standardized mortality from respiratory tuberculosis in occupations with rates above average, males age 20-65, 1921-23, England and Wales*

Occupation:	Mortality rate (standardized)
All occupied and retired males.....	149.6
Tin and copper mines, underground workers not superintending staff.....	1,886.0
Tin and copper mines, not superintending staff.....	1,323.5
Grinders in the cutlery tools.....	1,178.5
Metal grinders.....	636.7
Slate masons and slate workers.....	512.5
Potter's millworkers; slip makers, potters.....	411.4

To consider satisfactorily the relationship of silicosis and asbestosis to disability in the individual case, the following information is helpful if not prerequisite:

1. A record of previous and present occupational exposure.
2. A record of past illnesses and present complaints and illnesses.
3. Physical, X-ray, and laboratory data to establish a diagnosis and demonstrate disability.

In cases complicated by infection, repeated examinations to determine the nature and severity of the infection may be necessary. Repeated examinations may also be necessary to determine progress of the condition in individual cases.

In recording data relative to occupational exposure, it is important that the record be complete. It should reveal the industries in which the individual has been engaged throughout his working life, and the time spent in each specific occupation within the industry. If the records begin with the present job and list the time spent at such work in the present industry, and follow that with the same data for the preceding job, and so forth, back to the time the individual first started to work, the information will probably be relatively accurate. The following figure illustrates a form which proved useful in collecting data upon a group of hard-coal miners. Slight changes in this form might be made to make it serviceable for other groups (fig. 1).

FIGURE 1.—Occupational record.

Date ----- Office -----  
 ----- Hospital -----

Name ----- Present age -----

Age began work ----- Number of years worked -----

	Specific occupation	Specific industry	Number of years in—		
			Hard coal	Other dusty	Non-dusty
Present.....					
Preceding present 1.....					
2.....					
3.....					
4.....					
5.....					
6.....					
7.....					
8.....					
9.....					
10.....					

Remarks :

Recorded by -----

The past medical record of individuals examined for silicosis or asbestosis should be as complete as possible, especially as regards present respiratory infection. Since the question of disability invariably enters the picture, illness or accidents likely to lead to disability should be revealed.

Present complaints, which are volunteered, are usually of more importance than those obtained by direct questioning. Here again those referable to respiratory infection are especially helpful.

The physical examination should be adequate to discover gross evidence of any body changes likely to contribute to disability. Detailed examination of the chest is necessary. Although early in the development of generalized pulmonary fibrosis clinical manifestations of the condition are usually slight, nevertheless close inspection, palpation, percussion, and auscultation will usually elicit evidence of pulmonary changes in cases showing any decreased capacity for work. X-ray examination of the chest is indispensable. While a good film may serve the purpose, at the same time fluoroscopic examination is helpful in the absence of stereoscopic films. It also reveals information relative to diaphragmatic excursion and the presence of pleural adhesions.

Repeated microscopic examinations of the sputum, and when negative for tuberculosis, animal inoculation of the material, will sometimes establish a diagnosis of complicating infection earlier than may be accomplished otherwise.

An exercise test in the majority of cases will serve to detect evidence of a decreased capacity for work and its cause. A test, which has proven helpful in examining groups of workers for evidence of silicosis and associated disability, is carried out as follows: The individual places one foot upon a chair or firm stand, 18 inches in height, and raises his body to an erect position 25 times in 30 seconds. Those with marked respiratory or cardiac disturbance cannot be subjected to such a test, but in the course of examining persons already employed or applying for work few of such individuals will present themselves. The pulse and respiration are taken with the examinee at rest, immediately following the exercise test, and after a 2-minute rest period. It is evident that such a test is not one whose results are affected by respiratory conditions only, but one which is influenced by various factors, such as weight, heart condition, age, general physical condition, and numerous metabolic differences. It does serve as an indication of decreased capacity for work. When we consider all factors, definite information concerning respiratory capacity is available. Regardless of the presence of slight cardiac defects or changes due to age, and so forth, the individual with appreciable pulmonary fibrosis will not only exhibit shortness of breath following the exercise, but the altered respiratory rhythm is characteristic. The expiratory phase is markedly prolonged, often to such an extent that the rate of respiration is much less than in the case of a person with pulmonary infection or cardiac disturbances. Due to loss of elasticity of the lung, the individual cannot empty his lungs rapidly enough to allow for a great increase in respiratory rate. In fact, the rhythm approaches that of the asthmatic before exercise. The condition may be differentiated from bronchial asthma by the absence of the râles and other clinical data. In cases of well-established silicosis, prolonged

expiration may be elicited by careful observation during the course of physical examination, prior to any exercise test.

The role played by cardiac deficiency may be determined by considering the records of the pulse before, after, and following the rest period, and the blood-pressure determination.

Although the factor of increased susceptibility to respiratory infection may seem difficult to interpret, as a disability, by far the majority of cases where the same is demonstrated will have to do with tuberculosis as a complication. The individual suffering from silicosis complicated by active tuberculosis is truly disabled and should be removed from further exposure both for his own good and for the protection of his coworkers.

When a diagnosis of pulmonary fibrosis resulting from occupational exposure has been established, the next most important facts to learn are: Is the condition complicated by infection, and is there evidence that the individual has lost any capacity for work?

Often, for purposes of description, particularly when considering the subject of disability in its relation to silicosis, it may seem more convenient to classify the degree of development of pulmonary fibrosis in stages. In this country the most common practice has been to speak of this degree of development as first, second, and third stage. From the viewpoint of disability, regardless of other clinical evidence, those in the first stage are usually grouped so because their working capacity is not noticeably impaired. Those in the second stage may evidence some decrease in capacity to work as well as formerly, while the working capacity of those classified as in the final or third stage is considered seriously and permanently impaired.

#### REFERENCES

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Dr. McCONNELL. Although Dr. Lanza was unable to come to Asheville, he has submitted precepts and principles, which I think will guide us in the discussion. But before entering into this discussion, I am going to call on our roentgenologist for a discussion of the X-ray findings. I am going to call on Dr. Edwin C. Ernst, who has had considerable experience in X-ray diagnosis.

#### Discussion of the X-Ray Diagnostic Problems in Early Silicosis Conditions

By Dr. EDWIN C. ERNST

In presenting my observation and analysis of the lung-dust problems and conditions, I will limit my discussion to the diagnostic X-ray phases of silicosis. Time may not permit me to discuss the far-advanced cases of lung involvements or those complicated by infection or tuberculosis.

Several of your members last evening asked me a rather pertinent question; namely, "What is the fundamental requisite or training of a medical specialist in order to qualify as a diagnostician in

silicosis?" This is a most difficult question to answer, but I appreciate the seriousness of the problem and the reasons thereof for making this query.

The preliminary education of a physician specializing in the diagnosis of these occupational diseases should ideally include a rather comprehensive experience and by all means embrace the interpretation of various types of lung complications or diseases. The experience should not be limited to lung-dust diagnostic training alone. In my opinion this is a primary requisite of a well-balanced roentgenologist or diagnostician. Suffice to state, such a specialist should have studied occupational lung-dust conditions and X-ray films over a period of many years, followed the clinical course, and reviewed serial lung studies of known silicosis cases.

If I might digress for a moment in order to illustrate my point, no phase of my training during the past 24 years has been of greater help than the early controversies as to what were considered typical X-ray signs of early tuberculosis. This required intensive studies of thousands of suspicious tubercular cases and the follow-ups for periods of many years finally established the reliable criteria of incipient pulmonary tuberculosis. In addition, hundreds of autopsy studies and X-ray films of fresh specimens of healthy lungs proved of inestimable value. This same course of experience and study should be followed by those physicians who wish to qualify themselves as diagnosticians in lung-dust diseases.

Those of us who are examiners for the American Board of Radiology realize that every one practicing roentgenology, or chest diagnosis, may not have had the experience in diagnosing the various lung-dust conditions under discussion with the necessary precision and accuracy required in the interest of everyone concerned. However, anyone passing this board may be relied upon to realize his limitations and should give a conservative opinion because of his background of diversified X-ray diagnostic knowledge. Nevertheless, it is true that the average interpretations have not been ideally satisfactory, due to the limited practical experience in this new field of diagnosis by those who are the least qualified to do so. Few diagnosticians realize the need for a complete and accurate serial record of the lung under consideration and that an incomplete study is more frequently misleading. To some extent these misinterpretations date back 4 or 5 years, when the accurate knowledge of the fundamental early signs of a correct diagnosis of silicosis were rather meagerly understood—not unlike a similar situation which occurred some 20 years ago with reference to the diagnosis of incipient tuberculosis. The temptation of the average diagnostician to diagnose early tuberculosis by means of the X-ray during those early developing years, on the basis of a few enlarged glandular densities or peribronchial thickening changes, irrespective of the location, distribution, or organization of such shadows, created many serious situations. It was the easier way and fit in so nicely with the supposed clinical findings. During the war, in Rouen, France, I early realized that many of the above peribronchial changes or congested lung areas, when not involving the periphery of the lung, would disappear in from 2 to 6 weeks by merely improving the environment of the patient. Removing the members of

our own unit to a more sunny climate very quickly cleared up these nontubercular infections. In those days the physical examinations were of little differential diagnostic value since all of us suffered from bronchitis, tracheitis, pneuminitis, and the X-ray examination was unfortunately relied upon far beyond the true limitations of the roentgen method. Therefore, these supposed tubercular lung densities not infrequently could be observed to disappear after the soldier had reached the American shores from abroad, although originally sent home considered totally disabled.

Needless to state this supposed early diagnosis was not based on our present conception of what X-ray signs and findings constitute early tubercular lung pathology. However, this state of affairs did continue for many years and is a problem in some sections of this country even today where greater consideration is given to a poorly exposed and imperfect X-ray film than to experience and the critical consideration of all of the factors of a correct diagnosis.

Simple silicosis is certainly a disease than can be easily diagnosed reasonably early, and in the future many of the controversial phases should be eliminated in view of the added knowledge and experience made available today, based on carefully analyzed histological researches. The pathological studies of Dr. Gardner have been of the greatest help in this direction. During the past 3 or 4 years we have likewise made special enlargement studies of suspicious lung areas of selected lung fields, and we believe it has aided materially in the diagnosis of extremely early peripheral silicosis. The limits of our efforts at enlargements have been five and one-half times the original lung fields, but apparently sufficient for differential diagnostic purposes. Improved film textures so as to exclude grain defects will broaden the scope and future employment of this procedure from a research as well as an accessory diagnostic procedure.

I might dwell upon a few of the essential requirements of an X-ray examination from a diagnostic standpoint, since this method offers our only hope for the early recognition of silicosis. The object of an ideal and accurate X-ray examination is to reproduce or project the unseen densities within the chest upon an X-ray film true to size, shape, and outline of the lung structures themselves. Distortion or exaggeration must remain at a minimum. You should aim to project the normal as well as the pathological lung conditions for review on a film or group of film studies. In my opinion too great an emphasis cannot be placed upon this feature of the early diagnosis of silicosis in relation to the desirability of a perfect X-ray film: one that can be reproduced year after year, showing the minutest lung-structure changes, especially during the present developmental phase of our problem.

An ideal set-up is a capacity transformer employing 400 to 500 milliamperes and an average size focal spot approximately 4.5 mm in diameter together with an accurate timer allowing for exposures no longer than one-twentieth of a second. The new rotalex type of X-ray tube is even more desirable in view of the X-ray-tube focal spot being less than half the usual target diameter.

My time is rather short and perhaps I must be brief, but I trust you will realize my inability to adequately discuss all of the important phases of a complete X-ray examination so that a worthwhile lung



interpretation may be made under ideal conditions. Stereoscopic films are preferred to single film examinations in the doubtful or difficult cases. However, serial or repeated 6-monthly or yearly studies of the lungs are especially essential in arriving at a final diagnosis in the exclusion of many other diseases, as I will show later in my discussion of differential lung diagnosis of a dozen other diseases simulating silicosis conditions. Lateral views are always helpful in the early and more advanced lung cases under consideration. Let me emphasize again the value of serial film examinations in the doubtful cases. In 99 percent of the cases this latter procedure should clear up a questionable diagnosis.

The next requisite is experience in the reading or interpretation of such X-ray films and a thorough knowledge of the average normal or healthy lung pattern, the various bronchial markings in relation to chest pathology, and the peripheral absence or presence of visible lung reactions or densities, due to conditions other than silicosis.

The technical considerations are vital issues and therefore require a most critical analysis from the standpoint of the X-ray examination. If the film shadows of the lung structures are too light, the necessary lung detail is lost; equally so if too dark or overdeveloped, they are of little diagnostic value, and early lesions may be overlooked. The potential current employed or strength of the X-ray beam is likewise important and should be accurately calculated for each chest examined. Each patient should be carefully measured in centimeters, and the penetration of the chest thus estimated in terms of kilovolts. Otherwise, the diagnostic value of an improperly exposed X-ray film is misleading and in fact becomes unreliable from the standpoint of early diagnosis of any and all types of lung infections as well as silicotic lung involvements.

The size of the focal spot of the X-ray tube is another important consideration. If too large, the shadows of the chest, including both the normal and the pathological structures, would be greatly exaggerated upon an X-ray film. The larger focal spot might be compared to a fast lens of a speed camera. It is possible to make very rapid exposures in subdued light with such a fast lens, but at the expense of depth or detail. If the lens or diaphragm is stopped down to a very small opening, sharper photographs are obtained, but at the expense of a longer exposure time factor. This is also true when too small a focal spot is employed in our X-ray tubes; the intensity of the X-rays is very much reduced. The distance of the tube from the film and patient is likewise an important factor. The greater the distance up to 6 feet the more accurate is the projection of the chest image upon the film, but the X-ray beam is less intensive and a larger milliamperage output is required. However, both the greater distances and the larger focal spots have their disadvantages in that a greater amount of current is required. The capacity of the average smaller transformer is inadequate for the necessary ideal rapid exposure technique. After all, the roentgenologist must select a happy medium between distance, voltage, and focal spot, but the time factor, in my opinion, should remain uniform and preferably less than one-twentieth of a second; otherwise, movements or pulsations of the lung structures cannot be excluded. Uniform reduplication of exposures over a period of many

years is a most important requirement in the serial lung examinations.

Many of our small X-ray machines require that the tube be placed relatively close to the patient or film, perhaps 3 feet, due to the limited capacity of both the X-ray machine and tube. Usually one-fourth- to 1-second exposure is required under these conditions, but in the average group of cases from an X-ray diagnostic film standpoint, this type of film will unquestionably prove to be very unreliable and misleading from the early recognition standpoint of apical tuberculosis, miliary tuberculosis, fungi diseases, blastomycosis, silicosis, and so forth. Comparative changes or developments cannot be accurately studied by such a limited type or method of making an X-ray examination. The hazard of movement and distortion of the lung structures can only be controlled by one-twentieth second's exposures or less, and this blurring factor of the lung markings must be eliminated if the X-ray examination is to be considered ideal.

The size or habitus of the patient may show individual comparative lung differences, all of which variations are, however, considered normal for that particular type of chest. Whether the X-ray examination is made during deep inspiration or expiration is an important factor from an interpretative standpoint. Very frequently we require both types of film in addition to the typical study during the phase midway between inspiration and deep expiration in our examinations, especially when emphysematous changes are present. Many silicosis findings were based on supposed early changes of the peribronchial and hilar trunk shadows, but in the light of the most recent observations, based on serial studies of large groups of cases, I have failed to observe any such typical findings other than the basic discrete peripheral lung densities, 6 mm or less, showing uniformity as to size, density, and distribution plus well-defined borders surrounded by apparently normal shadows.

However, Dr. Gardner has discussed this matter in detail in relation to the comparative X-ray records, histological studies, and autopsy findings. The more acute type of silicosis produces a somewhat different picture, a diffuse intrapulmonary haziness of uniform density, and must not be confused with the more chronic involvements. The importance of serial examinations in relation to any acute lung condition cannot be overemphasized. Occasionally the immediate diagnosis may be difficult but later films easily clear up the differential diagnosis or presence of other lung complications. The many other lung and vascular congestions that might grossly simulate early silicosis, including miliary tuberculosis, fungi infections, diffuse bronchial disturbances, asthmatic and bronchiectatic disturbances, may also be excluded in the final analysis by serial X-ray studies. Time will not permit me to discuss the silicotic conditions with beginning infection, but the X-ray and clinical study of these lung changes require additional types of examinations, other than those mentioned heretofore.

In closing, I wish to again emphasize the importance of reasonably standard technical requirements, or shall I say minimum requirements of an ideal X-ray study for silicosis, or in fact all lung conditions. You have observed that the seven films I have shown

are X-ray studies of the same chest, my own, and all of these exposures were made during a period of a month. At least three of these chest films do not appear alike, and in fact there are such wide variations in the character of the lung markings that few radiologists would feel safe in identifying them as representing the lungs of the same individual. The technique was different for each individual chest examination, but not unlike those routinely employed in many hospitals, offices, and medical departments of many of our industries. Three types of transformers and three different tubes were used in combinations so as to obtain the greatest amount of efficiency and maximum capacity within the bounds of safety to the apparatus. The films, screens, and developing factors of the films remained uniform. Therefore this should prove conclusively the danger of attempting an early diagnosis of abnormal lung-dust conditions unless the X-ray film examination is known to be technically perfect according to the minimum standard requirements which I believe are essential for interpretative purposes.

In addition these X-ray findings must be correlated with the type of employment, concentration, and character of the dust, length of exposure, the history and clinical observations, and only under these conditions should a final conclusion as to the presence or absence of abnormal lung-dust conditions be considered reliable and conclusive.

Dr. McCONNELL. Next I am going to call on Dr. A. W. George, specialist in roentgenology.

Dr. GEORGE (Massachusetts). I wish it were possible for me to put in a few words all that has been said about these two subjects.

The roentgenologist accepts the history of the medical findings, in a measure such findings are grossly inaccurate. In other words, we get the cases off the street; we are called upon by the carriers and by the industrial-accident boards of our State to act as impartial judges, and that is a difficult problem. We have been interested in this problem in my State ever since the starting of the board in 1912.

I am going to take up the question of asbestosis. I do not believe asbestosis has been mentioned—the mining of it and the manufacturing of it. It has been my privilege to examine over 1,800 men who were using asbestos in their employment.

The asbestos industry has been a bad risk for the carriers, and those taking them have been losing money for years, due to asbestosis and silicosis. After all this period of time, through the efforts of the insurance companies, efforts have been made to improve the working conditions. I think I am safe in saying that the insurance companies have done more to improve the conditions of those plants than the State boards. This is because they are especially interested, for from the days of the dry weaving, as we say, down to the time when we put in wet weaving, they had a tremendous loss.

Now my feeling in the matter, which I will modify, is that as far as manufacturing problems of asbestos go, you need have no fear of asbestosis. The need and advisability of preemployment examinations is apparent. You are familiar with the wandering type of worker who goes from one State to another. The present industry will have all the ills of the other employment felt by them. With this preemployment examination we recognize certain definite con-

ditions. The first thing we recognize is the question of variations of the normal. We have not heard much about normal conditions; but if all you men were examined by X-ray, it would be difficult to find two chests which were identical. Then we must consider the 30-year-old man, whose chances are supposed to be different from a 65-year-old man or a 60-year-old man. I can see from the reports of the others that they do not consider these changes important. We question the negative or important changes in this group. We go back into the industry for a moment, which has been a saving to the carrier in hypertrophic changes. What a difference that has made to insurance work when we stop to think of these X-rays, what we are going to show on these X-rays, based upon the type of pathology of that line. All of these changes are going to show in the X-ray in the final analysis, and what I have presented more than anything else in the studies I have seen in other States and individuals has been the ease with which they usually find fibrosis. I am glad to hear Dr. Gardner and others defalcate the use of that line, but, in my opinion, you will have fibrosis as a diagnostic symptom of silicosis. Now I could produce a slide that we have with several modifications of fibrosis. I do not say that Dr. Gardner would agree with my diagnosis, but, if I could show these in line, seven of them, knowing that one of them had spent 18 years in a foundry, I would wager that you could not tell him from any of the others.

One of the men, for example, worked 7 years, and he has definite fibrosis, and I will guarantee that, if it had been told that this man worked 21 years in a dust hazard there would be no argument what the diagnosis would be. I have a great deal of respect for clinical findings and history, but the history of the time of industrial exposure has no bearing on what that X-ray film shows.

After we get all through, there are certain things we can do and cannot do with X-ray, and I do not believe that I want to go on record in saying that it is perfect. I am willing to go on record and say that any roentgenologist can make a diagnosis from an X-ray.

I would like to leave this one thought with the commissioners. I have been trying to talk to them, not to the doctors. First of all, find out if you can the reliability and training of the individual who has made the X-rays. I am not talking about clinical findings but X-rays. Has he the capacity and experience in silicosis or any of the dust hazards? Remember that any individual can take any one of these films here and read all kinds of things into them. To go back to asbestosis again—there is one thing that is important in slides where you see a fiber. You can see the silicon, but where you see a fiber I have seen very few in which there has been vast destruction. That is entirely done with your silicosis or tuberculosis.

Now, I would like to leave this thought with you to work on. The deposit must be in a symmetrical way in the lung to start with. I say from a diagnostic point of view that a case that is not silicosis and has nodular changes will not have many glands in the lungs. Those cases that have silicosis will have intensive evidence of glands. We must keep in mind the fact that not in all the stages but in the average case the periphery in the lungs remains fairly clear and the base clear. Now with tuberculosis the deposit will be irregular. Now, unfortunately, what we are up against in our defense cases is

that we do not get the case until infection has occurred, and we have a conglomerate picture. That is a matter of case work.

Dr. McCONNELL. I next want to call upon our Canadian authority, Dr. A. R. Riddell, of the Division of Industrial Hygiene of the Department of Health of Ontario. He is also the author of many articles on the clinical aspects of simple silicosis and silicosis with tuberculosis.

### Discussion on Silicosis

By Dr. A. R. RIDDELL

My experience with silicosis has been in connection with the various industries in which it has occurred in Ontario. I agree entirely with certain things that have been said by previous speakers, but I am wondering if in some cases we are not trying to read silicosis before it is really readable.

After a diagnosis of silicosis has been made, and adequate history of exposure is absolutely essential, there are certain fibrotic changes in X-ray films, at least shadows in X-ray films that are indicative of fibrotic changes. When you speak of lung fibrosis, the statement is often made that this man shows a lot of fibrosis, which generally means he shows prominence of the linear shadows. I do not think there is any warrant for using the term fibrosis in that connection. In connection with silicosis, however, if he shows fibrosis of the silicotic type, I think there is every reason for you to determine fibrosis because you are reading back into the film the pathology that has been demonstrated in these cases. So, therefore, in a diagnosis you need a history of the exposure and properly prepared X-ray films, and backing that up, not necessarily for the purpose of clinching your diagnosis but particularly for the purpose of estimating your disability in the case, you want a complete physical examination.

Now, the complete physical examination serves another purpose. It often gives much more information with reference to the presence of infection than is evidenced by X-ray. I say often, because it does not always. In connection with any given case of silicosis, the case is not complete until investigation has been undertaken. You have your X-ray, you have your history, and you have your examination. Now, in many cases of complicated silicosis, the X-ray does not suggest a complication, but continued study from the bacteriological standpoint shows the presence of tubercular bacilli. In connection with estimates of disability, it is very important from the standpoint of administration of the methods used by us where the individual who is up for compensation is seen by a board of examining doctors. The individual is examined by three men who have had some experience at least with silicosis. The X-ray film is prepared, the bacteriological work is obtained, and the case is passed on by three men before it is passed on by the workmen's compensation board. It is passed on either as a case of silicosis to establish the man's claim in the case of future break-down and disability, or a case of silicosis with disability, and an effort is made to arrive at an estimate of disability in the individual case.

We are probably fortunate in having the question of occupational diseases removed from the realm of court procedure. It may not be possible where court proceedings are necessary to have access to a board, but it seems to me that consideration should be given to the fact that the final decision in connection with any occupational disease is determined for the purpose of the commission by individuals who know nothing about the conditions that are present.

Dr. McCONNELL. I am going to have Dr. Robert Hunt of Boston continue the discussion.

## Pneumoconiosis

By Dr. ROBERT HUNT

Since the middle of the sixteenth century it has been observed that men who have worked in a dusty occupation have been more prone to contract diseases of the lungs than those in any other occupation. Down through the following years has come the ever-increasing knowledge that men who have worked where dust is great and the exposure long, showed a considerable prevalence to respiratory infection. We note various terms which have been coined in the different types of industry referring to diseases of the lungs, such as grinder's rot and miner's asthma.

Whenever the incidence of tuberculosis rises sharply above the normal average in any community, there usually follows an investigation as to the cause. The British Government experienced that condition in the gold mines of South Africa and Australia. A general survey of the areas showed a marked increase in tuberculosis, and following the report of the survey intensive study was made of the working conditions. When the report of that work was published, it stimulated a considerable amount of interest in the United States, and investigations revealed that our miners were affected in a similar manner. Incidentally, it stimulated scientific and experimental work as to the cause and effect of various types of dust upon lung tissue.

During the early part of the last depression thousands of men lost employment through no fault of their own. All workmen have a right to live, and when finances were gone and men were confronted with want and starvation, they quite obviously turned to every factor which might provide them with sufficient funds to support themselves and their families. A general depression does not affect one class but all classes, and it might have been expected that many of the unemployed, aided and abetted by the legal profession, would eventually find their way to their physician's office, and that is exactly what happened in this country. The outcropping of thousands of claims for silicosis suddenly burst upon the unsuspecting world, and industry and labor were confronted with a serious economic and social problem. With this increase in the number of claims, there also arose a certain amount of hysteria among an of the factions more or less concerned with such claims. Those of a pessimistic nature might consider the outcropping as an emergency; but industry has met and conquered emergencies of greater moment in the past, and I have every reason to believe that the solution of

this problem will terminate to the mutual satisfaction of all concerned.

What is this condition called pneumoconiosis? To clarify and remove any reasonable doubt as to the terminology used in this discussion, let me explain the meaning of several words:

*Pneumoconiosis* refers to the presence of dust within the lungs whether that dust is harmful or harmless, organic or inorganic. It is a general term to denote the cause and location of the disease but is so broad in its scope and so nonspecific that we try as far as possible to use a term more applicable to the individual case. It is not a diagnosis but merely a symptom.

*Silicon* is an element which never occurs in the free state, so we are not particularly concerned with that name.

*Silicon-dioxide*, bearing the chemical formula  $SiO_2$  and represented by quartz, causes a form of pneumoconiosis. When silicon-dioxide combines with other elements, such as iron, aluminum, etc., it forms a silicate.

The lungs are equipped with a method of drainage which we call the lymphatic system. It is composed of a network of fine connected tubes throughout the lung structure, following, in general, the course of the arteries, veins, and bronchi and terminating in the glandular tissue of the midchest. Another branch of the same system follows the outer contour of the lungs and pleura and ends in the mediastinal glands. The function of this drainage system is to rid the lungs of foreign material, whether it be bacteria, the result of infection, dust, or any other foreign body.

Such a system would be of no practical value without a means to convey the extraneous material into the tubes, and the body has provided such an agency in the white cells of the blood. Each white cell, called a phagocyte, or scavenger, is a mobile unit capable of ingesting foreign material and transporting it from the lungs to within the lymphatic system.

When dust enters the upper respiratory tract through the nose or mouth, it becomes immediately wetted, and by far the largest proportion enters the gastro-intestinal tract by the act of swallowing, and becomes inert. A portion of the dust accumulates on the mucous membranes of the nose and it is removed by the elimination of the nasal secretions and expectoration. The extremely small amount of dust that finds its way into the larynx meets considerable opposition in its downward progress from the cilia, or hair-like structures of the cells lining the bronchi. It is their particular function to retard the advance of foreign material. Some of this dust is removed by coughing. Having evaded all of the protective agencies of the respiratory tract and arriving within the air spaces of the lungs, the dust particles are ingested by the white cells, or phagocytes, carried through the wall of the lymphatic system, and are eventually deposited within the glandular tissue. The smaller the size of the dust particles, the greater seems to be the activity of the blood cells, and conversely, the larger the particles, the more sluggish they become.

The unit of dust measurement is the micron, one-twenty-fifth thousandth of an inch. Experimentation has proven that dust greater than 10 microns in diameter is practically harmless as far as the lungs are concerned, but from dust averaging between 2 and 5 microns may be expected the maximum amount of lung pathology. Such microscopic dust is invisible to the naked eye.

The transportation and storage of dust continues until the lymphatic system has been filled to saturation. Other depositories must then be utilized. In that event, the phagocytes move out through the walls of the lymphatics and deposit their dust load in the partitions between the air spaces of the lungs. That process always occurs in both lungs and is never unilateral. It starts from the hilus area, extends outward toward the periphery and eventually may involve all lobes. The entrance of a foreign body within the lung structures stimulates the protective devices to greater action and soon the blood stream lays down cells about the dust deposits, in the endeavor to encircle the mass with a wall of thick fibrous tissue, in the hope that the progress and harmful effects might be checked or reduced to the minimum.

That protective cellular element is called connective tissue, and when found in the lungs is known as fibrosis. The formation of fibrosis is not peculiar to the presence of dust, but is present in its defensive role in practically all diseases of the lungs, whether it be tuberculosis, pneumonia, bronchitis, asthma, or the results of inflammation. It is rare indeed to find an X-ray of the lungs in which fibrosis cannot be demonstrated.

Connective tissue is nonelastic. It is quite obvious that the constant replacement of normal lung tissue by tough, nonelastic fibers will in time produce embarrassment of respiration. It happens in tuberculosis, in asthma, in silicosis, and in the absorption of other dusts.

The description of the lung physiology in the presence of a foreign substance, which has just been described, is applicable to the absorption of many dusts, whether of a silicotic nature or silica-free. When silicon dioxide is the prevailing dust, whether in the form of quartz, granite, sandstone, or flint, we become involved in a further process characteristic of silica alone. When the white cells group together and deposit their load of silicon dioxide at a common point, the connective tissue cells encircle the mass, and we have formed the so-called silicotic tubercle. This is the first tangible evidence of silicosis. Tubercles and connective tissue may increase, which simply denotes that the process has advanced. We attempt to divide the silicotic process into three stages of development, but as there is no sharp line of demarcation between them, opinions will be as numerous as the number of persons who examine the films. It is quite sufficient, however, for all practical purposes to simply note the presence of fibrosis and nodulation.

When quartz is present, a chemical action is noted which is apparently characteristic of silicon dioxide and not found in the presence of other types of dust, with the exception of asbestos, which will be described later.

Silicon dioxide is soluble in the weak body alkalies, and such reaction produces a toxin or poison. That poisonous chemical reagent so alters the immediate surrounding tissue that it loses its resistance and becomes incapable of protecting itself against the invasion of foreign bacteria. Pneumonia occurs not infrequently in silicotics, probably due to the frequency of the organism of that disease in the upper respiratory tract and the inability of the lung tissue to offer any defense. The disease in which we are particularly



interested, however, is tuberculosis, whether preexisting or superimposed upon a silicotic process.

It is estimated that 75 percent of all tuberculosis is acquired before the age of 15. If a person is comparatively young, say around 30 years of age, and some time during his life has contracted tuberculosis, which has become nonactive and walled off by the connective tissue barrier, the silicotic poison formed, exerting its influence on the outer wall and the action of the bacilli from within, often succeed in breaking through that defense. The tubercle bacilli are then liberated within the lung tissue and meeting little or no resistance spread rapidly and usually cause a fatal ending. If that protective barrier of connective tissue was sufficiently strong and tough to resist the action of the toxin, no particular harm would result.

Basing our conclusions upon the actual facts of medical and experimental knowledge to date, I think it is safe to say that the nonsiliceous dusts, represented by coal, cement, lime, and marble, and the silicates of iron, aluminum, clay, and many others are essentially harmless when introduced within the lungs, but silicon dioxide in the form of quartz, sandstone, granite, or flint are particularly hazardous in the presence of infection.

Gardner divides the action of the dusts in the lungs into three classes, namely, the linear fibrosis caused by most inert material, the nodular type, which is confined to silica, and the diffuse as represented by asbestos.

Asbestos is a magnesium silicate containing about 42 percent of silicon-dioxide. Its entrance into the lung causes a diffuse fibrosis, which is characteristic only of that substance. The exact cause of the reaction is not known, but one theory advanced relates to the loose combination between the silica and the magnesium resulting in enough irritation to cause areas of diffuse fibrosis. It may advance to a degree sufficient to cause incapacity and may terminate fatally without the intervention of infection.

The nonsiliceous dusts and many of the silicates may produce varying amounts of fibrosis and may occlude many of the lung's air spaces. The former condition, if carried to excess, may influence the respiration to a certain extent. The lungs are composed of millions of air spaces, and the obliteration of thousands would hardly be noticed. Tuberculosis or operations upon the lungs have wiped out entire lobes and yet produced no discomfort, so why need we become alarmed at the loss function of small areas due to dust obliteration?

It was formerly thought that the pathology within the lung created by the presence of silica was due to the mechanical action of the dust particles. The sharp edges and corners of the dust were supposed to so mutilate the tissue that it could not withstand attacks of infection. That theory could not account for the action of many of the dusts, such as aluminum oxide or diamond dust, whose edges are sharper than those of quartz and yet were unable to aggravate tuberculosis into activity. That theory has been given up in favor of the chemical reactions. It was then thought that a colloid might be formed, but again that theory could not account for the variations in the reactions of dusts. At present, the chemical theory with the formation of definite poisons has been accepted. It at least gives us a fair explanation of the action of silica and the harmless dusts.

We may be obliged to change our opinions later concerning the actions of certain dusts in the light of advancing knowledge. Our present knowledge concerning the actions of some of the silicates is rather vague and not entirely satisfactory. In our attempts to determine the cause and effect of respiratory lesions due to the many dusts, we must of necessity confine our arguments and draw conclusions from the actual facts as they exist today, meager though they may be.

There are certain potential factors necessary to produce silicosis, namely, a high concentration of silica dust, size of the dust particle, and the exposure.

The absorption of dust into the lungs is a slow process, varying from approximately 2 years to 20 or more, depending upon the concentration and type of dust in which the person has been working. We find in a sand blaster, who has been working without protection, that the high concentration of dust, constantly used and reused, might show evidence of silicosis in about 24 months, while a foundry worker, or a granite cutter working where the concentration is lower, may not reveal signs for 10 or 12 years. Roughly speaking, it might be stated that an atmosphere containing from 5 to 25 million dust particles per cubic foot may produce silicosis in from 5 to 25 years. There is no immunity to the disease nor are there any known physical or physiological reasons why one man should absorb dust and the other remain free. It has been estimated that 25 percent of all dust workers will eventually contract the disease but the interesting phase of that statement, especially to the medical profession, is why the 75 percent remain free. Science has not yet given us the answer to that question.

We have often heard elaborate descriptions of the clouds of dust surrounding an employee, the dust which covers his clothes and person, but why should we become alarmed at such conditions, realizing that dust visible to the naked eye is not the dust that causes damage to the lungs, and that the amount of dust outside the body is no indicator of the quantity which might reach the lungs. These facts are important as part of the history and should be judged only as such. Many men have worked under similar conditions for 30 to 40 years and show no signs of lung pathology.

There are no signs or symptoms found in silicosis that do not occur in other diseases. The physical examination gives us but little help and the X-ray of the chest is not always satisfactory. It is practically impossible to make a diagnosis of silicosis from any one phase of the examination. To arrive at a definite conclusion we must have a very careful history, a thorough physical examination, and an X-ray, preferably stereoscopic, and, in some cases, microscopic examination of the dust to determine the size, type, and characteristics.

### HISTORY

The history is most essential in determining this disease and must start from the age at which the individual began work. We must know the type of work which he has done and the length of time spent on each job. It is not enough to go back a few years in his life. We might find a man who has been a carpenter for 10 years, but, delving into the history previous to that time, we might find that he had been a sandblaster. Again a man might state that he

has been a miner for 20 years, but it is necessary to know where the mine was located, the type of rock which formed the roof and floor, and the exact type of work which he performed. It might make a great deal of difference if he had been working with slate or sandstone, and, if the latter was present, such as the floor or roof of the mine, then the man has been working in a high concentration of silica dust and has become a potential silicotic. Again, a man might state that he was a machinist, but we must know the location of the machine. Not long ago I saw a man who was chipping castings, and the X-ray proved the presence of silicosis. The machine work which he was doing was practically harmless, but he worked in a high concentration of fine silica dust. Some 75 feet distant a compressed-air hose was used in breaking outcastings. The very fine particles of silica dust were blown in his direction. The extremely minute particles of dust may remain in the air for several days before they settle. As a result, this man was in a constant atmosphere of a high concentration of dust, yet removed 75 feet from the hazardous process. In my opinion, the history is as important as the motive in a murder case. It provides us with a working knowledge as to the presence or absence of the essential factors upon which we are to base our conclusions. If the history reveals that the employee has been in a high concentration of silica for a long period of time, then, at least, we know that the man is a potential silicotic. Next, we must prove that he absorbed the dust.

#### PHYSICAL EXAMINATION

There are certain manifestations on examination that occur in silicosis, but unfortunately there are none that do not occur in other diseases of the lungs. Shortness of breath on exertion, cough, and a lowered lung capacity and chest expansion are the most common symptoms. These give us an indication that pathology exists in the chest. But again, it is practically impossible to differentiate the signs from other conditions which might be present. We cannot make a diagnosis of silicosis from the physical findings alone.

#### X-RAY

We must resort then to the X-ray. It is almost a universal opinion that stereoscopic plates should be taken to give depth and a better idea of the distribution of the fibrosis and nodulation. The X-rays should be taken by an expert radiologist. A fracture of a bone in the hand might easily be seen even if a plate were over or under exposed, but when you are searching for fine lines in a lung, the best plate possible should be examined. Improper exposure might easily eradicate important evidence. I had the opportunity of examining about 200 chest films recently from a foundry. Each film was accompanied by a history card and a detailed description of the X-ray lung findings properly recorded thereon; 73 of the films were useless due to the poor technique in their making, and the majority of them were so black that it was absolutely impossible to see lung markings or even the outline of the heart.

Another experience which might be amusing, if we but could forget the seriousness of the situation, occurred in a granite quarry

outside of Boston. Fifty chest films with no history attached were sent for diagnosis to four radiologists. The summary of the findings showed that four agreed that silicosis was present in four plates. Two found silicosis in seven plates and one in eight plates. Three radiologists stated that tuberculosis was present in three plates, but they did not agree on the same three plates. One picked the plates of a doctor's chest and gave him a second-degree silicosis. That is a serious situation and causes me again to state that an experienced radiologist is a most essential adjunct in our attempt to establish the diagnosis of silicosis.

### DUST COUNTS

It is my opinion that dust counts are essential factors to be used in the prevention of silicosis. A dust count is a good indicator of the efficiency of a dust eliminator and is important to indicate a potential hazardous atmosphere but is of no consequence after the disease has manifested itself. It is important to know the size of the dust particles, which is determined by microscopic examination.

Silicosis uncomplicated by infection does not cause death. The excessive fibrosis has no correlation to the symptoms of which the individual complains. We may find a person whose lung areas seem to be entirely clouded with pathological changes and yet that individual may have but little inconvenience in respiration. The opposite may be true, and a mild degree of fibrosis may produce considerable shortness of breath. The presence of silicosis does not indicate incapacity. I think that some people consider silicosis as synonymous with incapacity.

Industry is interested in silicosis from the point of view of incapacity. We are not particularly interested in the fact that a man has that disease with or without infection, but we are interested in the evaluation of his capacity for work. To say that a man has silicosis does not necessarily imply that his capacity for work has been diminished, nor does it mean that all such men should be removed from a dusty atmosphere. It is the opinion of several authorities that when a man reaches the age of 40 or 45 and has had a dust exposure of 15 or more years, and shows no incapacity, he is usually an asset and not a liability. Such a man could remain in the same dusty atmosphere in which he had previously worked with a reasonable degree of safety. The same may be said of a man of the same age with an old, healed, nonactive tuberculosis of many years' duration. If the barrier between the tuberculous lesion and the remainder of the lung has been able to withstand the constant attack of silicotic toxins and has not broken down under the strain of 15 or 20 years of such action, I doubt that it ever will; at least the possibilities of its doing so are extremely small.

I am acquainted with a concern that has replaced many of its younger employees by men between 40 and 50 years of age who have been cutting, edging, and polishing granite for two decades or more. Some of the men show evidence of silicosis and some tuberculosis of a healed type, yet during the last 5 years of their new employment, the morbidity rate at that quarry has been lower than at any previous period. To my knowledge, none of the older men have become incapacitated as the result of silicosis or tuberculosis.

If an employee has an active tuberculosis, he should not be allowed to work anywhere, and if silicosis complicates the disease, he becomes a definite liability and should be considered totally incapacitated.

We do not know how much silica in a lung is necessary to aggravate tuberculosis; but if the diagnosis of silicosis can be established, we must assume that the potential factors are present which may exert such action. Individual cases cannot be covered by general statements, and the facts of each silicotic must be carefully weighed and treated in a rational manner.

There is one phase of the silicotic question which is inclined to receive little thought. When a man has been declared incapacitated by silicosis and paid a small sum of money, or when he has been forced to leave employment because silicotic fibrosis was discovered in his lungs during a routine examination, what is the ultimate outcome which might be expected? If he was marked by smallpox or deformed by leprosy, he would receive no colder reception by industry. If he was not incapacitated and sought employment, no shop or factory would listen to his pleas after the presence of silicosis had been mentioned. Without a source of income and savings spent, his name will probably be added to the long list of those who receive support from the community in which he lives. He then becomes your problem and mine.

An incidence occurred in a Massachusetts foundry which illustrates that point. To satisfy insurance requirements, all employees were X-rayed, and 42 were said to have shown the presence of silicosis. They were immediately discharged. All had worked at the plant for over 20 years, and their average ages would be from 45 to 50. There was no incapacity. They sought employment elsewhere but to no avail. For 2 years they remained idle. Several were kept alive by the aid of philanthropic societies and many had reached the end of their life savings before they were allowed to return to work. In my estimation, that was an example of most irrational treatment. After that length of service they were better able to cope with the dust hazard than many of the employees who took their places.

The question has been asked many times whether a silicotic process in the lungs will continue to progress after the person has been removed from a dusty atmosphere. The answer is "yes." The connective tissue forming around the silicotic tubercle may continue its growth, gradually lessening the power of the lung to carry on its respiratory function and causing sufficient dyspnoea to almost totally incapacitate the person from performing his usual daily routine. The action is quite comparable to the overgrowth of wounds on the surface of the body which heal with the formation of keloids.

We are confronted occasionally with the necessity of making a diagnosis after death. A post-mortem examination of the lungs and the incineration of those organs provide us with the amount of silica found in relation to the total ash. The literature on this subject shows a variation from 2 to 50 percent. It is the opinion of several authorities in this country, however, that the average silica content of average lungs will range between 7 and 9 percent of the total ash content, but each modifies that statement and adds that we should hesitate to call any amount under 15 percent as abnormal.

Since the advent of many silicotic claims in foundries, shops, quarries and mines, and numerous other branches of industry, strin-

gent laws and regulations have been passed to protect employees against the action of hazardous dusts. It was to be expected that a few people would allow their better judgment to be warped by the hysteria which so frequently accompanies the outbreak of an epidemic and that has been graphically shown by the number and character of the laws enacted to protect employees. It has at least diverted large sums of money formerly used in curtailing accidents to be used in eliminating sickness. The cause must be removed before there will be a change in the effects. Mechanical devices are being installed in many of the dusty trades. Foundries and mines, previously dust-laden, are now almost as clean as your living room. X-ray examination before employment and every few months thereafter will aid considerably in the control of silicosis.

In spite of all that might be accomplished to lessen the dust hazard in the future, we must not lose sight of the man now employed who has given the better part of his life to his employer and who has developed an incurable disease of the lungs from his working conditions, but is still able to carry on. He should be allowed to work as long as he is able, and then some provision should be made to allow him to live and provide for those dependent upon him.

## DISCUSSION

Mr. CURTIS (New York). I do not happen to be a medical man nor a commissioner, but I am a representative of labor and am vitally interested in this whole subject on account of the men whom I represent, and I would like to have a word to say about it.

I have listened very closely to the conversations and statements of the doctors. We have in the State of New York a law that took effect on the 1st day of September. Now we find that our men are being laid off and discharged and being examined by what we call incompetent physicians—in other words, by doctors selected at random. The men are said to have silicosis and they are dismissed. It is all right to dismiss a man but at the same time we believe that the law was passed to give the man the benefit of the doubt and that he should have a thorough examination. The doctors here have said that it requires experience to detect silicosis. Well, it does not in the city of New York.

I have had considerable experience as a commissioner for a period of 7 years, and I know something of the medical problems, but I do not believe that an ordinary doctor should come in and examine a man at random and report to the insurance company or to the employer that that man should be laid off.

Now I have watched very attentively the X-rays submitted here, and I find there is a vast difference in the diagnosis. What is going to become of the injured man or the man that is compelled to make a living under those conditions and without proper examination? I think we should impress upon the commissioners, not only of New York State but every State, as well as the doctors of every State, that they should give each man a thorough examination in order that he may not be thrown out of work. We should go into this very carefully and give the working man a fair break.

Dr. McCONNELL. I think it has been brought out and emphasis has been placed on the fact that physicians diagnosing these condi-

tions should have special training. I think the principle has been established that employees having silicosis or asbestosis without infection and still in generally good condition with no other marked disability may continue to work even though they do have it.

Mr. CURTIS. That is not what is happening in New York. The men are being thrown out on the street. They want to know what is going to happen, where they are going to make a living, how they are going to take care of their families. Perhaps a certain kind of diagnosis has been made. Nevertheless, those men are compelled to go to charity now or go on relief. They can no longer work at the work they have been doing for many years, just because some doctor, who perhaps never saw a case of silicosis, examined the man and made a diagnosis, with the result that the man is on the street.

Mr. MURPHY (New York). I think the problem has got to be considered not only from a medical standpoint to prevent men not ill from losing their jobs. I think we must consider what we are going to do with the men who are found to be unable to work. Most of these problems go hand in hand. I doubt the wisdom of preemployment examination unless we are ready to place these men in that employment or take care of them until they find other employment. I do not believe employers generally will place a man in a different line of work than that which he is accustomed to doing. Certainly, employers generally would not seek it if the man had not been in their employ for a considerable number of years. The socially minded employer may find a place for the man who has been employed by him for a number of years and found to be faithful. But, as a general proposition, I do not believe employers will take on a man if he is found to be disabled or ill as a result of something he has contracted in the course of the industry elsewhere, particularly if the employer is going to be held for compensation due to aggravation of a preexisting condition. In the State of New York I do not think it wise to initiate the system of preemployment examination.

Mr. WRABETZ (Wisconsin). At the last session of the legislature we had our law amended in a way which I think would help the situation that confronts labor in New York. Our law provides that when a man is discharged because he has a non-disabling silicosis, he is entitled to what might be called a rehabilitation earning, not to exceed 1 year's compensation. The purpose of that, of course, is to enable that man to enter some other kind of employment and to compensate him because he has changed his job. The amount is left entirely to the commission. It is very much like the disfigurement liability.

I might say, in addition, that when a lot of cases arise, employers and insurance companies both develop a little hysteria; they are afraid of what is likely to occur, and they do make these examinations and reject employees, but, as time goes on and they find that they are rather needlessly frightened, they will develop different methods and different attitudes toward employees.

Dr. HUNT (Massachusetts). In regard to this New York proposition, I might say there were 3,600 men examined in the northern part of New York in August, and of those men some had worked from 10 days to a period of 55 years. Some of those men were

61 years of age. Out of that number we found 60 to show some evidence of silicosis, and every man was allowed to remain at work. None was showing incapacity. In spite of the fact that some of these men had worked for 55 years, and they did show some silicosis, those men were allowed to continue working because if a man goes that length of time and nothing happens to him, nothing ever will happen there.

Dr. GRAY (New York). During the past 3 or 4 months I have had the opportunity of examining between 75 and 100 workmen who have been exposed to the inhalation of silica in their occupation. The oldest man in the group was 66 years, and the youngest 25 years of age. Approximately one-half the number had been inhaling silica for almost a quarter of a century. X-ray examination of this group showed uncomplicated simple silicosis, in approximately 5 percent of the older group and 2 percent of the younger group. These individuals had no clinical symptoms to indicate that any fibrotic changes in the lungs interfered with their working ability. These men were not removed from their work.

I agree with Dr. Hunt that if an individual who is exposed to the inhalation of silica dust shows some silicosis, he should definitely be allowed to work. As he has stated "if nothing happens to the workman after years of exposure" the probability is that nothing ever will happen. From the larger social point of view considering the medical facts as we know them to be, it would certainly create confusion were these individuals with simple silicosis to be deprived of the right to earn a livelihood.

The important question in this entire problem of silicosis is: What are the criteria for determining the question of disability. Both Dr. Gardner and Dr. Sayers have fully and ably discussed the question of diagnosis of silicosis. I believe that we are all agreed with their authoritative statement that silicosis is nondisabling, and that as soon as infection in the lung arises removal from further contact with silica is advisable. It is reasonable to expect that there will be some individuals with simple silicosis who may present the X-ray findings of simple to moderately advanced nodulation who may claim they are unable to work because of shortness of breath, fatigue, and so forth. Since compensation is not awarded for a diagnosis but for disability, it therefore becomes evident that criteria to determine disability in the silicotic must be established.

At the Sea View hospital in Staten Island where there are some 1,500 cases of pulmonary tuberculosis, among whom there are various stages of pulmonary fibrosis, studies of blood circulation, time, and other tests are being made to ascertain methods whereby disability in reference to pulmonary fibrosis can be reached.

In passing it might be stated that the heart is seldom enlarged in these cases of pulmonary fibrosis. One might expect that the pulmonary conus or the right heart would show some enlargement, but this is not the case.

Prior to coming here I had the opportunity of reviewing several hundred chest films taken by Dr. E. E. Kaplan, of Bendiner and Schlesinger. These films were of men who had been exposed to the inhalation of silica in their occupation for a great many years, in some instances 30 to 40 years. There were definite evidences of nodulation. Silicosis had undoubtedly been present in these men for



more than two decades. Several of the workers were in their late sixties but were able to do a day's work without any difficulty whatsoever.

I call special attention to these studies by Dr. Kaplan to reiterate what has already been stated, that an individual with simple silicosis, no matter how old he is, should not be denied the right to continue working when the diagnosis of uncomplicated silicosis is made.

Dr. McCONNELL, Dr. A. J. Lanza, assistant medical director of the Metropolitan Life Insurance Co., New York, was unable to be present at this symposium, but filed his report, which follows:

### Discussion Memorandum

By Dr. A. J. LANZA

1. Diagnosis of silicosis:

- (a) Stereoscopic X-ray film, must show modulation together with history of exposure to silica hazard; and physical examination.
- (b) Autopsy—to be defined by Gardner.

2. Diagnosis of asbestosis:

- (a) Characteristic stereoscopic X-ray film, with history of exposure to asbestos hazard. Asbestos bodies in sputum do not make a diagnosis;
  - (b) Autopsy—to be defined by Gardner.
- Standard routine should be adopted, but criteria of diagnosis not so clear-cut nor definite for asbestosis as for silicosis. Cases showing "more fibrosis than normal"; that is, increased linear markings, should be classed as negative.

3. Applicants for work entailing silica or asbestos hazard should be refused employment if they have—

- (a) Tuberculosis—active or arrested adult type lesions;
- (b) Pneumoconiosis of any form;
- (c) Definite pulmonary or cardiac disease.

It should be understood that these disqualifications are based on a diagnosis and not on actual or apparent disability. Any degree of impaired working ability from causes listed would debar applicants from further exposure.

4. Employees presenting silicosis or asbestosis, without infection, and still in fairly good general condition and with no marked disability from other causes, may be continued at work if the hazard is controlled to the satisfaction of the State authorities. The same should hold for those presenting more fibrosis than normal. Individual judgment must be the main reliance here, with the idea predominant that a workman will not be separated from his job unless his best interest make such action imperative. In these cases, action is based on the weighing of both diagnosis and disability.

Employees who have silicosis or asbestosis with infection should be removed from any possibility of further exposure. There may be individual exceptions based on local conditions and the judgment of the medical officer, but such exceptions should be very carefully considered. In these infected cases, action is based on diagnosis irrespective of disability.

5. The whole question of occupational diseases is an important phase of the public health, hence the maxim that prevention is better than cure must be applied. Consequently, it is the duty of State authorities not only to ascertain where hazards may exist but also to what extent the exposed individuals are affected, with the purpose of enabling those affected to escape further progress of their disease and further incapacity as far as possible.

The industrial commission should require the examination of exposed employees. Not only is this to the interest of the employees themselves, but also to that of the industry and the community in general. Inasmuch as the act compensates for disability only, no injustice will be worked to either the workman or his employer.

6. No general rule for the periodic examination of employees can be laid down. The State authorities may decidé upon the frequency of such examinations, depending upon the severity of the hazard. The standard technique, as defined in the appendix hereto, should be followed in all cases. In all cases the examining doctor should be required to give his opinion, subject to review by whomsoever the State authorities shall designate.
7. The question of which doctors should make which examination is a matter of policy and should be debated at the symposium.
8. The physician who attempts to diagnose pulmonary dust diseases should have the basic training common to those who specialize in X-ray diagnosis of the chest; and in addition should have wide experience in the variations of X-ray appearances compatible with good health to be found in the chests of workmen at various ages; and he should have the special instruction to be obtained in those teaching centers which specialize in this form of diagnosis.
9. No definite degree of disability in every case of silicosis or asbestosis can be associated with a similar definite degree of pulmonary involvement. In general, disability is proportionate to the extent of pulmonary fibrosis, but the estimation of the degree of disability must in each case rest with the judgment of the examining physician. It may be accepted as a standard procedure that any case of silicosis or asbestosis, complicated by active tuberculosis, is totally disabled.

[Meeting adjourned.]

## October 2—Morning Session

### Joint Session of I. A. I. A. B. C. and I. A. G. L. O.

**Chairman, Thomas P. Kearns, Superintendent, Division of Safety and Hygiene, Department of Industrial Relations of Ohio**

Mr. KEARNS. First, I may say that I am pleased to preside at this joint session of industrial accident boards and commissions and governmental labor officials to discuss safety and accident prevention problems.

Both organizations have many things in common in this field, and both have a deep appreciation of the old adage that an ounce of prevention is worth a pound of cure. It seems entirely appropriate, therefore, that the two organizations should get together for the purpose of discussing ways and means of bringing about a greater respect for and observance of our safety laws and regulations to the end that we may be able to reduce the number and severity of occupational injuries occurring in industry.

One of the most essential functions of industrial boards and commissions is to prevent accidents. The economic saving made possible thereby is certainly preferable to the heavy drain on funds through compensation payments and medical costs. In like measure, Federal and State agencies having to do with the enforcement of safety regulations have a vital interest in safety. Accident prevention would solve one of the greatest economic problems facing these bodies, and safety, therefore, becomes a necessary policy in the administration of compensation funds.

Fundamentally, and of necessity, the big problem of our industrial accident boards and commissions is a financial one. If it is true, as many competent safety engineers believe, that 95 percent of all accidents are preventable, the key to the solution of that problem is undeniably safety. Standardization, statistics, legislation, administration, these are all essentially matters which call for full consideration, but the greatest hope for the elimination of the really great worries of our boards and commissions lies in the effectiveness of our efforts to educate employers and employees to recognize the sound economic value of a policy of accident prevention. In other words, the problem is to get their wholehearted support and cooperation in working out a solution of our accident and occupational disease problems.

We are all aware of the fact that new problems have been born of the abnormal conditions through which we have been passing and from which all of us most earnestly hope and believe we are now emerging. But, how many of us have paused to consider the many new conditions that have arisen to intensify the normal hazards of industry.

Among the things which are almost certain to be contributory to greater accident frequency and severity are loss of skill by employees after protracted periods of idleness, the hazards attending the performance of new and unaccustomed tasks, and particularly the changes in mental attitudes of employees, which will require some time for readjustment. These are new elements injected into the safety problem which call for serious consideration.

In the light of these facts, which all compensation bodies will eventually face, may I be permitted to reiterate that it is my candid opinion that these conventions do not give to the safety problem the time and attention its importance warrants and demands, and until we do we will be constantly confronted with an ever-increasing tide of economic worries.

There are two principal methods of promoting accident prevention work; namely, factory inspection, or enforcement through the exercise of the police powers of the State, and human engineering, which in a broad sense means educational methods. In my opinion, both methods are essential and the best results are obtained where both are employed, but whether one or both are used it is obvious that there is need of greater effort along this line on the part of all governmental officials.

We are to hear a discussion on all phases of the subject today by men who are eminently qualified to discuss it.

Mr. KEARNS. The next subject on the program is the Responsibility of the States Through Accident Boards and Commissions in the Prevention of Accidents, by John P. Meade. Unfortunately Mr. Meade cannot be here, so we are going to have Mr. Martin, the vice chairman of the South Carolina Industrial Commission, read his paper.

[Mr. Martin read Mr. Meade's paper.]

### Responsibility of the States Through Accident Boards and Commissions in the Prevention of Accidents

By JOHN P. MEADE, *Director, Division of Industrial Safety, Department of Labor and Industry of Massachusetts*

Probably no question in the industrial life of the Nation has been more intensively examined in recent years than the legislation enacted for the compensation of injuries arising out of and in the course of employment. Out of this experience has come the enactment of rules and regulations for the prevention of work accidents and diseases in employment. In the light of the progress made on these lines for nearly the past quarter of a century, it may be of service to select for examination a few points that continue to annoy those who would seek accurate information and who realize there is a great deal yet to be accomplished.

In this connection there comes to mind immediately the importance of accurate and prompt reporting of industrial injuries. This subject has engaged the attention of the organizations of industrial accident commissions and departments before. It is not a new question on this occasion. However, it is important to note that the difficulties of reporting work accidents are still with us. Small estab-

lishments are frequently unequipped for this purpose. It is often found that employers in this group notify the insurance company of the case in the plant and feel that their duty in this respect is completed. In cases where employees require medical treatment, but are able to work, a visit to the physician is frequently made in this connection, but no report in the case is made to State departments until action is begun. It seems to be the desire not to have it appear as an accident.

In large plants where competent office managers are found there is usually a good system of reporting, but even under these circumstances description of the technical processes involved in the employment seldom appears in the report. Hernia cases are not made known to State departments as promptly as they should be. Employees are not impressed with the gravity of such injuries until the major symptoms of pain appear, and then the delay in making these facts known does much to confuse the issue and endanger the rights of the employees.

Now, it is apparent that much of this difficulty lies outside the breastworks and jurisdiction of State departments and can only be corrected by its representatives in their dealing with individuals charged with the duty of filing accident reports. Suitable forms adapted to the requirements of the various industrial processes, which would furnish State departments with correct information, would be of great advantage in the accurate determination of injury causation, whether it be in regard to the construction of machinery, in power transmission or point of operation, or to the furnishing of adequate general information as to the setting up of suitable exhaust equipment to safeguard the employees from the inhalation of harmful dust or fumes. This arrangement would make necessary the use of a form that would require a concise report of the materials used in the industrial processes of the plant. It is a common experience that the notice of injury is often filed with the State department by inexperienced young clerks and persons usually without practical knowledge of the subject. This system must be improved upon if we are going to get reports that will furnish a compelling reason to have these injuries investigated. An inspection staff large enough to investigate all the accidents occurring within its borders is not available in any State.

Under these circumstances, selection must be made from the cases reported, and unless there is adequate information furnished, there is great danger of failing to investigate certain major types of industrial injury involving occupational exposure to contact with industrial poisons and the inhalation of dust, fumes, and gases harmful to the employee.

These few thoughts are to be construed as an appeal for greater study of this matter, something which lies at the very foundation of a successful system of accident prevention.

Another serious leakage in this reporting of industrial injuries is the lack of attention often given to this law by uninsured employers. Penalizing the concerns which fail to comply with the requirements of the law in this connection is entitled to cooperation from the courts. In Massachusetts the legislature of 1935, in chapter 305 of the acts and resolves of that year, increased the penalty for refusal

or neglect of employers to make reports to the department of industrial accidents as to injuries to their employees.

Another enactment by the same legislature on this same question was a provision amending the existing law in requiring notice from employers who were not insured under the Workman's Compensation Act. This statute requires that each year on or before January 15 every employer of more than five persons, who is not then an employer who has provided by insurance for the payment to his employees by an insurer of the compensation provided for by the State law, shall report that fact to the department in such manner as it shall prescribe, and such reports shall become public records. Private employers refusing to make any such report are to be punished by the imposition of a fine.

These facts are adduced as proof to show that better control is necessary for the reporting by noninsured employers of injuries that occur.

There are those who believe that much is being lost at present because occupational diseases are not promptly and adequately reported. This becomes important when it is understood that the increasing use of chemicals in industry, growing more and more every year, makes necessary a greater knowledge concerning the handling of these materials to determine the origin of diseases in occupation. Better reports are especially needed from manufacturing concerns that require the use of acetone, cyanide of potassium, aniline, lead oxide, benzene, chromic acid, and other toxic substances in the process of manufacture. This can only be made possible through the use of a report form that would establish the basis of a thorough investigation later.

In suggesting the reporting of industrial injuries along these lines, we come to the question of what use should be made of the information received from investigation of the facts. This work constitutes an integral part of any efficient system in the work of preventing accidents. Factory inspectors, by training and experience, are equipped with knowledge concerning the necessity for safe places in employment. When this experience is combined with the investigation of employment injuries, accident-prevention work should reach the highest point of efficiency, and constructive work in the enforcement of statutes and regulations for the protection of workmen from injury reaches its highest accomplishment. Between the department of industrial accidents and the factory inspection department there should be the closest cooperation. In Massachusetts this policy has brought about good results. In the Workman's Compensation Act of that State it is provided in section 19 of chapter 152 of the general laws as follows:

Copies of reports of injuries filed by employers with the department (department of industrial accidents) and statistics and data compiled therefrom shall be kept available by it and shall be furnished on request to the department of labor and industries for its own use.

From the reports of these injuries are selected typical cases for investigation, and in the case histories received may be found opinions of impartial physicians, decisions of board members, hospital records of the injury, the employer's report of the accident, and other related information. The information thus secured leads

inevitably, where necessary, to the enactment of rules for the better control of occupational dangers. An adequate system in the selection of types of injuries for such investigation is necessary. There is no State in the Union equipped with enough inspectors for the investigation of every case of reported injury, nor would there be any profit in attempting to do so. Such efforts should be limited only to the type of accident occurring under circumstances that would justify an investigation. Such action would be necessary in some of the minor cases where health hazards appear, as, for instance, the study of sandpapering processes and spray painting apparatus in plants engaged in the finishing of automobiles. Here formulas are often found which require the use of pyroxylin, from which the vapor arising in its application is pungent and irritating. Systematic examination of equipment for the control of dust and fumes is necessary in such establishments. Where these problems appear, however slight the injury may be, investigation is justifiable.

We find another illustration of this principle in the manufacture of storage batteries and plates. Lead fumes are found in the industrial processes in this employment unless there is good control or removal to the outside air. Metallic lead oxide dusts are found on the workman's hands and clothes. The mixing of dry oxides for the paste is dangerous work unless it is done mechanically in a tightly closed apparatus. The presence of sulphuric acid fumes in the charging room, the hooding and providing of exhaust blowers, lead-mixing churns and lead crucibles need frequent attention. The weighing out of lead oxides may be found going on in establishments with no attempt to control the dust hazard. All these conditions are seen in their true light when an injured workman owes his incapacity to them. It is here that reports of injuries may be misleading unless the investigation is made by the competent factory inspector, who is quick to see the necessity for the application of proper means of correction.

These few instances, which might be easily multiplied by illustrations from other industries, show the advantages to be gained when the investigation work is in the hands of factory inspectors whose duties require their familiarity with the statutory provisions for the prevention of industrial or occupational disease. Organization of the work on this basis is a responsibility which the accident boards and commissions owe to the States in the prevention of work injuries. The difficulties, of course, are legion, but some way should be found to make these practices universal in all the States of the Union.

Raising the standard of reporting the injuries arising out of and in the course of employment to a more intelligent basis and uniting this work with adequate investigation by the factory inspector, who must be familiar with the statutes designed to reduce injuries to the minimum, is a program that would be hard to excel and would constitute a real contribution to a cause dedicated to the protection of the home, the individual, and the community.

Mr. KEARNS. I should like to digress a moment to discuss the subject of rehabilitation in workmen's compensation administration. Mark M. Walter was to be on the program tomorrow morning, but is called home, and would like to give his paper now.

## Rehabilitation in Workmen's Compensation Administration

BY MARK M. WALTER, *Director, Bureau of Rehabilitation of Pennsylvania*

The evolution of the concept that society is responsible for the physical and vocational restoration of its citizens who become disabled has been one of gradual development. In fact, it was not until the beginning of the present century that serious consideration was given to the problem of protecting individuals by providing safe working conditions in industry, and through education, informing the public in safe practices and health habits to reduce the number of accidents and victims of disease. Notwithstanding the excellent work that has been accomplished in this field it has been necessary for society to establish facilities for reducing the effects of accident and disease, through compensation for the industrially injured, surgical and medical care for the sick, and rehabilitation for the vocationally handicapped.

Vocational rehabilitation is the third step in this program, its purpose being to provide the services essential to enable the disabled person to return to remunerative employment. The objective of the safety movement is primarily one of prevention; that of compensation, to provide financial remuneration for physical loss or injury; while rehabilitation readjusts the individual to economic independence.

Workmen's compensation and vocational rehabilitation have many things in common. In this paper an attempt will be made to show their interrelation through a discussion of their objectives and functions, the legal provisions and policies affecting the relationship, and the possibilities for improving this cooperation, with suggestions for a definite plan to strengthen the services to the disabled people.

As stated in Bulletin 76, Industrial Rehabilitation, Series No. 5, of the Federal Board for Vocational Education: "The intent of compensation legislation is threefold; first, to provide a speedy and inexpensive method by which compensation may be paid to injured employees and their dependents; second, to substitute a more uniform scale of compensation than could be obtained from the varying and often widely divergent estimates of juries; third, to avoid the application of certain well-established rules of law which in some cases were harsh in their operation." From a functional viewpoint workmen's compensation makes provision for prompt medical, surgical, and hospital care; payments to the injured worker in accordance with the nature and degree of his disability; and in a few States moneys are appropriated from the compensation fund for the purchase of prosthesis and payment of maintenance during the period of vocational rehabilitation.

These awards for the injured serve a great purpose, since they extend to a considerable degree the possibilities under which workmen may get compensation, eliminate the practice of employers to make a defense of liability, eliminate the hazards of lawsuits, and facilitate the payment of compensation, especially in those cases where the employer would not have been liable under the common law. On the other hand, in many cases they do not supply a margin whereby the worker can fit himself for new employment, or always



serve as an incentive to encourage the individual to rehabilitate himself.

Although rehabilitation legislation may be said to be an outgrowth of, or supplement to, compensation legislation, in its operation today under the State and Federal Governments it makes provision for those who are the byproduct of social conditions and transportation, as well as industrial accidents. Several forces were responsible for the evolution of this conception. The work of the charity organizations of England and the United States laid the foundation for the modern technique of case work and included in their programs provision for the placement in employment of the disabled. This movement was followed by the organization of societies to provide for the care and education of crippled children. About the same time public education was provided for certain types of handicapped children, including the deaf, the blind, and the crippled. These movements all focused attention on the rehabilitation of the disabled. However, it was not until industrial managers realized the economic significance of the problem and the Government made provision for the rehabilitation of the disabled veterans that Congress and the States gave serious consideration to legislation to provide for the rehabilitation of persons disabled in industry or otherwise, and their return to civil employment. The national law was passed in 1920 and since then 45 States have enacted legislation to accept its provisions.

In its operation rehabilitation provides a series of aids and services to persons who are physically and vocationally handicapped; that is, totally or partially incapacitated for remunerative employment. These services involve a specialized case-work technique of advisement, placement, and supervision, and may include physical restoration, guidance, vocational training, job adjustment, placement, or establishment of the individual in business. As aptly stated by Dr. R. M. Little, of New York, a speaker on this program: "Rehabilitation of the disabled is a highly complex, specialized, personal service which must take form according to the peculiar difficulties and aptitude of each person. For one, it may be of assistance to secure physical reconstruction and a prosthetic appliance that he may return to his former occupation or engage in a new one. For another, it may be changing from unfavorable working conditions to a more favorable environment. To another, counsel and advice may be given about entering upon a business venture. Many industrial workers must be retrained in industry; others can take correspondence courses in their homes and be guided by tutors. Many can be sent to trade and technical schools for special courses, particularly the young. A small proportion can be retrained in commercial schools. Every physically handicapped person presents a number of distinct problems which the rehabilitation workers must deal with sympathetically and with imagination, patience, and ingenuity."

According to the National Safety Council there are 12,000,000 persons in this country who have suffered some physical impairment. Figures are available to show that 12 persons in each 1,000 are afflicted with permanent disabilities. Studies made in Cleveland and Massachusetts showed that occupational accidents constituted

between one-seventh and one-ninth of the total number of the disabled. These figures alone indicate the importance of the interrelation of compensation and rehabilitation.

Prior to the passage of the National Vocational Rehabilitation Act, the compensation laws of California, Massachusetts, North Dakota, and Virginia provided for the vocational rehabilitation of injured workmen. Apparently these States realized the necessity of the restoration of the injured worker's earning power, as distinct from simply providing him with financial compensation.

Present practices among the States are based upon legal provisions contained in the rehabilitation and compensation laws, the decisions of the courts, and policies that have been adopted by those responsible for the administration of the programs.

The Federal rehabilitation act requires that: "In those States where a State workman's compensation board, or other State board, department, or agency exists, charged with the administration of the State workmen's compensation or liability laws, the legislature shall provide that a plan of cooperation be formulated between such State board, department, or agency and the State board charged with the administration of this act, such plan to be effective when approved by the Governor of the State." This provision is included in the acceptance act of all the States cooperating with the Federal Government in vocational rehabilitation.

The decision of the United States Supreme Court, no. 593, October term 1923, the New York State act, considered that the rehabilitation of injured workers under the compensation law is a part of their compensation.

In addition to the payment of compensation for specific types of injuries, the laws of many States provide for medical, surgical, and hospital treatment for the purpose of restoring the handicapped as nearly as possible to his condition prior to injury. In at least eight States and the Federal Government there are no limitations upon the period of time for which medical service shall be rendered, nor any limit as to the amount of expenditures for these services.

In 11 States the compensation laws provide for the supplying of artificial appliances for orthopedic disabilities. In these cases the State rehabilitation director or supervisor is consulted as to the best type of prosthesis to fit the need of the injured workman.

A number of the States have liberal provision in their laws for scheduled disabilities, which provide a better opportunity for rehabilitation than in those States having less liberal compensation. Twenty States provide for total temporary disability (the healing period) in addition to compensation payments listed in the permanent partial disability schedule. This is important because many cases reported to the rehabilitation service are permanent partials. Again, if the maximum amount of compensation is so low that it does not provide a reasonable amount for living maintenance, the injured worker is prevented from taking advantage of training facilities offered under the provisions of the rehabilitation act and in many cases is obliged to accept employment not consistent with his vocational experience and ability.

Five of the State compensation acts and the United States Longshoremen's and Harbor Workers' Act provide special or additional

compensation for purposes of rehabilitation. In some cases this extra compensation can be expended only for living maintenance during rehabilitation, while in others it may be used for all rehabilitation expenses, in which case the funds are expended by either the compensation or rehabilitation agency. In addition five States have special provisions in their rehabilitation laws for a maintenance allowance for subsistence of disabled persons while in training.

Although all but 5 States having compensation laws at present have specific provisions regarding payments in second injury cases, only 13 and the United States Longshoremen and Harbor Workers' Act provide special funds for second-injury cases, which eliminate in those States any factor of discrimination in regard to employment of rehabilitation cases. In other words, employers do not run an additional risk in the employment of a permanent-partial disabled person, and the employee receives compensation for total permanent disability instead of simply for a second permanent-partial disability as is the case in 14 States.

Where the granting of a lump sum is advantageous to the injured workman, as for example in the case of an individual who is capable of conducting a small business or desires increased weekly allowance to provide for his subsistence while in training, compensation laws in a majority of the States have provisions permitting the granting of a lump sum, and in many of the States the commission refers all requests, whenever the rehabilitation factor is present, to the rehabilitation department for investigation and recommendation. In the State of New York all requests for compromise agreements in which \$500 to \$1,000 or more is involved are referred to the rehabilitation office for investigation and report as to the economic and social advantage or disadvantage of the claim to be compromised. This subject is a very important phase of cooperation and will be discussed in detail by Dr. Little.

Cases are reported to the rehabilitation bureau through various channels—medical examiners, claim reviewers, claim investigators, injury clerks, referees, and industrial commissions. In a few cases a representative from the rehabilitation division may have access to the compensation files to select cases thought to be eligible for rehabilitation.

In several of the States attempts have been made to have one or more responsible persons in the compensation office trained by the rehabilitation department to select cases eligible and feasible for rehabilitation.

The report is usually accompanied by an up-to-date medical statement or copy of the statement of facts giving pertinent information on the case, and in some cases the rehabilitation service has been successful in instituting a system of cooperation whereby agents of the compensation commission are cooperating to the extent of rendering real service to the rehabilitation program by interviewing disabled persons for the purpose of securing all the information possible regarding their disability, education, occupational experience, personality, financial resources, and other necessary general information.

In a number of the States the rehabilitation division reports back to the compensation commission the extent of the service provided to the injured workman.

In the adjustment of compensation, arbitrators have been of valuable assistance to State agents in securing the reopening of closed compensation cases, when in the opinion of the arbitrator a worthy rehabilitation case could be assisted to a successful completion of the rehabilitation program. In several States the industrial commissions have cooperated in adopting the recommendations of the rehabilitation service for the continuance or increase of compensation payments for rehabilitation trainees pursuing a definite course of instruction.

In order to learn something about the efficiency with which the programs of compensation and rehabilitation are functioning as they relate to the rehabilitation of injured workmen, the matter was brought to the attention of the leading industrial States, and the following suggestions were received, which it is felt would improve the interrelation of the services:

For the purpose of overcoming the apparent lack of uniformity in the reporting of cases, correcting the delay in bringing to the attention of the rehabilitation service all permanent-partial and total-disability injuries, and eliminating the referral of minor injuries, it is recommended that a liaison officer between the two departments be assigned to select the cases eligible for rehabilitation, attend the hearing of such cases if necessary, and cooperate in the handling of applications for lump sums. Since the members of the rehabilitation staff are trained in this work, a competent person could not doubt be obtained from this division.

A formal report is not sufficient, a copy of the medical record and a complete statement of the facts of each case being necessary in order to determine the question of eligibility. An individual may be disabled but unless he has a vocational handicap the rehabilitation department cannot be of service to him. In many cases it is necessary to contact the prospective client before registering him.

Arbitrators, because of their familiarity with the compensation law and with the rulings of the commission, as well as their interest in the injured workmen in many instances, could facilitate the rehabilitation program of a disabled person by suggesting, if advisable, an increased weekly or monthly allowance of the compensation payment while the person is in training, and the compensation boards could play a important part by adopting a liberal policy in the continuance of compensation awards for the clients who are being served. By having their complete cooperation in this respect the insurance fund is conserved and the injured workman returned to gainful employment more quickly, resulting in an economic saving to all the parties concerned.

Many of the compensation laws fail to provide adequate medical benefits, and as a result many of the persons injured in industry are left with stiff or limited motion of a hand, arm, foot, leg, and so forth, for life, which might have been corrected in whole or in part by additional medical or surgical attention or work treatment.

Physical restoration is recognized as an essential part of rehabilitation, and very often there will be cases that may be rehabilitated by functional restoration, as all that is needed is to restore the physical condition of the disabled person, thereby enabling him to secure suitable employment.

An interesting example of how function can be restored and the injured workman returned to his former job is demonstrated in the work treatment offered a baker who had his right hand crushed in a dough-mixing machine. He was finally awarded 85 percent loss of use of the hand, the four fingers being stiff and practically useless. Rehabilitation was confronted with the necessity of down-grading this man in employment, if employment was at all possible because of his mental limitations. There was only one hope and that was in reducing the disability. A medical examination showed that there was no underlying organic condition and that the 85 percent merely represented a functional loss. The work medium in this case was 10 pounds of clay. Having won his confidence and cooperation, he took great pride satisfying the curiosity of his fellow patients by demonstrating in this clay how the dough was worked into the various fancy forms to stimulate the appetite. In doing this, function was restored. This case is one of a number cited by F. G. Elton, district director, Rehabilitation Division, New York State Education Department, in the March 1935 issue of the Rehabilitation Review, and indicates the importance of liberal medical benefits without time restriction.

One-arm cases provide a serious placement problem. This type of handicap often amounts to total permanent disability in that the worker, especially in the case of the laborer, is greatly restricted in his possibilities for employment. At the present time, schedules for this injury range from 21 to 78 percent of complete disability. They should be adjusted to provide 100 percent when necessary.

The requests for artificial appliances have reached such proportions that the rehabilitation people have found it necessary to limit the service in this field, in order to conserve the funds for training. Approximately 50 percent of the cases registered with the rehabilitation offices are from the industrial accident group, and more than 60 percent are arm and leg amputations. If artificial appliances were included as part of the hospitalization and medical benefits, as is the case at the present time in eight States, it would facilitate the vocational restoration of the injured workers, and extend the rehabilitation service to many more cases.

The principal objections of employers to taking handicapped persons into their employ are the hazard of second injury and the inability of the disabled to compete successfully with the ablebodied. Although a number of States have overcome the first objection through legislation and court decisions, this problem could be eliminated if provision for second injuries was included in all of the compensation laws. Through the interest and cooperation of Dr. Stephen B. Sweeney, former director of the Bureau of Workmen's Compensation in Pennsylvania, the revised workmen's compensation bill, which was presented to the last session of the legislature and passed in the house, contained a provision for second injuries, artificial appliances, and the cost of administration and rehabilitation of industrial-accident cases.

Studies have been made in several large industries, which have proven that the disabled can carry on just as well as the physically normal person, and it is urged that this association go on record as supporting the larger movement put forth at the present time toward

the creation of a definite policy that each establishment should employ a suitable proportion of the handicapped.

As stated above, the United States Supreme Court has indicated that workmen's compensation without rehabilitation is an unfinished Government responsibility. The interrelation of the two services to become effective, however, depends not only upon laws and court decisions but upon the vital interest which compensation officials take in rehabilitation, and likewise the interest and understanding which rehabilitation workers have in the administration of compensation. Unless compensation officials recognize rehabilitation as a necessary follow-up service, the granting of medical service and mandatory benefits to injured workers will never make even a good start. This cooperation does not mean that the rehabilitation workers will interfere with the prerogatives and authority of compensation officials in adjudicating cases.

Therefore, in conclusion, I would recommend that this association give serious consideration to the adoption of a formal plan of cooperation with the State rehabilitation officials, and that in this undertaking, the following outline taken from Bulletin 126, issued by the Federal Board for Vocational Education, Washington, D. C., may be suggestive:

#### Cooperation by Compensation Agency

1. To report to the rehabilitation service—
  - (a) All cases of major physical impairments.
  - (b) Such cases of minor physical impairment as give indication of becoming potential rehabilitation cases.
  - (c) All controversial compensation cases in groups (a) and (b) as soon as extent of disability has been determined.
2. To provide, on cases reported under no. 1, the following data:
  - (a) Name and address (pay roll).
  - (b) Character and extent of disability.
  - (c) Date of accident.
  - (d) Occupation.
  - (e) Amount and duration of compensation.
  - (f) Amount of medical aid available.
  - (g) Whether appliance is to be furnished.
  - (h) Name and address of employer.
  - (i) Name of insurance carrier.
  - (j) Company official reporting accident.
  - (k) Present address of disabled person (if not at home).
  - (l) Date of this report.
3. To furnish or secure such supplementary reports on cases reported as may be requested.
4. To consult the rehabilitation service as to the award of compensation in cases in which the compensation schedule is applied in the discretion of the commission, and in which the award of compensation will affect the possibilities of rehabilitation.
5. To report to the rehabilitation service applications made by persons eligible for rehabilitation or in process of rehabilitation for commutation of compensation or for lump-sum award, and to permit a representative of the rehabilitation service to participate in all hearings on such applications.

#### Cooperation by Rehabilitation Agency

1. To report to the commission the major steps in the rehabilitation program of cases requested by the commission.
2. To report to the commission yearly in summary form rehabilitation data on all cases reported by the commission.

3. To make investigations by the commission for the purpose of securing supplementary data in cases of application for lump-sum awards or for commutation of compensation for persons eligible for on in process of rehabilitation.

4. To report to the commission any information coming to the rehabilitation service relative to complaints or misunderstandings by disabled persons as to receipt of compensation benefits by them.

#### Joint Cooperation

1. To keep informed relative to the provisions of their respective laws, each department to provide to the other department information coming to its attention showing persons in need of further service, but representatives of each department will not attempt to obligate the other department in its administrative procedure.

2. To promote jointly both programs of service in injured persons through general educational and promotional methods.

3. To engage in joint participation in meetings and conferences for the purpose of pooling information and exchanging experiences.

Mr. KEARNS. The next subject on the program is The Employer's Interest in Accident Prevention. This was to be discussed by C. F. Tomlinson, a furniture manufacturer of North Carolina. He is unable to be with us, but we are fortunate in having Mr. Gill, superintendent of the American Enka Corporation, take his place. I understand from Mr. Dorsett that Mr. Gill is the moving spirit behind the Western North Carolina Safety Council.

### The Employer's Interest in Accident Prevention

By JOSEPH R. GILL, *Superintendent, American Enka Corporation, North Carolina*

We are very proud of our North Carolina Industrial Commission, not only for the Solomonlike degree of wisdom and fairness with which their decisions are made but also for the complete program of safety work sponsored by them. They are called upon for decision in the many difficult cases of hernia, alleged backache, and so forth, of which sometimes it is almost impossible to determine the cause, time, place, or extent.

We expect them to be as canny as a railroad claim agent should be in picking out the unjust cases, as illustrated by the story of a pedestrian who came upon a crossing accident between a train and an auto. The driver of the car was lying beside the road, badly hurt but conscious. "Was there an accident?" the pedestrian asked. "Yes." "Has the claim agent been along yet?" "No," replied the injured man. "Then move over and let me lie alongside of you", said the pedestrian.

The ethics of our commission is like the ethics of the medical profession. Should they ever reach the Utopian position wherein they have accomplished their aims 100 percent, they will have worked themselves out of a job, because there will be no accidents. Perhaps then they could do like it is said of the doctors in China: "Make a charge for no accidents as the Chinese doctors charge for keeping you well and no pay when you get sick."

My topic, The Employer's Interest in Accident Prevention, has been rehashed so many times that I find it extremely difficult or impossible to locate new material or a new manner of presentation. This going stale is one of the reasons that employers must take a

very active interest in accident prevention. We have not done enough when we have paid our compensation insurance premium and carried out the work of installing the guards specified by the insurance or State inspectors.

We have not done enough when we have set up on paper by factory orders a plant safety organization, but we as employers must be ever taking the initiative in seeing that the safety organization is functioning and not passed into "innocuous desuetude." It is here that our North Carolina Industrial Commission comes to the rescue and prods us with their safety program through their annual State-wide safety conventions and our local safety councils. I am sure every employer in western Carolina who has had his supervisors and workers take part in the safety council will agree that it has been a big help in reducing accidents in this section.

There is the greatest danger of employer interest waning and the employee's interest also when a plant happens to have a very good low-accident frequency. Many times this is just the calm before the squall or a handout from Lady Luck who is the most undependable woman I know. This is the time when the employer's interest must be 100 percent in both word and action. This is the time when the employer must realize that accidents and injuries are not the same thing. Too often we have no lost-time injuries, but are having many accidents which, but for the good graces of Lady Luck, would have been lost-time injuries.

We had an example of this kind of accident in our own plant a few years ago. A mechanic was working from a step ladder between two spinning machines that were placed back to back and close together. The machine on which he was working was stopped, but behind him about 7 feet above the floor was a shaft of a running machine of which all couplings and bearings were carefully guarded, but leaving between each frame of the machine a smooth section of shaft about 4 or 5 feet long. This worker was not wearing safe clothing. Fortunately his overalls and jumper were old. In bending, he pulled his jumper out, and then in bending back, his jumper and overalls wound up on the smooth shaft, and in about the same time you can wink your eye threw him over the running machine to the floor below and, excepting for his shoes, completely removed all of his clothing. Though in his birthday suit, except for a few minor bruises and injury to his pride he was unhurt.

I am reminded of another true story of what seems to be an impossible accident without injury that was told by an insurance man at a High Point, State-wide safety conference. A tall building was in the course of construction and contained the usual contractor's type of elevator. At each floor there was a gate, consisting of a bar of 2 by 4. On about the twentieth floor of this building someone had neglected to close this bar, and a colored man standing with his back to the elevator shaft stepped backward to dodge the end of a board carried by a fellow workman across the floor and in doing so stepped into the elevator shaft. The elevator car was then about four stories below. Simultaneously, a worker down on the first floor happened to ring the elevator bell for the car to come down. The Negro was falling in the shaft; the car started downward, gathering speed. Presently, when both the Negro and the car were



both going at about the same speed, the Negro caught up with the car, throwing his arms in a deathlike grip around the cross bar attached to the cable. When the car reached the ground floor, therein was the Negro, unhurt but very white.

It is very obvious that an employer who does not have an interest in accident prevention should not be an employer. As employers we are and must be interested in accident prevention for two major reasons:

First, and I hope this one is first in every employer's mind, the humanitarian one, for we all are to a greater or lesser extent our brother's keeper. To my mind at least there is quite a difference between throwing a broken machine on the scrap pile and sending home a crippled employee no longer able to be of service to his particular industry. In the case of the machine, when we have charged off the depreciation, the job is finished, but in the case of the employee, it may have only begun. His family must needs go through serious readjustment and perhaps poverty, for while the machine we discarded does not require any more oil for lubrication, or electricity for power, the crippled worker and his family must still be provided with clothing, provisions, and shelter. So, first, I believe the employer's interest in accident prevention must be because of the welfare of his workers and their families.

Second, even though there is yet an employer left who does not take an interest in accidents, because of the humanitarian standpoint, he should be vitally interested because accidents cost him money, and they cost money in more ways than simply the compensation and medical expenses of the employee injured. We speak of compensation being paid to the injured employee, but really this compensation does not compensate. It hurts to get hurt, and also compensation as in our State, which is limited to two-thirds of the worker's salary and not over \$18 per week, means that that family has to immediately learn to get along on less money and at a time when their expenses have perhaps been increased due to the added care required for the injured employee.

So, while we pay all the compensation as required by law, yet unless the worker feels that the accident was due to his own personal carelessness, he is quite likely to feel that it is his employer's fault that he has not only had to suffer pain, but also see the standard of living lowered for his family while out on compensation.

The money that we spend for compensation insurance is the smaller part of our accident cost. Think of the loss due to idleness or inattention by other workers who have witnessed a serious accident to one of their fellows. I have known cases where it was necessary to send all the workers home for the rest of the day, for no one could work for thinking of the horrible scene they had just witnessed.

Most industrial plants are well guarded, and it has been said that 90 percent of the accidents now happening could not have been prevented by further guarding but are due to mistakes or carelessness of individuals. This means that the big problem in accident prevention work is that of securing safety consciousness in the minds of every supervisor and worker. Our national statistics show that more along this line has been accomplished in industry than at home or on the highways.

It is my belief that we as employers must be interested in reducing accidents everywhere. The worker who drives his automobile carelessly is not safety-conscious. The worker who swings along across the deep water is not safety-conscious. The worker who starts a fire at home in the stove with kerosene is not safety-conscious, and is more apt to have an accident in our factories than the one who is careful on the road, at play, or at home. Yes; employers must be interested and do everything in their power to make their workers and families safety-conscious at home, on the road, and at play, as well as at work.

This business of the need for accident prevention is not at all new, as we had a warning something over 2,000 years ago when the Prophet Nahum wrote: "The chariots shall rage in the streets, they shall jostle one against another in the broad ways, they shall seem like torches, they shall run like lightnings."

I have spoken of the cost of accidents, that you pay for insurance an amount that you can see on your balance sheet, and of an indirect amount caused by loss of time and lowered morale which you cannot see specified on the balance sheet, but it is there just the same. But I believe that there is still a third and larger element of hidden cost which should not be overlooked. Just as carefulness begets carefulness, so does carelessness beget carelessness.

The supervisor or worker who is careless and causes industrial accidents is also 100 chances to 1 the same employee that is careless in the handling of your production and a cause of lowering quality. If I were in a position wherein I had to choose to accept the same kind of products from two different plants whose quotations and other specifications were the same, I am sure I would get better quality goods and more for my money if I bought from the plant which had the lowest accident record.

Whether workers and supervisors are safety-conscious or not depends upon the management. If the management does not take interest in accident prevention and keep following it up, the accident frequency in that plant will increase, just as it has been demonstrated many times that it could be decreased when the employer does his part in accident prevention. In my estimation, no employer can afford not to take a whole-hearted, intense, constant interest in accident prevention.

In closing, and on behalf of the employers in western North Carolina, I wish to thank our industrial commission for their interest and constructive safety work which has reduced accidents, and for their fair and equitable decisions in fixing compensation. We employers would much rather see the worker get practically all of the compensation claim allowed as is now possible than have the old order of things, wherein sometimes the lawyers got something and the employee rarely anything.

Mr. KEARNS. Unfortunately, Mr. Fry, who was to read a paper on The Relationship Between Divisions of Workmen's Compensation, Factory Inspection, Safety and Health Promotion, is unable to be with us. Mr. Nelson, chairman of the Missouri Industrial Commission, will read his paper.

## The Relationship Between Divisions of Workmen's Compensation, Factory Inspection, Safety and Health Promotion

By C. H. FRY, *Chief, Bureau of Industrial Accident Prevention, California Industrial Accident Commission*

The terms "compensation commission", "industrial commission", "board of compensation commissioners", "industrial accident board", "industrial board", "department of labor", and "department of labor and industry" may or may not designate bodies having similar functions, but without a thorough understanding of the authority and the responsibility of each board, department, or commission it would be impossible to compare the work of one with that of another.

Two important regulatory functions exercised by the State concern the relations between employees and employers: Accident prevention and the payment of claims for industrial injuries. If it were possible to prevent all industrial injuries, there would be no compensation paid.

The term "injury", as defined in the California Workmen's Compensation, Insurance, and Safety Act, includes "any injury or disease arising out of the employment, including injuries to artificial members. The terms "safe" and "safety", as applied to an employment or place of employment, mean such freedom from danger to the life or safety of employees as the nature of the employment will reasonably permit. The terms "safety device" and "safeguard" are given a broad interpretation so as to include any practical method of mitigating or preventing a specific danger. Under these definitions, the California Industrial Accident Commission has the authority to include health regulations as a part of its program. The limitations of this authority have not been determined by the courts. There seems to be no reason for any other department, board, or commission concerning itself in inspections, safety, or health promotion. Nevertheless, there are other bodies which have jurisdiction that overlaps that of the commission. The lack of any serious conflict indicates the cooperation that exists between these bodies, but it would be much better were there not such possibilities.

In California, the department of industrial relations is composed of six divisions:

There are three members of the industrial accident commission: One of these is designated by the Governor as the chairman and as such becomes *ex-officio* director of the department of industrial relations.

The Workmen's Compensation, Insurance, and Safety Act charges the industrial accident commission with the enforcement of safety provisions in places of employment. In addition to this authority the commission is charged with enforcing certain statutory provisions, such as acts referring to the safety in the construction, alterations, and repairs of buildings; another covering the construction, operation, and maintenance of construction elevators; still another having to do with scaffolding or staging; another one requiring temporary flooring in buildings during construction; others having to do with the inspection of air pressure tanks, steam boilers, and elevators.

The above acts apply to places of employment, but the commission is also charged with the enforcement of the Motor Boat Act

that provides for the safety of motor boats for hire. This does not properly belong under the industrial accident commission as it is a public safety act.

The air tank, boiler, and elevator laws permit the commission to charge for inspections and to accept the reports of certified inspectors, but otherwise give it no added authority.

A study of the department of industrial relations would, at first glance, indicate that somewhere within the department would be found all of the authority necessary for the protection of employees, but in a discussion of the subject of this paper other regulatory bodies must be considered.

The railroad commission of the State of California has jurisdiction over all public utilities, and where, in the opinion of the railroad commission, the industrial accident commission interferes with the proper regulation of the utility, the railroad commission supercedes.

All motor vehicles in California are subject to the Motor Vehicle Act, which is enforced by the California Highway Patrol. Many motor vehicles are places of employment, and as such come also under the jurisdiction of the industrial accident commission.

There are also other State and city regulations that have to do with the relationship between employers and employees. The hours of labor must be considered as a health and safety measure in certain industries or operations, as caisson work.

The division of labor statistics and law enforcement, one of the divisions of the department of industrial relations, deals primarily with adjustment of wage claims and the enforcement of the 8-hour law for women, but to it is also delegated the enforcement of other laws where that duty has not been assigned to some other body. One of the laws, which is under its jurisdiction, has to do with ventilation, an exceedingly technical matter, and here there is overlapping jurisdiction between the industrial accident commission and this division.

As some of the California labor laws were enacted as far back as 1872, there are many instances of possible conflict of jurisdiction. At the present time there is a code commission in California that has been working for 2 years in an attempt to correct some of these conditions.

In a broad way, the industrial accident commission may be said to act in the capacity of a compensation commission, an inspection department, and to have jurisdiction over the safety and health of employees. Among its other duties, the commission through the bureau of industrial accident prevention makes, to the extent of its personnel and financial condition, inspection of all places of employment, and through its compensation bureau handles all claims for compensation or medical treatment in disputes between employer and insurance company and the injured person or dependent. The commission is vested with full power and authority, and jurisdiction over the State compensation insurance fund, which was organized for the purpose of insuring employers against the liability for compensation under the Workmen's Compensation Act. The commission also has authority to issue certificates of consent to self-insure to employers.

The work of the bureau of industrial accident prevention is divided into nine sections, and the engineers and inspectors in those

sections are particularly qualified for the work of that section, although they are often called upon to do other work. The staff of the bureau consists of 41 people—27 men and 14 women. The elevator section and the boiler section supervise the work of the 105 certified elevator inspectors and 99 certified boiler and air tank inspectors, respectively. These certified inspectors report to the commission in the same manner that an employee of the commission would report, and the commission enforces the requirements listed by the inspectors except in those cities having boards or departments, such as the board of mechanical engineers in the city of Los Angeles, where the certified inspectors report first to the board and the board, in turn, to the commission. In this case, the board enforces the requirements.

The procedure in electrical inspection work is slightly different. The orders of the industrial accident commission apply to every place of employment in the State, including city, county, and State departments, political, or other subdivisions, and in order to prevent confusion many of the cities have adopted the electrical safety orders of the commission, and their inspectors enforce these orders but do not report directly or indirectly to the commission. The commission, however, is frequently called upon to take action where the city electrical department is having trouble in securing enforcement.

The authority of the commission is broad, and it is important that the engineers and inspectors of the bureau of industrial accident prevention be well qualified for their work. During normal times, when examinations were held for the positions within the bureau—these are all civil-service positions—few men took the examinations, and few of those that appeared were competent inspectors or safety engineers. Today when examinations are held many more men take them, but there are still very few qualified safety engineers out of work. The benefits of civil-service employment have been more appreciated during the last few years than ever before, and this is an inducement for a few of the qualified men to take the examinations.

The industrial accident commission has the authority to issue special or general safety rules or orders, and the procedure for the preparation and adoption of general safety orders applicable in all places of employment is as follows:

The engineers of the commission prepare tentative safety orders; committees consisting of employers and employees, insurance company representatives, and disinterested engineers are then asked to consider these tentative orders in detail; one committee is called to meet in Los Angeles and one in San Francisco, as these two cities are about 400 miles apart.

After the committees have completed their work, the orders are printed and presented to public hearings, one held in San Francisco and one in Los Angeles. The orders are then referred to the commission for action. The commission may again refer the orders to the committees for consideration, they may adopt them without further action, or they may withhold them indefinitely.

The commission has endeavored to incorporate national safety codes in its safety orders wherever possible. In the national codes

there are many things that cannot be satisfactorily adopted as a part of a regulatory code. It seems that this objection should not be unsurmountable, but the petty jealousy that exists between individuals, cities, States, and groups, and the strong personal opinion of some of those interested in the preparation of these orders, when these opinions are not founded on good practice and experience, are the real stones in the road to the universal adoption of national codes. California is not without blame in this respect.

After safety codes have been formulated, the enforcement should be directly supervised by one body, so there will be uniformity in the enforcement. That body, whatever it may be, or whatever it may be called, must have competent engineers and inspectors.

No matter how voluminous or how much in detail the safety orders may be, they cannot cover all of the conditions found in industry, and the uniform application of the orders in every instance is impossible. This presents two antithetical conditions. Inspections must be uniform, therefore the inspector cannot be permitted to vary an iota from the safety rules, yet every day he encounters conditions which are actual violations of the printed orders and where variations from the orders must be made.

Inspectors and engineers are human, although sometimes the employers doubt it, and to permit an inspector to exercise his own judgment as to whether the orders should be enforced or not would result in endless confusion. The commission has authorized the bureau to follow a relatively simple procedure. When the inspector finds a condition where the enforcement of an order is impractical, he must make a note of the violations with his reasons for not listing the requirement. If the chief or assistant chief of the bureau agrees with the inspector, the recommendation of the inspector is approved and the matter is closed. In some instances where the variation from the printed orders is great, the matter is presented directly to the commission for an official exemption.

It is not to be expected that every engineer or inspector should be competent to make a boiler inspection, an electrical inspection, an elevator inspection, a mining inspection, and perhaps go into a logging operation, or into an oil field and make a good inspection, but he at least should be as familiar with general safety requirements as the employer is expected to be.

If it were possible to do so, every man should be trained for at least a year before he made any inspections alone. An inspector should not be required to make audits, hold hearings for the collection of wages and determination of hours, or decide controversies between employers and employees regarding compensation matters. The inspector should have a knowledge of chemistry, physics, and engineering if he wishes to advance, but that does not necessarily mean that a man must be a college graduate. Some of our best men have had very little school training, but they have gained their knowledge by hard work and long hours of study.

There is too much duplication of inspection work. In California a factory will be inspected by at least three different bodies, the California Inspection Rating Bureau for the purpose of establishing schedule rate, the insurance company that is carrying the risk, and the industrial accident commission, which has the regulatory power.

In a cannery employing women there will be an additional inspection by the division of industrial welfare; the fire department will survey the premises for fire hazards, the board of health for plumbing, the division of labor statistics and law enforcement for ventilation. In a dry-cleaning establishment the division of fire safety will enforce its regulations, and so it goes. If it were possible and permissible under the law, one inspection should be sufficient. Surely some way should be found to approximate that end. It is now being done in the case of elevators, air tanks, and boilers, and it should be done in all places of employment. The first step, of course, is that all of the bodies have uniform safety rules and orders.

The enforcement of safety rules and orders concerning the safety and health of employees in places of employment should be in the hands of one body, regardless of what that body may be called. The inspectors should be so trained that the minimum number of inspectors visits any one plant. There should be complete cooperation between the departments or bureaus in that regulatory body, and there should be frequent and regular conferences between the heads of these bureaus or divisions.

National safety standards are essential; the employer, the employee, and the regulatory bodies should take more active part in formulating these standards. A review of the committees formulating national safety standards will show the lack of representation of those most directly concerned, the employer, the employee, and the regulatory bodies, and a large proportion of those who are interested in the sale of material and equipment. This is not intended to reflect in any way on the sincerity of those who have given so freely of their time and money in assisting in the preparation of these national safety standards.

From the viewpoint of the inspection department statistics should not be kept as a matter of statistics but as a foundation on which to make recommendations to prevent the recurrence of accidents. Statistics should be so broken down that the direct and indirect causes of the accidents are available. At present some of the terms used are misleading. "Falls of persons" and "falling objects" are not the cause of accidents. It is not the fall that causes the injury; it is the stopping that results in personal injury. It is important to know the cause of the fall.

Our civilization today is so complex that if we are to progress in industrial-accident prevention it is necessary that the regulatory body give more thought to the cause of accidents where these causes are not within the control of the employer. In California during the years 1924 to 1934, inclusive, 2,153 or 33 percent of the industrial fatalities were listed as being caused by vehicles. A great many of these vehicles were automobiles, motorcycles, and trucks and the employers of those killed could do nothing to prevent the accidents unless they kept the employees off the streets and highways. The same thought may be carried further concerning the deaths and injuries of employees while away from the premises of the employer for any reason.

It is not that too much stress has been laid on physical equipment in plants, but that too little stress has been laid on those causes which exist in the home, in public places, and on the highway. The employer and employee must expand their accident-prevention activi-

ties. They must take part in the public phases of accident prevention. There should be no conflict between regulatory bodies; there should be no overlapping jurisdiction; uniformity in safety rules and orders is essential; and enforcement should be centered in one body in so far as our governmental structure will permit.

Mr. ZIMMER. May I suggest that we dispense with the reading of any further papers and proceed with the informal discussions? The program committee had thought to develop the experiences of three or four typical States in carrying out their safety work. In Massachusetts, for instance, the department of labor and the industrial accident board are two distinct entities; in Wisconsin the industrial commission adjudicates compensation cases and also has charge of safety inspection and regulation; in California there is a variation of these two principles. Now we thought that this would be a good opportunity to bring out a discussion of the relative merits of the several plans. I do think it would be helpful if we could get free discussion from the delegates on these methods.

Mr. KEARNS. As I have said before, I believe we do get more out of the discussions.

[Mr. Wrabetz filed the following paper for the record.]

### **Relationship Between Divisions of Workmen's Compensation, Factory Inspection, and Safety and Health Promotion**

By ROBERT MOA. KEOWN, *Engineer, Industrial Commission of Wisconsin*

In order that we may get a clearer picture of the methods used in Wisconsin, it will perhaps be best to briefly outline the statutory authority under which the industrial commission, the organization that administers the Workmen's Compensation Act and accident prevention program, operates.

When the Wisconsin Legislature passed the Workmen's Compensation Act, effective September 1, 1911, it also enacted the Industrial Commission Act, creating the industrial commission, in which we control the administration of all laws relating to labor and industry. Three years ago administration of unemployment was placed with the industrial commission and just 2 weeks ago the administration of the old-age pensions.

Prior to the advent of the industrial commission, the statutes contained a number of safety laws relating to specific cases. Some of these statutes were obsolete, other indefinite, and on the whole entirely inadequate to secure a balanced safety program.

The industrial commission law requires that "Every employer shall furnish employment which shall be safe for the employees therein and shall furnish a place of employment which shall be safe for the employees therein and for the frequenters thereof and shall furnish and use safety devices and safeguards, and shall adopt and use methods and processes reasonably adequate to render such employment and places of employment safe, and shall do every other thing reasonably necessary to protect the life, health, safety, and welfare of such employees and frequenters. \* \* \*"

The law states also that it is the power and the duty of the industrial commission to fix standards and issue orders for the purpose of carrying out the provisions of the statute. Such orders are not made



up by the office staff. By authority of the legislature, the commission can appoint an advisory committee to assist it in promulgating orders along any particular line. Advisory committee members are selected from nominations made by organizations affected by or interested in the orders under consideration. They serve without pay and many times do not even submit expense accounts.

Statistical records compiled from closed compensation cases are of much assistance in determining the necessity for the adoption of new orders or a revision of existing orders.

For the purpose of this paper only those functions of the commission relating to the subject assigned will be discussed.

The safety and sanitation department is, for convenience of operation, divided into the following divisions: Boiler, building, electrical, elevator, factory inspection, fire prevention, mine and quarry, and safety education. Each of these divisions except those of factory inspection and elevators is under a division head, these two being under the direct supervision of the engineer in charge of the department. The department of workmen's compensation is in charge of a director who has on his staff a corps of examiners.

Each day the commission receives from employers, through the mail, reports of accidents, which reports after being recorded and coded are sent to the safety and sanitation department where each report is read. The purpose of this analysis is to determine which injuries will be investigated, as it is not practical with the limited personnel to make investigations of all injuries, although from an accident-prevention standpoint this would be desirable. The injuries listed for investigation include all fatal cases; those causing permanent or serious disability, and those which from a reading of the report indicate that probably the injury was caused because of failure to comply with some safety statute or order of the commission. The compensation act provides, Where injury is caused by the failure of the employer to comply with any statute or any lawful order of the industrial commission, compensation and death benefits shall be increased 15 percent.

Investigation forms in duplicate are sent to the field deputy in the territory where work is along the line in which the injury occurred; for example, all pressure-vessel injuries are sent to a boiler inspector, elevator injuries to an elevator inspector, machinery injuries to a factory inspector, and so forth. The inspector making the investigation obtains his information from the injured where possible, the foreman, and any others who may have information. The inspector does not obtain sworn statements, so that frequently when a case goes to a hearing before an examiner the sworn testimony is at variance with the information given to the inspector.

The investigator is asked to draw a conclusion as to whether, with the information given and the conditions as he saw them, the injury was caused because of the violation of the statute or order of the commission. The report upon its receipt from the inspector is examined to determine whether the investigator has given the information necessary to reach a conclusion, or whether the statements made as to the cause of the injury warrant the conclusion reached. Frequently it is necessary to write a personal letter to the inspector to obtain further information, this letter often taking

the form of specific questions. When the department is satisfied that the inspector has secured the necessary information, the report is sent to the compensation department. If the conclusion is to the effect that the injury was caused because of the failure of the employer to comply with any order of the commission or any statute, a card is attached to the report showing that the safety and sanitation department is of the opinion that the injured person is entitled to 15 percent additional compensation. If in the opinion of the safety and sanitation department there was no violation of any order of the commission, the report is sent through without any card. In those cases where a card is attached, the compensation department sends a letter to the employer with a copy to the injured, stating that it is the opinion of the safety and sanitation departments that the injured is entitled to increased compensation. If a hearing is requested on this point, the safety and sanitation department is notified as to the time and place, and the inspector who made the report attends the hearing. As a result of this hearing the compensation department determines whether the injured is entitled to the additional compensation.

Frequently during compensation hearings on injuries where no investigation has been made, the question as to whether the injury was the result of noncompliance with a safety order is raised. In such cases the matter is referred to the safety and sanitation department for investigation.

Compensation hearings, together with court review of contested cases, sometimes develop the fact that safety orders are not entirely clear as to their intent or that they do not, as stated, adequately cover the situation. When such instances arise it is the duty of the safety and sanitation department to place the information before the advisory committee concerned when a revision of the orders is under consideration.

The personnel of the compensation department does not include men to make field investigations, and sometimes because of this fact and at other times because accident prevention is involved, matters are referred to the safety and sanitation department for investigation. For instance, there are still some, although relatively few, employers in the State, who, because of the physical conditions of their plants or their insurance loss ratio, find it impossible or difficult to obtain compensation-insurance coverage. When such cases are brought to the attention of the commission, the safety and sanitation department is directed to make a complete inspection and report as to the conditions, and to maintain follow-up inspections until the conditions are corrected. Many of these cases in the past 2 years have been in stone finishing and foundry industries and in all cases where they have continued to operate considerable improvement has been made. The department is equipped with apparatus for taking dust samples and complete equipment for making dust counts, although the use of such apparatus is unnecessary until after a lot of house cleaning has been done.

The fact that the Wisconsin Compensation Act exempts from carrying compensation insurance employers who do not have or have not had since September 1, 1917, three or more employees, makes the task of securing 100 percent compliance a rather difficult one. The

commission records contain the names of those employers who are carrying compensation-insurance coverage, and as the policies expire and no renewal is filed or where the commission obtains information that persons are hiring workers without obtaining insurance, the matter is referred to the safety and sanitation department for a check-up.

Injured persons receiving compensation awards frequently wish to invest their award in the purchase of some kind of a business or of a home and make application for a lump-sum settlement. When this occurs, the commission may call upon one of the safety and sanitation department's field men who is well acquainted in the locality where the property is located, to investigate property values and to make a report to the commission as to the fair value of the property under consideration.

For a number of years the industrial commission has cooperated with industries and other organizations in holding annual 1-day safety conferences in three areas of the State. By having them in several cities instead of at a central point, those in attendance are largely industrial workers who are not required to spend a night away from home and who would not attend if this were necessary.

These conferences consist of a general session for half a day, at which topics of general interest are discussed, sectional meetings for half a day, and a banquet in the evening. The programs for the sectional meetings are developed by committees approved by the general chairman, and usually the programs of some of the sections have addresses dealing with compensation matters, which may take the form of explanation of amendments to the compensation act, how compensation insurance rates are calculated, and so forth, or why rates in a certain industry are no lower, unemployment insurance, and so forth. These 1-day conferences are well attended and serve as a medium for both the safety and compensation departments to disseminate information in their respective fields. These conferences are made self-supporting by the sale of tickets, which pay for the printing of programs, safety-poster contest prizes, incidental expenses, and the evening meal. One of the 1935 conferences was held in Watertown, a city of 10,000 population. The price of tickets was \$1 each. Nearly a week before the conference it was necessary to stop the sale of tickets, as the capacity of all banquet halls was reached with the sale of nearly 1,500 tickets. On the day of the conference 240 people who could not be accommodated applied for tickets. After all expenses were paid there was a substantial balance.

Since 1925 the commission has taken an active part in the promotion of what, for want of a better name, are called safety schools. These schools are held in various cities of the State and consist of from five to seven weekly or biweekly meetings. The local vocational school cooperates with the commission in the promotion of this series of meetings. During the last winter 76 meetings were held in 14 cities, with an average attendance of 650. At the present time six cities, where schools have not heretofore been held, have made application for this service and several others have the matter under consideration.

Not many years ago it was difficult to get the local vocational-school directors interested in these meetings, but as one after another took

it up and meetings were so well attended, it was not long before they realized that through these safety schools they were able to contact men and women whom they probably would not be able to reach in any other way, so that now the vocational schools are enthusiastic supporters of the movement.

Frequently our field men request the accident record of certain plants in their district. This information is prepared by the statistical department of the commission, and is simply a list of injuries giving the date of injury, name of injured, department in which he worked, nature of injury, and cost of compensation and medical aid for closed cases. Two copies of this list are sent to the field man, and he takes one to the plant and delivers it to the highest executive that he can reach, making an appointment with him for a conference 10 days or 2 weeks hence. At this conference the department heads are usually called in and the injuries are gone over to determine what can be done to prevent the recurrence of similar injuries in the future. Comments that have been made by employers to the department lead us to believe that this method is conducive of good results, for in a majority of cases our men find that the executive with whom the conference is held does not know the plant's accident experience and almost never thinks that it is as bad as the records show. Such conferences lead to better accident-prevention methods in the plant.

This discussion of the relationship between compensation and safety has, of course, considered only Wisconsin conditions, where the two are sons of the same father. Under such conditions where father is of the right kind the relationship of the sons will be such that they will cooperate.

Mr. KEARNS. We have a paper prepared by John Roach, of New Jersey. Under the circumstances we will also make this paper a matter of record.

### Discussion on the Responsibility of the State to Prevent Accidents

By JOHN ROACH, *Deputy Commissioner of Labor of New Jersey*

A very serious responsibility rests upon the State to provide the greatest measure of safety possible to workers in her industries. This obligation cannot be discharged merely by enacting regulatory safety laws and expecting employers to observe them in accordance with the spirit of the laws. A long experience in accident-prevention work has convinced even the most incredulous that the police power of the State is not a very effective weapon in real practical accident-prevention work and should be sparingly used. If an employer does no more than provide structures, machinery equipment, and processing methods according to law, he is not likely to develop a very satisfactory accident-prevention record. Too many plants operate in what they call strict accordance with the law and then find at the end of the year that compensation costs are mountain high and their accident experience records are extremely bad.

A careful examination of statistical records will show that a very large percentage of all accidents result from carelessness, negligence, disobedience, or lack of proper selection and training. No one will deny the extreme danger that results from unguarded machines or un-

safe structures. But these things may be clearly seen and easily corrected. The more difficult and hidden causes of accidents are the ones that must be discovered by departmental experts and remedies applied if the ultimate in safety is to be secured. I am convinced that engineering revision, intelligent enforcement of code practices, and a liberal application of safety education will accomplish the results we want. If we expect an employer to construct a safe factory building, we should tell him what we consider a satisfactory type of structure. If we want him to safeguard operating equipment, we should let him know just what methods will meet with the approval of the State. If we ask him to educate his workers on safety methods, then we should at least formulate certain basic rules of educational procedure that meet with the general approval of safety engineering.

In New Jersey, through the American Standards Association, we do provide industry with code procedure prepared by the leading experts in this country. The very fact that these codes have been prepared by industrial experts make their enforcement easy. In addition to the foregoing, in New Jersey we have found that we can get excellent results in the accident-prevention field by running State-wide interplant safety contests, enrolling our industries in these contests, and for a definite period intensifying everyday educational work in the plants. These contests have become very popular, and they probably will remain a permanent feature of departmental administration. The comparative statistics that we secure through these contests have tremendous value. Furthermore, when we present to the employers a definite picture of their operating averages, some of them for the first time become impressed with the fact that safety education is not an idle slogan, but that it has a very definite place in the industrial accident-prevention program. At the end of these contests we have a safety awards dinner, at which time we try to get plant executives to attend the dinner and become imbued with the safety spirit. Last year nearly 700 people gathered at the safety awards dinner. Many of the most important industrial executives were present.

We want the executive to understand that he and not the State is the proper enforcing agent. While we cannot police industry, the employer can enforce any group of safety rules based on common sense and sound engineering judgment. It may be more difficult to sell the safety idea to an employer than it would be to prosecute him for a technical violation, but substantial safety gains have resulted from the one practice, while disappointments and ill will have been the fruits that were gathered from the other. A city editor once threatened to kick O. Henry's head off if he were late with a short story. O. Henry retorted that if he could do his work with his feet instead of his brains he never would be late. It is our business to use brains in the administration of our office. Tact and diplomacy are excellent aides to our course.

In a country like ours, I think an intelligent appeal to the democratic spirit of cooperation has a very definite place. While we have laws with penalties attached, we are not appealing to the police power except in extreme cases and when every other medium has failed.

Statistics undoubtedly have a very important place in the accident-prevention picture. If we could obtain a careful picture of the accident-prevention experience in every plant on the man-hours-lost basis, management would then have a much better understanding of the problem involved. However, most statistics are difficult to understand by the average citizen. The fact that 300 people were killed in an industrial group that consisted of 600,000 people does not present a very dramatic picture to the human mind. In New Jersey we are convinced that the best way to teach industry the value of safety is to take every compensable accident adjusted during the year and prepare a short statement of the cause of the accident. These tragedies presented in this manner do undoubtedly have a tremendous influence on the minds of industrial executives. We have done enough of this work to know its value, and while it covers a whole lot of ground, we are convinced that the expense, time, and trouble to compile accidents in this manner is worth while.

A short time ago a fatality was reported to our accident-prevention bureau that was caused by a man's falling from a ladder. Apparently, the fatality was due to defective ladder construction. When we investigated the circumstances surrounding it, we discovered that the defective ladder was merely one element in a chain of circumstances that caused a man to lose his life. The plant had been closed for a long time. When it was reopened, the pipes near the ceiling had corroded and needed paint. An unused shaft that was connected with power was turning rapidly on one side of the room. A workman secured a ladder and a can of aluminum paint. While painting the pipes close by the turning shaft, the ladder broke and the man fell into the shaft. Thus it will be seen that there were several elements involved in this accident that need a little more discussion in order to understand it properly.

Our statistical bureau has compiled all accidents by cause and cost, listing all accidents under one subject, as "explosions, electricity, hot substances, and flames." While it may be of some assistance and importance to safety engineers to know the number of people injured and killed from these circumstances, a mere tabulation of the number does not convey very much information to the student. In the Chemical Safety News Letter issued by the National Safety Council for June 1935 appeared an article, The Fire Demon, which contained a description of nine fatal accidents caused by flames. This article set forth very clearly the fact that defective factory structures were not responsible for the serious losses of life that resulted from flames. A description of these accidents presented very definite information on the fire risks in the State where these accidents were compiled. The mere use of statistics in presenting the total number of accidents would not give this very definite information. If we are to make continued progress in accident-prevention work, then we must compile records of accidents that will present the cause and effect in such a clear and dramatic way as to make an impression upon the reader.

## DISCUSSION

Mr. WILSON (North Carolina). When the North Carolina Industrial Commission was first created, the Department of Labor (and

I want to make it clear that the present Commissioner of Labor was not in office at that time) took almost no interest in accident prevention and safety work. In fact, it functioned but very slightly at that time. Since then we have a new commissioner, who has attempted to do a fine job insofar as his money and number of inspectors will permit. The North Carolina Industrial Commission is only loosely tied to the Department of Labor; we are almost two separate entities in matters pertaining to labor in the State.

Our law does not require that the North Carolina Industrial Commission make inspections, reports, and recommendations on safety, but the commission early took an interest in safety work. We got started just at the beginning of the depression. We were not in a position to get large sums of money or to put a large corps of inspectors in the field, and, therefore, we tried to seek the particular angle of safety work that would accomplish the most at the smallest expenditure possible. We therefore started in on the educational side of safety. We became interested in organizing a State-wide industrial safety congress. Our law went into effect in July 1929, and in November 1930 we held our first State-wide industrial safety conference. Through the cooperation of our Governor, we sent telegrams to the various employers of the State asking them to participate. We were able to finance that conference through funds given by insurance companies, the self-insurers, and other employers. They showed a keen interest by sending a large representation to this new conference. This idea of compensation was new to them, and they were interested to learn all the various phases. I think the employers were keenly interested in safety because it was a feature of the compensation law that they had not really contemplated. They took real interest in that safety conference and some of them organized safety councils within their own organization, and that is a very important development.

Now, instructions are absolutely necessary. The adequate keeping of records is absolutely necessary, but after all, if you do not have the cooperation of the employer and, through the employer, the cooperation of the various executives down the line within the plant, and if you do not also have a safety organization within that plant, you certainly cannot develop real safety work. So it was our desire to assist and encourage the safety organizations within the various plants. We soon learned, also, that while the annual State-wide safety conference was a prime factor in creating interest in safety, after all that was only one meeting in a year and we have 52 weeks in a year. So we got together with the western North Carolina employers and with their cooperation we formed an organization in this section that meets twice a month. It originally started out as a luncheon affair. The executives would attend, would enjoy a nice meal, and would have some one give a talk. That still was not getting down to bedrock in safety work. They soon found that method was not getting results and decided on a different procedure. Now, instead of meeting at a hotel for lunch, they usually meet in a schoolhouse or a large room in a plant or wherever convenient for the particular manufacturing plant that is entertaining the officers of the organization on that particular night. They have a very large attendance at these meetings, and a great deal of interest among the rank and file of our employees

is created. I want to congratulate the employers of this section for their interest. They not only send delegations as far as 70 miles, but they bring them back, which is 140 miles through these mountains, and they are glad to do that even in the wintertime to attend those meetings.

I had the pleasure of addressing the junior bar of this city, and I knew that among the younger group in the legal profession there was certain opposition to the compensation law. However, I took advantage of the opportunity to tell them that among other reasons why they were not getting so many cases at the present time was that not only had the compensation law tended to decrease the amount of legal practice but that through the safety work of the North Carolina Industrial Commission and others, and the cooperation of the employers, we were reducing the number of accidents.

Now out here we have one plant that has just finished over a year without a single lost-time accident, over a million man-hours. Of course, when we speak of a million man-hours that is small compared with some of the larger plants you have in the eastern section of the country. The American Enka Co. is also doing a fine job of safety. They have several departments that have established some wonderful records. The Champion Fiber Box Co. has done likewise, as has the Deacon Manufacturing Co. The Carolina Wood Turning Co., at Bryson City, has become keenly interested in safety since the superintendent had his hand cut off by a saw. We also have copper mines in the western part of the State, and one mine has gone 3 years without a lost-time accident. Up to a few years ago this same mine was practically a butcher shop. There are other plants that are interested in safety, but I will not take the time to enumerate them.

In addition to organizing the Western North Carolina Safety Conference, we have organized another conference over in the Piedmont section. They have been meeting regularly every 3 months, and at one of their recent meetings they had between 400 and 500 in attendance. I appreciate that these local conferences may have a tendency to reduce the attendance at the State-wide meetings, but I hope not. During the last 6 months we have organized another conference in the neighborhood of Durham, covering five or six counties. We will have our second meeting Tuesday night. The nice thing about these district meetings is that the rank and file can attend, and at the Piedmont section they are showing a great deal of interest in their safety work through this conference, and have a fine attendance. Through these local organizations we have been able to get the cooperation of the employers, the executives, and on down to the workers on the job.

There is still another feature that I think is very important in safety work. Large industrial plants recognized it years ago, particularly the public utilities and steel corporations, and the mines, and that is proper first-aid work. I know from experience that many employees that have minor injuries will not go to a doctor because it takes entirely too much time from work if there is no doctor available at the plant. Even when there is a doctor available at the plant, it often consumes a reasonable amount of time and a great many employees feel they should not be complaining



about these little minor scratches. But often we find that these minor scratches result in serious illness, so the industrial commission has taken a keen interest in conducting first-aid classes throughout this State and giving the graduates a certificate not only from the industrial commission but also from the American Red Cross. In conducting these classes, we have used the opportunity to carry on educational safety work. These efforts of the commission have tended to reduce the severity of minor accidents.

We have adopted an amendment to our compensation law bringing occupational diseases under it. The legislature appropriated \$10,000 to our commission to set up a medical board as provided for in this amendment. Through the cooperation of the United States Public Health Service, particularly Dr. Sayers, we expect to have made available an additional \$20,000 of Federal funds. The industrial commission will allot its \$10,000 fund to the division of sanitation and hygiene to be established in our State department of public health, so that some constructive work for occupational diseases may be carried on.

The industrial commission plans to start conducting first-aid classes among our logging camps and sawmills. It has always been very difficult to carry on safety work in this particular industry, but if ever there was a group of employees that needed first-aid, it is the workers in this industry.

In North Carolina the employees and employers feel a mutual interest in the administration of the workmen's compensation law, and it has aided materially in getting results in the reduction of accidents.

### Assessment Plan for Defraying Cost of Administration of Workmen's Compensation

By WILLIAM E. BROENING, *Chairman, Industrial Accident Commission of Maryland.*

Providing for the cost of compensation administration is one of the very essential administrative features of any compensation act.

While some States provide for compensation through a State fund solely, and others through private competitive insurance, Maryland has established a State fund, permits self-insurance on the part of the employer, and also provides for private competitive insurance. In its method of defraying the cost, it distributes the burden fairly and equitably among all those within the compensation law, subject to the commission's control and supervision.

The framers of Maryland's compensation law had a clear conception of the essential requirements to assure a proper, fair, and equitable administration of compensation, and by subsequent amendments it now has a law which is working satisfactorily to all affected by its provisions and is comparable to other systems in the manner by which it provides for the defraying of the cost of compensation administration.

The particular portion of the law bearing upon the text of this paper has been so clearly drawn and is so specific in all details as it relates to employer, employee, and insurer that no purpose would be served if I sought to amplify it, and as time is so essential in the

deliberation of this convention, I could do no better than present to you the portion of the Maryland law applicable to this phase of the workmen's compensation law, which is as follows:

The entire expense of conducting and administering the State accident fund, as likewise all other expenses of the State Industrial Accident Commission, shall be paid in the first instance by the State out of the moneys appropriated for the maintenance of the State Industrial Accident Commission and the payment of the salaries and expenses of said commission and its officers and employees. In the month of January, and annually thereafter in such month the commission shall ascertain the just expense incurred by the commission during the preceding calendar year, in conducting and in the administration of the State accident fund, by including the salaries of the superintendent of said fund and such other employees of the commission whose services were rendered exclusively to said fund, and all other expenses incurred exclusively for said fund; and the amount of such salaries and expenses shall be chargeable to the State accident fund. And if there be employees of the commission, other than the members themselves and the secretary, whose time is devoted partly to the general work of the commission and partly to the work of the State accident fund, and in case where there are any other expenses which are incurred jointly on behalf of the general work of the commission and the State accident fund, an equitable apportionment of the salaries of such employees and expenses shall be made by the commission and the part thereof which is applicable to the State accident fund shall likewise be chargeable thereto; and the commission shall authorize, in the same manner as other disbursements from the State accident fund are authorized, the whole amount so chargeable to the State accident fund to be transferred from said fund by the treasurer to the State treasury to reimburse the State for the money so appropriated and expended in conducting and administering the State accident fund for the calendar year ending December 31, and for each calendar year thereafter.

As soon as practicable after January 1, and annually thereafter, the commission shall ascertain as fully and accurately as possible the total pay roll of all employers of this State, subject to the provisions of this article, for the preceding calendar year, whether insured in the State accident fund, any stock company, or mutual association, or self-insured, and shall also calculate and ascertain the amount paid by the State for administrative expenses of the State Industrial Accident Commission during said preceding calendar year, including the amount chargeable to the State accident fund under the preceding paragraph of this section. The commission shall then calculate and determine the percentage which the total amount of such salaries and expenses, other than the amount chargeable to the State accident fund, bore to the total pay roll, ascertained as aforesaid for that year, of all the employers of this State subject to the provisions of this article; and the percentage so calculated and determined shall be assessed against all such employers carrying their own insurance in proportion to their several pay rolls, and all insurance carriers, including the State accident fund, in proportion to the aggregate pay roll of employers insured therewith, as a special tax for the maintenance of the State Industrial Accident Commission, other than for conducting and administering the State accident fund, for the calendar year ending December 31, and for each calendar year thereafter; provided, however, that the total amount to be assessed against and paid by such insurance carriers and self-insurers shall not exceed one hundred and ten (110) dollars for any 1 year.

Payment of said taxes may be enforced by civil action in the name of the State of Maryland, and the amounts so assessed and collected by the commission shall be paid into the State treasury to reimburse the State for this portion of the expense of administering the workmen's compensation law. And the commission shall be and is hereby clothed with such power and authority to examine pay rolls and require reports from employers and insurance carriers as may be reasonable and necessary to carry out the provisions of this section and to adopt rules and regulations in regard thereto.

It will be noted that under the Maryland law every employer subject to the provisions of the workmen's compensation law, is compelled to secure compensation insurance for his employees but in that mandatory provision there is a freedom of choice in the method by

which such insurance shall be secured that has tended to promote a spirit of cooperation in the administration of the law.

The total cost of administering compensation in the State of Maryland in the year 1934 was \$83,165.48, which is within \$27,165.48 of the total amount allowed by legislative enactment. Of this amount the self-insurers in the State, numbering some 135, paid about 30 percent, and the remaining 70 percent was distributed among the insurance carriers authorized to do business in Maryland, numbering some 53, including the State accident fund—and of this 70 percent, the State fund paid about 10 percent. The State accident fund has grown to be the largest single insurer in the State on the basis of premiums paid, and the rate in Maryland for the year was .000397957 per dollar.

### DISCUSSION

Mr. McSHANE (Utah). Does the Maryland law provide that the State and the political subdivisions are by operation of law self-insurers, if they so choose?

Mr. BROENING. They stand in the same class as all other employers.

Mr. McSHANE. In the State of Utah the State is required to carry this compensation liability with the fund, but all municipal subdivisions may secure insurance in the State insurance fund or exercise their right to insure their own risk. This is a bad situation for the reason that the various districts, counties, cities, and towns will take the gambler's chance and carry their own insurance until they have a bad experience, and then they will come into the fund.

Mr. BROENING. A department of government can provide for self-insurance or it can secure insurance from the State or any private carrier, and there are some 58 private insurance companies authorized to do business.

Mr. ZIMMER. If your commission makes up a budget of \$110,000, does the legislature retain the right to control your appropriation at any point under the \$110,000?

Mr. BROENING. No; when once made the commission has absolute control.

Mr. ZIMMER. Suppose that you want to employ an additional referee. Do you have to get the consent of the legislature and the budget director before you put that extra man on, or may you add to the staff up to the limit of the appropriation?

Mr. BROENING. Under the law of Maryland the commission is authorized to create any position that in its judgment is necessary for the proper administration of the law, providing it has the approval of the Governor of the State; that is, full control within the limitation of the total appropriation of \$110,000.

Mr. ZIMMER. The only objection that I have heard against assessments to provide the administrative cost was from the State of Utah. It was argued that it gave the commission a chance to build up a large force without restriction. Now of course, I know what happened in New York. We have an assessment plan there based on the amount of compensation paid out, but the legislature

retains the same control over the appropriation in the Department of Labor and Bureau of Workmen's Compensation as they do anywhere else and you cannot get an extra stenographer without selling the idea to the budget director or legislature; so I don't think there is much to the argument that a commission will run wild with an administrative force if you provide for self support.

Mr. BROENING. The State controls it of course. Our legislature is elected for a period of 4 years. They meet every 2 years, and the budget is made up, and when it is made up they cannot control how it is spent. If the legislature is of the opinion that the commission has not been wise in the administration of the law, that they have created too many positions, they have the right to curtail the funds, but after the budget is made up with the approval of the Governor, they have absolutely no control so far as creating positions is concerned.

Mr. MARTIN (South Carolina). In setting up a State fund, has it been found legal for the State to tax its political subdivisions, such as counties, school districts, cities, and various subdivisions?

Mr. BROENING. I do not know. We have never come to that.

Mr. WALKER (North Dakota). In North Dakota jurisdictions the State calls premiums for the various subdivisions covered by the act, but that has never been subjected to the tests of the court.

Mr. KEENER (Arizona). We have not a very complicated system. All the employees of the State political subdivisions are automatically covered by the compensation law as in North Dakota. It has never been legally questioned but has always been paid and takes care of all expenses.

Mr. SMITH (New York). There might be some misunderstanding regarding the Maryland fund in this respect. The New York State fund is in the same situation as the Maryland fund. There is no provision in the New York law requiring New York to insure in the State fund. The same applies to municipalities and political subdivisions. Many of the municipalities and political subdivisions are insured in the New York State fund. We have a special group, which has saved the municipalities a great deal of money in the handling of their compensation insurance. The State of New York compensation obligation is handled by the State fund on a cost basis, which simply amounts to the State acting as a self-insurer and using the State fund as its carrying agency. As Mr. Zimmer has pointed out, the system in New York for assessing the expenses is somewhat different from that outlined in Maryland. The expenses are ascertained annually and prorated to all carriers, including self-insurers, in proportion to the compensation payments in the preceding fiscal year. It is held that the assessing on compensation payment is more equitable than on pay rolls, inasmuch as it is more in proportion to the hazard.

Mr. PARKS (Massachusetts). I can see considerable merit in having the insurance companies and self-insurers pay the expense of the administration. In Massachusetts we have a system of impartial determinations, and we have pretty wide powers in administering that phase of it. The State pays the medical bills, and then we assess them against the insurance company involved. Sometimes

there is quite a bit of money involved in having various experts examine the injured man at no cost to him; the insurance carrier pays the bill.

Mr. KEARNS. I should like to have some discussion by representatives of the various States on the administration and enforcement of their safety laws and the most effective method of bringing about better observance of the safety laws of that particular State.

Mr. WILKIE (Ontario). I should like to know if any State has figures which would enable them to say whether the cost of the safety association is worthy of the results. We have maintained our safety association to a greater extent than any of these States from whom we have heard. I think the association expenses are paid out of the compensation funds if they have no State funds. The State does not have anything to do with our funds; we levy on industry the entire cost of the administration. The State treasury pays nothing and get nothing from us. We are an entirely independent organization, except that the governor of the Province has a certain jurisdiction over the employment of officials.

Now, the way we handle our safety association is this: we levy our assessments on classes and each class is in itself a mutual organization, and a great many of those classes have their own safety associations, managed and governed by representatives of the employers in each class. If the association is efficient, it gets results immediately in reduced costs within the very class that has control of that safety association. The reason I was so anxious about statistics is because I wanted to know how possible it was for our compensation board to show the effects of its work sufficiently to get an allotment of \$200,000 a year for safety-association work.

We have a staff of three doctors associated with us who do the medical work. We have a special medical referee. We have three men for silicosis work. The first-aid business is quite different with us than that which I have heard described here. Under our provincial law every employer must maintain in his plant a first-aid kit, and in that plant there must be some qualified men to administer first aid. The cost of maintaining the kit, of course, falls directly upon the employers.

Something was said here about rehabilitation. We have not got very far with that, but we have on our staff trained medical men who operate what we call a clinic, which is merely a place where workmen go for electrical baths, bicycling, and a whole lot of other exercises for improving the condition of a man who has been injured and has not fully recovered.

Mr. WALKER (North Dakota). I am sorry to report that we have no adequate safety arrangements. The legislature in North Dakota is so tax-conscious that it cannot seem to realize that the funds that the compensation bureau disburses are not taken from the general fund. It is not a State fund; it is a fund administered by State officials but belongs to the employers of the State. We made a very modest request for a budget requirement that would permit us to carry on a campaign of safety education and we could not get that by the budget board or the committee on appropriations in our legislature.

When we had some projects under the Federal Emergency Relief Administration, the frequency of accidents was so great that we hired a safety director and paid him out of our clerical fund. Of course we have no means of knowing what he saved the Government, but I did find men working in gravel pits with overhangings, and we ordered the overhangings cut down and doubtless saved many a serious and may be fatal accident. We have not given up hope that a future legislature will be more liberal, and will see the necessity of a real campaign for safety education. It has occurred to me that possibly some of these papers would be a good approach, and I will see that the members of the next legislative assembly receive these papers, and I hope we will get better results than we have been able to secure in the past.

Mr. McSHANE (Utah). I want to ask one of the speakers this morning what he meant by finding out the relative frequency and severity of accidents by contests. Accident statistics mean absolutely nothing unless man-hours and exposure are a factor in your calculations. I want to say that for 14 years I have been a fanatic for that kind of statistics. We reported in our annual report man-hours exposure in every class so that it was possible for us very readily to determine whether or not we have made progress in the prevention of accidents in any particular class of employment in which we are engaged in the State of Utah. I do not want the impression to go out that we are not getting the man-hour exposure and that we are not able to measure our progress along that line. As regards the question of dollars and cents and whether or not our safety activities are paying and our first-aid activities are paying, we cannot tell; neither can any other jurisdiction because work and its efficacy cannot be measured in dollars and cents expended but in the number of widows and orphans and maimed men and the misfortune caused by maimed men.

Mr. STRICKER. I am sorry I did not make myself quite clear. The thought that I had in mind was that, where you do not have a definite legal requirement, the man-hours be obtained by instituting contests between industrial concerns of the same classification where you figure severity and frequency rate and base the contest on those two points. You may stimulate the States to make a beginning on getting man-hours.

Mr. McSHANE. We have those contests in very large plants, our smelting industry for instance, but we find there is just a little bit of dynamite in those plants. Those plants are so anxious to have the blue ribbon that they send men out with broken arms without attention and do not report every accident, and the whole thing goes to pieces.

Mr. FITZGERALD (Nevada). I should like to say a few words concerning the safety work in the State of Nevada, particularly in relation to the Nevada consolidated companies. Every year they have safety-first classes under the mining division, which every person from the general management down to the laborer is compelled to attend. Each and every member of that company who has worked for 1 year has a certificate from the Bureau of Mines certifying that he is capable of giving first aid in case of accident.

I should like to say a word about our industrial commission. The commission has been in existence for over 20 years. The appointments to this commission are political, but owing to Mr. Sullivan's ability he has been retained as chairman of the commission for the last 20 years. During that time I have seen only 26 cases where there has been an appeal from a decision of the commission to the court. Of those 26 cases, 7 were decided in favor of the claimant, 6 were decided in favor of the commission, and 5 were settled without going to adjudication in the court, and the balance were still pending with no possible chance of ever coming to a decision.

Mr. DORSETT (North Carolina). You mean only 26 appeals in 20 years?

Mr. FITZGERALD. Yes, sir. The commission does all of the insuring. There are no private companies and no self-insurance with the exception of the main-line railways, the Western Pacific and the Southern Pacific. The smaller railways within the State are insured by the commission. The entire expense of conducting that commission is paid by the interest on the money. There was no appropriation from the State even during the period of building Boulder Dam, where there were 22,000 men employed altogether with an average of a little over 4,000 men continually. There never has been any difficulty about settlement of these claims, and those 26 claims I mentioned included all claims that have arisen out of Boulder Dam construction, in which there were 63 deaths.

Miss HARRISON (Maryland). Mr. Wilcox suggested to the association that it consider a penalty on the employer for injuries to minors illegally employed. Mr. Broening, chairman of the Maryland commission, has asked me to read the Maryland law on that subject:

Every minor employee engaged in extra-hazardous employment or work covered by this article shall be deemed *sui juris* for the purposes of this article; and no other person shall have any cause of action or right to compensation for any injury to such minor employee unless otherwise herein provided. All compensation and death benefits provided by this article, however, shall be doubled in the case of any minor employed illegally under the laws of this State, with the knowledge of the employer, and no insurance policy shall be available to protect the employer of such minor from the payment of the extra or additional compensation or benefits to be awarded by reason of such illegal employment, but the employer alone shall be liable for the said increased amount of compensation or death benefits; provided, however, that the certificate of the commissioner of labor and statistics shall be conclusive evidence of the legality of any employment for the purposes of this article.

Maryland presents this suggestion to the association for its consideration.

Mr. SMITH (New York). New York is even in advance of Maryland, for it requires a double penalty, which applies whether the minor is employed with or without the knowledge of the employer. I have heard of cases where the employer was reliably informed that the child was not a minor, and when later an accident occurred and the child was found to be illegally employed the employer was held for the double penalty.

I was interested in Mr. McShane's remarks on man-hours. Everybody interested in the administration of compensation laws realizes the importance of getting man-hours of exposure if possible. It seems to me it is hard enough to get pay rolls without attempting to go further and get man-hours. It may be simple in Utah and in

Maryland to get pay rolls, but certainly it is not in New York, and when I contemplate the difficulty of getting man-hour exposure figures from 37,000 employers in New York State, where many employers have no pay roll records whatever, let alone man-hour exposure statistics, I wonder how it can be done. If Mr. McShane has solved the problem, I think he would be conferring a favor on everybody if he would tell how the trick is done.

Mr. McSHANE. It is just like standing an egg on its end. If you crack it a little bit, the problem is solved. We make the rates for all carriers. As a condition precedent to making those rates we must have pay rolls so the employer annually within 30 days of the 1st of July each year is required under penalty to submit to the commission this pay roll and also the man-hours of exposure. He is also required to give additional information, and we have absolutely no trouble in getting that. Any checks that we have made as to accuracy of these reports have not been disappointing. We have been getting that information for several years for the reason that there has been imposed on our commission the duty for making the rates.

Mr. KEENER (Arizona). With reference to the statement I made a while ago, it occurs to me that there was an appeal from one of our State highway departments as to the right of the commission to collect premiums. The question was taken up to the supreme court of the State and the supreme court compelled the highway department to pay into the fund the amount of the premium and fined it as well. The accounts of all municipalities as well as private employers are made annually. That question was decided by the court.

Mr. PARKS (Massachusetts). Mr. Chairman, I want to say this as a general proposition. I have come to these meetings for years and I find this difficulty. We have a man get up and read a paper and then another, and so that takes all the time, and we have no time left for discussion. I find there are many things I would like to tell some of these new commissioners. From my 23 years of experience I believe that I could tell them a few things that might be beneficial. I cannot do it because there is not sufficient time, and I must sit down and hope that in future conventions there will be more time for discussion.

Mr. KEARNS. I am inclined to agree with you for I realize the importance of these discussions. I must confess that the program this morning was too long to give us opportunity for a proper discussion.

[Meeting adjourned.]



## October 3—Morning Session

Chairman Donald D. Garcelon, Chairman Maine Industrial Accident Commission

Mr. GARCELON. The first paper this morning is on the necessity for medical staffs in compensation administration, by Dr. Leonard W. Hatch.

### The Necessity for Medical Staffs in Compensation Administration

By LEONARD W. HATCH, Ph. D., *Formerly Member of New York State Industrial Board*

Should an industrial accident board or commission which is administering a compensation law have its own medical staff? To answer this question it is necessary first of all to recall the central importance of medical evidence in the process of adjudicating compensation claims. Simply stated the basic purpose of a compensation law is to afford relief to an injured employee for the economic loss he suffers by reason of suspension or curtailment of earning capacity caused by physical disability due to accidental injury arising out of and/or in the course of his employment. The relief provided is proportioned to earning capacity and to the extent of the disability. For an award of compensation evidence to determine three things must be available, namely: (1) The relation of the injury to the employment, (2) the earning capacity of the injured employee prior to the accident, and (3) the extent of disability. In some degree medical evidence is the determining factor for all three of these. The relation of injury to employment may present only questions concerning the relation of the accidental occurrence to the employment. But often it involves the question of whether the physical condition after the accident was due to the latter or to a preexisting injury, disease or weakness, which only medical evidence can answer. In the case of compensable occupational diseases medical evidence is still more directly and in greater degree the decisive factor as to relation of injury to employment. The earning capacity without medical evidence, although with respect even to this, cases occur when medical evidence as to prior physical condition becomes necessary. But with respect to extent of disability practically every case presents an actual or potential question to which only medical evidence can give conclusive answer. It is true that other facts, as to return to work or earnings thereafter, may be important for determination of extent of disability, but in the last analysis it is the doctor's verdict which must finally answer the question of when the injured employee is able to return to work, whether he can safely resume his former work or must take up other or lighter work, and

whether he has received an injury which will be only temporary, or will leave a permanent handicap for work, and, if the latter, what degree of disability this handicap will entail. Adjudication of the economic relief afforded by a compensation law hangs, potentially in every case, and actually in most cases, upon evidence which must come from the physician or surgeon.

But compensation for wage loss is not the only relief afforded under a compensation law. Further relief is provided by requirements that the injured employee shall receive proper medical care to be provided by, or at the expense of, the employer. Adjudication of this relief also presents questions answerable only by medical evidence. Is the medical care provided proper and adequate for recovery, are the charges for it reasonable or according to the standards specified in the law, are questions which frequently the administrator must decide and which obviously require medical evidence for decision.

With medical evidence so generally and so vitally controlling in compensation administration, it will be worth while to emphasize what is rather obvious but is specially significant for the question before us, namely, just what kind of medical evidence the administrator needs. Doubtless a safe generalization as to this, which will strike a responsive chord in the breast of every compensation administrator who has struggled with the medical questions constantly forced upon him, would be to say that the kind of medical evidence he wants is "the truth, the whole truth, and nothing but the truth", from the purely technical point of view. He wants the doctor first of all to give him in report or testimony the objective facts observed or his judgment from the purely professional point of view unaffected by any other consideration. But does he get this? I think any experienced administrator can hardly fail, reluctantly perhaps, to admit that the best answer he can give is some such expression as—"more or less", or "sometimes yes and sometimes no." What we are saying here may be reduced to this—what is needed is wholly unbiased evidence, but what is too often the case is that bias does creep in to affect it. It will advance our analysis of the problem to consider next why this is so.

The root of the difficulty here goes back to that which, according to the old saying, is "the root of all evil", namely, money. Willy-nilly, the doctor called upon to furnish evidence in a compensation case, finds himself involved not solely in a medical or surgical problem but in a problem involving monetary consideration, also. There plays upon him from patient or employer a double interest. If the injured employee has chosen the attending physician or surgeon, there has been added to the dependence of the employee upon him for restoration to health, which forms the purely professional interest, dependence upon him also for reports or testimony with which to support his compensation claim. Here is a situation with potential influence upon the doctor to make his report or testimony as favorable to the claim as his professional conscience will allow. The pressure of this is peculiarly potent if he happens to be the regular family physician of the injured man. On the other hand, if the physician or surgeon has been selected by the employer or insurance carrier, as is more often the case, there is a similar interest, outside that which is purely professional, which presents a similar potential influence upon his

report or testimony, but in the opposite direction. Where the physician or surgeon is in the position, not of treating the claimant for recovery, but only of examining for the purpose of supplying evidence, the situation is one in which the factor of economic interest as affecting report or evidence is relatively a still larger potential consideration as over against purely professional interest. Finally, the doctor may have his own direct economic interest in the case where it involves adjudication of his claim for pay for medical services in the case, either secondarily, through the easier collection of his bill from the claimant when he must depend upon the latter for payment, and receipt of compensation better enables the latter to pay, or primarily, where he looks to employer or carrier for payment of his bill and for further business.

Let no one infer from the foregoing analysis pointing out the presence of the economic factor as a possible source of bias in medical evidence coming from physician or surgeon engaged by one or other of the parties in a compensation claim, that we mean to cast any reflection upon the character of medical practitioners. Undoubtedly they compare favorably with the members of any other profession in their ability to resist considerations of that sort as over against their professional judgment. But human nature is much the same in that as in other professions and the weaknesses of that old Adam occur there as elsewhere. I believe anyone who has had any considerable experience with compensation-law administration will bear witness that as a matter of fact bias does affect to a degree medical reports or testimony in many cases. This, let us hasten to emphasize, is, speaking in general, rarely deliberate (though cases of that kind are not known) but is of the unconscious type.

Again, in his effort to arrive at the truth the compensation administrator wants not only medical evidence free from bias but medical evidence that approaches, as nearly as may be, certainly as to the facts. But, here again, all too often, what he finds before him falls more or less short of anything like certainty. In many cases the medical evidence finally, quite apart from any element of bias, or with any such element duly discounted, presents to the administrator opposing views on the questions of fact at issue which as purely professional opinions are quite evenly matched in intelligence and weight of authority so that the administrator finds himself as a layman called upon to choose between them on what may be a highly technical medical question. Such situations are the inevitable result of the fact, first, that medical science in many respects not an exact science and diagnosis and prognosis are matters of judgment and not certainty, and this is especially true in the field of the effects of trauma either upon the normally constituted human organism or, in still greater degree, in the province of such effects upon preexisting, or subsequently developing, disease. The problem of evidence here lies peculiarly in the realm of expert opinions among which the administrator must make choice in order to reach his decision.

There is a third thing which with respect to medical evidence is a matter of importance for successful administration of compensation laws. This is that procedure shall be such as not only to

insure that evidence on which decisions are based shall be in fact impartial and conclusive but that the parties to claims shall feel that such is the case. Only so can confidence in the administration be sustained and only so can prejudiced attacks likely to harm rather than help development of sound administrative provisions in laws be avoided. It is a case where appearance of evil, as well as evil itself, must be kept out of the picture. That this is no small problem anyone knows who is familiar, as the compensation administrator is, with the frequently expressed feelings of employees or employers about the attitude of doctors testifying for the other side. Evidence convincing not only to himself but as far as possible convincing to the parties in interest, is what the compensation administrator needs.

One aspect of this last point it is worth while to emphasize. This is that the need of convincingly impartial medical evidence is peculiarly important as respects claimants because of the fact that, by and large, they are at a disadvantage as over against employers and insurance carriers because of their unequal ability to command medical services to support their claims or because of control of choice of attending physician or surgeon by the employer. It is important for the administrator both that such disadvantage should be eliminated and that feeling born of this condition should be removed by proper offset to any advantage in ability to marshal medical evidence which the employer may possess.

One more point of need for the administrator as to medical evidence may be noted, although not of major significance, and this is the need of expedition in the securing of it. Promptness of relief being one of the objectives of compensation laws, that method for securing needed medical evidence which can be most quickly used commends itself as desirable.

With the foregoing outline of what is needed, and why, in medical evidence, and the fundamental importance of it, before us, let us turn now to consider how attainment of medical evidence meeting those requirements as nearly as may be practicable can best be assured. Here it is to be noted in the first place that fundamentally the difficulty to be overcome exists by reason of fact that the primary source of medical evidence is medical men chosen to treat the injured employee by one or other of the parties in interest to the compensation claim. That choice creates a relationship potentially influential toward bias or not affording most authoritative information or judgment on the medical questions involved. It would logically follow that some other choice of attending physician than that by one of the parties would remove difficulty. But this hardly comes within the realm of practicability except possibly in case of an exclusive State insurance fund which should establish a State medical service, a remedy of too limited or remote possibility at this writing to call for extended consideration here. Only in passing it may be remarked that it would seem to be a question whether this could be a general cure in any case, as it would seem to require, to be effective, the making of State service exclusive, which would raise other problems both legal as well as practical. For the present at least almost universally we have to meet the problem with attending physicians or examining physicians chosen by the interested parties as the first source of medical evidence.

The solution of this problem as to medical evidence to which the logic of the essential conditions and practical necessities also point is to be found in a medical staff selected and maintained by the compensation administration authority itself, and would seem to be not only the best but the only means with which to make available to the administrator the kind of medical evidence in all aspects which he requires. Such a staff being an agency of the State itself which can have no interest in a claim except that of impartial justice affords the necessary offset to any element of bias in evidence coming from other sources. Furthermore, its unbiased and disinterested character is obvious to all concerned and so inspires confidence in the impartiality of decisions guided by its reports or testimony. It provides a supplement, when needed, to the employee's resources for medical evidence, assuring that his interests shall not suffer by reason of his limitations in respect of such resources. Also with such a staff constantly engaged in examination and study of the medical aspects of compensation cases a source of the most highly specialized knowledge of the technical medical problems peculiar to such cases is provided, whose findings and opinions acquire convincing weight accordingly. And finally, an official medical staff is always present for immediate use at moment of need.

That such a medical staff as part of the administrative machinery under a compensation law is a logical necessity under the circumstances as they actually exist we have endeavored to indicate by an analysis of the factors inherent in the circumstances. The matter hardly requires further argument but let us illustrate how appropriately it works out in some of the more common problems presented in actual practice.

Here is a claimant who has suffered a temporary injury, who in due course reaches the stage where according to the attending physician provided by the employer he is able to and should return to his regular work, or at least some work, but who presents a report or testimony from a physician of his own choosing to the effect that he is not yet able to do his regular work or lighter work, or perhaps offers no opposing evidence. How can any more natural or promptly practical method of dealing with such a case be found by the administrator than to refer the claimant at once, in the course of the hearing of the case, to a State medical examiner for immediate examination and finding as to whether or how much the then condition is disabling. Who can better guide the administrator than his own medical adviser, having no possible monetary concern with the case, and more experienced in answering the question presented than can any private practitioner be, by reason of his constant contact with such cases? It is the common-sense and practical way of promptly and convincingly disposing of this continually recurring question in connection with that most numerous class of cases, the temporary disabilities, which in New York, for example, make up nearly 80 percent of all compensated accidents.

Again, here is a claimant who has suffered an injury causing a permanent partial loss of use of a member. The administrator must decide what percentage of loss he has sustained. Here is a technical question which is peculiar to compensation laws under the so-called schedule loss provisions of such statutes, which is largely unan-

swerable by any fixed, objective standards but must be answered by judgment untrammelled by any extraneous consideration and specially trained by experience. Where can more satisfactory judgment, as a basis for decision, be secured when the employer's doctor insists on one percentage and the claimant's doctor on another than from a State examiner constantly weighing just such cases, and whose opinion is immediately available as the case is being heard? Such aid in this class of cases is of large importance in compensation administration as evidenced by the fact that permanent-partial-disability cases constitute the second largest class of disabilities, making up in New York about 20 percent of all compensated cases, but accounting for nearly one-half of all compensation awarded. The proportion of permanent partial disabilities in New York which are not total losses of a member but involve only a percentage of total loss, and which so require medical evidence on the very technical question of the percentage, runs over 80 percent.

Or, to cite one more class of cases, here is a case where the claimant suffered a severe blow on the chest. He continued to do his regular work for a few weeks, then developed symptoms of heart trouble, and in a few weeks more died of a heart condition. It is claimed that the heart disease and death were causally related to the blow on the chest. An array of medical opinions is presented pro and con on this question. At best, the case is obscure as to the nature and etiology of the heart condition. What can better aid the administrator to a conclusion satisfying to his own conscience and convincing to all concerned than for him to call upon his own medical adviser, who is familiar by frequent study with just such questions of causal relation (which is the most troublesome class of medical problems with which the administrator must grapple) not indeed to tell the administrator what his decision should be, but to advise him what the possibilities or probabilities are in the light of the special knowledge of such cases which his accumulated experience as an unbiased technician puts him in a superior position to afford?

We have discussed the question with which we started only in its very general aspect. There is not time here to go into details or take up related questions as to the soundest organization and procedure for a medical staff attached to a compensation administrative authority, the question of cost, or to point out other advantageous aspects of such a staff. We must not close, however, without saying one thing more to clinch the affirmative answer to our question if that be necessary. "The proof of the pudding is in the eating." The answer to our question has met this proof in New York State after 20 years of experience. Please note that I offer this evidence not as one now officially responsible for the existence or continuance of the New York system and so, perforce, committed to its defense; but, having retired from the service of the Empire State last March, as a long-time student of compensation problems speaking from an impartial observer's point of view. The plan of a medical staff as a part of the compensation administration in New York, inaugurated at the inception of such administration, has proven itself by experience as indispensable for soundest administration of the compensation law. So far from question being raised as to its abolition, the questions about it as time has gone on have rather

been only those of how to enlarge and improve its services. The fundamental logic for it and fruitful experience alike prove its necessity.

## DISCUSSION

Mr. PARKS (Massachusetts). I was much impressed with Dr. Hatch's paper, and I would like to say that in Massachusetts we have that very system of impartial examination. The plan has been so successful that last year the legislature enlarged upon it by giving the industrial accident board the authority to appoint a board of three medical referees in industrial-disease cases and gave that board of medical referees full power to make a diagnosis, which diagnosis is final. So our board has nothing to do with these findings. I think it is a step in the right direction, and it emphasizes what Dr. Hatch has to say in his splendid paper.

Mr. JOHANNSEN (Illinois). We have the same system in operation in Illinois. We have a medical staff. We find that there is quite frequently employer opposition to the medical staff employed by the State, and opposition occasionally comes from the employees, too. It is simply impossible to get everybody to agree that there is such a thing as an impartial doctor.

In our State the doctors on the staff are not permitted to testify except by stipulation of both boards. However, the commissioner can on his own motion ask for advice and have an examination made of the claimant at any time after the diagnosis, with the understanding that it is not to be made a part of the record, or if it is to be made a part of the record, the doctor is called in and subjected to cross-examination. On the whole, I think the procedure which Dr. Hatch outlined is the most intelligent method that we have found in dealing with this problem.

We had a case in Illinois where a man employed by a self-insurer, the Western Electric Co., had a hernia. This man was operated on, restored to health, went back to work, but had a second attack some 8 or 9 months afterward and was again operated on by the company doctor. There was no claim made and no compensation paid. It came under our sick-benefit clause. Later the man was discharged. He hired a lawyer, who served notice on the company demanding a third operation. The company refused. The lawyer had the man operated on by a doctor of his own choosing. The case came to the commission, which disallowed compensation upon the grounds that the man had failed to make proper application for medical services. However, the main question was the causal connection. The four experts that testified for the corporation said that the hernia was not of recent origin and therefore was not compensable. It went to the supreme court and an opinion was handed down which, in effect, said that the expert medical testimony of four men in the State of Illinois was of equal value with the one doctor who performed the operation. The latter had better inside information and therefore his opinion was accepted. The court reversed the decision and held the case compensable.

Dr. DONOHUE (Connecticut). That is an interesting case. The great trouble is not with the doctors but with the fact that medicine is not an exact science. You are going to have two equally honest,

thoroughly reliable men with absolute first-class medical knowledge. They will give an opinion and it will probably differ widely. Why? Because medicine is not an exact science. The lawyers say law is. We say medicine is not and never will be, and you are bound to have disputes on a question of partial disability so long as compensation laws exist. Any man administering a compensation law must have plenty of medical knowledge and that is one reason why these boards should not be in politics. I think the longer they keep these men in office the better it is. It is surprising the amount of medical knowledge they grasp. Mr. Parks, for instance, has almost as good a general knowledge of the value of medical testimony as any man, and that is true of many lawyers. I see men that have been on these boards a long time, and they can evaluate medical testimony as well as a physician. For that reason I say that men should not be changed continually. What is the sense of putting a man on a compensation board if he knows nothing at all of the medical features. When he gets up against two doctors that are thoroughly reliable and thoroughly honest, testifying truthfully, how can he judge? How can he know it is simply an honest difference of opinion that will exist as long as compensation exists?

Dr. HATCH. The point has just been made that if you have a changing personnel in your administrative authority, you are losing the benefit of a stimulating knowledge and experience that it has gained. A permanent medical staff maintained by that authority offers the same kind of opinion by which you get an accumulation of knowledge and experience, which is always going to grow in value and always will be there and available for administrators. The administrator in New York State is their first medical adviser in the department. He is still the chief medical adviser in the department after 20 years, and the medical department has gradually been built up and has been kept out of the influence of changing administrations so there is that permanency and that accumulated experience, constantly increasing in value and effect to assist the administrator.

Now I think the gentleman from Illinois put it exactly right. This is not the perfect answer we are talking about, but it is the best answer. It is the most practicable and most efficient way to meet the situation, but you want to cure all your troubles. May I recount one little experience we had in New York. We had a medical problem in a case and had the advice of our medical department, and rendered our decision in accordance with the recommendation of the referee and in accordance with the decision of the medical board. Now in that particular case we did not satisfy the claimant. Upon advice of his attorney, the claimant proceeded to bring civil suit against me and a member of the board for personal injury in the sum of \$50,000 on the ground that I was not a medical man and the decision rested upon a medical question. Of course it was a ridiculous suit and had no standing in the court. The judge told him he had no redress. You cannot get rid of that feeling of prejudice whatever you do. As you know, it is "damned if you do, and damned if you don't." I have sketched the way we try in New York State to get as nearly as possible to the ideal.

Mr. ZIMMER. Are the physicians in Illinois permanently attached to the commission on a full-time basis?



Mr. JOHANNSEN. No; they get a nominal salary. They submit a report to the arbitrator or commission. Of course, we have also an advisory staff that is not on the pay roll. The members are selected with the consent of the commission and licensed through the advice of our medical board—for instance, eye specialists, back specialists, and certain orthopedic specialists. Both boards agree to certain specialists, and one is designated. In fact, we arrive at what we believe is the best form of impartial testimony available.

Mr. PARKS. I think one of the weaknesses of the Illinois system is that permanent staff. I can readily see that with three doctors, certain classes in a community will get the idea that those three will become prejudiced, and when they get that feeling the doctors are useless. In Massachusetts we have no permanent staff. We have a medical adviser. We can appoint new impartialists every day. If any of them get so the people have no confidence in them, we would not appoint them again. Going out in the field and getting different ones is the best procedure. Their report is admissible in evidence. The report can be presented at a hearing to be considered as evidence, and the doctors can appear before the board at the members' request to be cross-examined. We found that where the insurance companies or employer were not looking into the face of the same impartial doctor all the time and getting prejudiced when they are turned down consistently is the better system.

Dr. MEHLER. The doctors in the State of New York are not appointed politically. They get their positions through competitive examinations. I would like to know whether these designated doctors treat compensation cases on the outside, or whether they are retained in liability cases for examinations for the insurance companies. In our State we are prohibited from doing that. We are full-time men, and we are not allowed to treat a compensation case or do any work for an employer or insurance company. I would like to know from the gentleman from Illinois whether the examining doctor is permitted to treat compensation cases or appear in liability examinations for employers or insurance carriers.

Mr. JOHANNSEN. They are not.

Dr. MEHLER. In other words, they divide the \$4,000 a year and devote themselves to general practice exclusive of compensation work?

Mr. JOHANNSEN. Yes, sir.

Mr. GARCELON. I am sorry to announce that Dr. Kessler will not be able to be here this morning. His paper on the value of curative workshops will appear in the printed records of our proceedings.

### **The Curative Workshop and the Determination of the Capacity to Work**

By HENRY H. KESSLER, M. D., *Medical Director, New Jersey Rehabilitation Clinic*

The capacity to work is a concept that has many meanings, depending on the bias or interest of the particular investigator. Whatever the interpretation, its place in the economic and social life of the Nation has assumed an unusual importance.

In the field of industrial management, a careful selection of workers according to their work capacity and their proper allocation in industry is necessary for productive efficiency.

The evaluation of the capacity to work is also of importance in accident prevention. A thin man working at lifting heavy loads may be subject to unusual back strains. A man with a large vital capacity may be more subject to lead poisoning because of his greater intake of dust at each inspiration. An individual with a slow reaction time may be prone to accidents in types of work where alertness is necessary.

The determination of the capacity to work is of especial significance in the field of social insurance. Of the 13 million persons who receive pensions, relief money, and sickness benefits from public sources in Germany today at least 6 million must pass through the hands of a physician for the purpose of verifying the right of the petitioner to his claim. The German physician therefore holds in his hand a sieve through which every tenth citizen must pass in order to determine the particular economic category upon which his destiny depends. This novel fact reveals the social importance that the physician is assuming aside from his purely professional and technical role. Entrance into illness and emergence from illness is coupled with entrance into and emergence from disablement for work. This means that since more than two-thirds of the population are insured, the physician through his role in determining the capacity to work has a definite control over the national income. As well known as these facts are, so little are they appreciated in the course of ordinary medical practice or by the sick or disabled person.

But what has political economy and social science to do with pathology? The answer is twofold.

First custom and legislation have given the physician a new social power, but medicine has not provided the physician with the means to use this power. Is there any system of pathology through which the capacity to work can be clearly determined? No. Pathology determines the nature of an illness but not the extent of the remaining health or the extent of adaptation of the remaining functions. A person lives not only with his pathological lesion but also with the remaining undisturbed organs and functions. Subtracting a patient's symptoms and signs from 100 percent is abstract medico-social mathematics.

Secondly, society has forced the physician to derive a social judgment out of pathology. A man lame in two legs may be fully capable of work while a neurotic may be completely incapacitated. This is an inconsistency and conflict that we frequently find between the pathology of defect and the economy of working capacity. While lead poisoning and spondylitis are medical illnesses, incapacity to work is a social illness.

Despite the fact that workmen's compensation represents the only form of social insurance in this country, closer examination will reveal that it represents all forms of social insurance. Workmen's compensation may be interpreted as sickness insurance since an individual suffering from a preexisting disease, such as tuberculosis, or arthritis, will receive compensation for the disability arising out

of this illness alleged to be due to, or aggravated by, injury. Workmen's compensation is, of course, accident insurance. Workmen's compensation may be regarded as unemployment insurance since many individuals after full recovery do not return to work because of an alleged incapacity to work. They are being paid for being unemployed, and not for being injured. Workmen's compensation can also be considered as old-age insurance since the worker past middle life who sustains minor injuries professes protracted and permanent disability for conditions arising out of physical deterioration and not the primary result of the injury.

In social insurance the physician must assume a function that is frequently beyond his powers. This function is usually a judicial one. He is asked to evaluate the effects of the injury sustained by the worker on their earning and working capacity. These prognostications form the partial basis for the computation of damages in public accidents, while in industrial accidents they form the major basis for the determination of the compensation paid. It is at this point that many inconsistencies arise between the concept of capacity to work as visualized by the physician and the political concept defined by the law.

For pension purposes, a great variety of definitions exist in the laws of different countries. For example, ability to earn under the German invalidity laws is considered in its widest sense "as the power for continuous work serving a morally useful purpose. This power is based on the sum of the qualifications of the person with reference to the usefulness of the members, and the other organs of the body, especially the central nervous system and the sense organs, and includes not only all the powers of the body and mind, but the knowledge and abilities that have been acquired through training and experience." Inability to earn in its widest sense is considered as the inability of the individual to use his own work capacity to make a living, or to follow a profession. Inability to work in the sense of sickness insurance exists when the insured person is prevented by illness to perform his previous occupation without endangering his health through an aggravation of an existing illness, which in itself might not prevent the person's inability to work. Inability to work may also be said to exist when, after a discharge from the hospital, the worker is advised by a physician to avoid a recurrence of his illness by his work. Inability to work does not exist when as a result of his previous illness, conditions in the labor market make it impossible for him to obtain work, even though he has sufficient physical capacity to perform it.

The German invalidity laws award invalidity pensions to those who have lost two-thirds of their normal capacity to work. The law contains a very ambiguous interpretation of the method of determining this two-thirds of work capacity.

Not only in social insurance but in life insurance and private accident and health insurance and in the protective social schemes found in lodges, fraternities, and mutual aid societies, in E. R. A. and mother's pension laws, the determination of working capacity is important. Sick benefits in these various organizations are allotted on the basis of medical reports as to the degree of incapacity to work.

How are these determinations made? Generally in two ways, one by intuitive correlation and secondly by scientific methods. By intuitive correlation I mean the use of an intuitive faculty which gives us direct knowledge. That knowledge may be obtained not only by scientific methods but also intuitively is best understood by reference to the fact that the reality of religion, music, esthetics, right and wrong, even humor is made known to us without the intervention of the methods of science. Science abstracts and selects a small section of the universe but gives us no answer to the whole of it. The evaluation of incapacity to work is frequently made on our judgment, referring by that term to our whole experience in judging the fitness of men to work.

The capacity for work is regarded as a mechanical concept, and the human body is considered a machine capable of expending energy for the execution of certain work. Thus regarded the useful mechanical work, the industrial effect, is a quantity which can generally be calculated without difficulty. The work done in ascending a mountain, a staircase, or a ladder is the product of the weight of the body and the vertical height ascended. The work of a cyclist is the product of the distance covered and the passive resistances of rolling, friction, and so forth. The amount done by the arms and legs in operating tools, or work done in locomotion are also measurable more or less exactly. This mechanical quantity is more difficult to measure, especially when the movements are diverse and complicated, because any static effort of the workman escapes the measurements, although the whole muscular activity consists of static efforts.

As a machine the body is regarded as subject to laws of thermodynamics applicable to all machines. Every machine transforms energy; for example, the thermo-energy of the coal in the boiler is transformed in the steam turbine or reciprocating engines. This may again be transformed into electrical energy in the dynamo. In any motor the total expenditure of energy may be divided into the static expenditure needed to overcome the forces of friction and the dynamic expenditure which corresponds to the useful work done. In inanimate machines the static expenditure is small compared with the dynamic expenditure, but this is not the case in the animal motor which is always at pressure; because, if it ceased an instant to be in that state, life itself would be arrested. The static expenditure in the human motor constantly takes place and is permanent because it is determined by physiological necessities, and this difference between inanimate and animal machines is a factor which has been seriously overlooked by those who have attempted to interpret the human body as a machine and who have established certain indices of its function.

General tests of bodily function or efficiency have been used by many, and usually these are based on so-called tests of cardio-vascular efficiency. The pulse rate and blood pressure are taken before and after exercises and compared to arbitrary normals. It is assumed from these tests that these findings represent the efficiency of the body in its adaptation to work. In addition to these general functional tests, specific functional tests have been developed for the extremities and for vital organs. For example, the motion of the joint of an extremity, the strength of the muscle that acts to make it move, and

the coordination of these muscles may be combined and used as an index of the functional efficiency of that member. Again turning specifically to the lung, the vital capacity  $\text{CO}_2$  combining power and the pulmonary ventilation expressed by physico-mechanical indices have been used as an index of total body function.

All these tests, however, are false since they do not evaluate the total body but select and abstract only a small part of it, and secondly, because of the mechanical fallacy.

Physicians, as well as laymen, frequently commit the error of undervaluating the individual's capacity to work. It is often assumed that a physical defect causes limitation of functional activity and hence limitation of industrial usefulness.

This line of reasoning is frequently invalid. While it must be conceded that the disability may limit the number of opportunities open to the disabled person, it is far from correct to assume that a physical disability always means incapacity to work. Regardless of the yardstick used the judgment is apt to be false. This error is due to the ever-present psychic component and secondly to the presence of the safety factor.

An important aspect of the psychic component is our concept of the term illness. Although it may be only of philosophical interest, there are nevertheless practical implications in the interpretation of the term illness that influence the judgment of the physician making the determination of work capacity.

What is illness and who is ill? There are many points of view with respect to this definition. There is a medical concept and a legal concept of illness and a special concept coming under the influence of the insurance laws. In the latter sense, the worker does not necessarily need to be medically ill in order to require treatment. Yet he may be ill from the standpoint of insurance laws. Let me give some examples.

Am I ill if the cells in my stomach begin to proliferate and develop cancer, or the tubercle bacilli start their destructive work in my lung without my being conscious of it? Certainly.

If an individual is to hold his first public lecture and the day before is excited, cannot sleep, trembles, loses his appetite, has heart palpitation, loses weight, and his reflex actions become abnormal, and he feels uncomfortable or ill, is such an individual ill? No; this is only a mental reaction.

If I try a hypnotic experiment on you so that you bite a piece of soap and you think it is an apple—are you ill? No. This is an exceptional mental condition which lies in the field of the normal and is a phenomenon of suggestion.

When an individual feels all sorts of uncomfortable symptoms in his body, is afraid that he has hardening of the arteries, cancer, or consumption, and when on that account he goes to a physician, is this hypochondrical fear illness? No; this too, is a mental reaction.

From these examples we find two aspects of illness.

- (1) The state of being ill.
- (2) The state of feeling ill.

Strictly speaking our efforts to obtain an exact concept of illness are futile. But as physicians we are daily concerned with the concepts of illness and ill. It appears necessary therefore, to define the

concept medically so that it becomes as exact as possible and not ambiguous.

If we consider the body as a unified structure composed of mind and body expressing life, then illness, the state of being ill, is any value introduced within the structure which will tend to break it down. Such values are injurious and hostile to life, to the normal life processes in the body, and work destructively, leading in severe cases to death. Illnesses are dynamic as opposed to abnormalities, which are static.

On the other hand, feeling ill is a subjective feeling of bodily changes in our important vital life processes. These latter conditions can develop as a result of our emotional life without any destructive process of illness going on. Vital processes, like the circulation, respiration, and metabolism may be altered through an illness but also physically. In both cases conditions develop that subjectively are similar. To be a patient means to suffer but does not necessarily mean that one is ill.

Naturally the patient himself is apt to consider his subjective condition of suffering as a sign of objective illness. The patient does not know the difference between true vegetative feeling of illness and the condition of suffering that has been produced physically, especially since the latter may even be added to the former. Many a physician when he is a patient does not generally differentiate between the two.

These considerations are part of the intuitive judgment which is included in the determination of the incapacity or capacity to work.

The second element of error is due to the safety factor.

A case in point is that of a 40-year-old painter, who, following a fall from a scaffold, suffered a fractured spine and spinal-cord injury with subsequent spastic paralysis of both lower extremities. After a prolonged period of hospitalization and after-treatment, his disability was still so severe that he was certified as totally disabled. Ten years later he appeared at the office of the New Jersey Rehabilitation Commission, seeking employment. He was able to get along with a rather awkward spastic gait, but without the aid of a crutch or apparatus. Surprised by his application, we were amazed to learn that he had been working for a period of 10 years as a structural-iron worker in the construction of the tallest skyscrapers in New York. His employer, for whom he had worked regularly for 10 years, had gone out of business; and although he had received excellent credentials, no one would hire him because he was a cripple.

In another case, a 43-year-old white adult, male, presented himself with a fusion of both hips with the legs crossed so that in order to walk it was necessary for him to place one foot in front of the other. Despite this rather serious disability, this man has worked and has earned as much as \$10,000 a year standing behind a counter from 14 to 18 hours.

In still another case, a World War veteran on total-disability compensation for chronic pulmonary tuberculosis, receiving his refills once every 10 days, was employed as taxi driver from 14 to 18 hours every day in Washington, D. C.

It is apparent that the same type of disability does not have similar consequences in all individuals. This applies not only to

vocational or professional capabilities, but also to the basic use of the affected part. It is apparent that the amputation of the tip of the right index finger would seriously handicap a watchmaker, a typist, or a violinist; yet, the same injury would be insignificant to a longshoreman, a truck driver, or a laborer. But aside from the specific vocational handicap, workers will respond differently to accidental injuries. The mental make-up, the social environment, the education, and the economic status all play important roles in the effect of a disability on the individual's future.

In other words, every man is a law unto himself, and no two are alike. While one would be depressed as a result of his disability, lose his courage, and suffer marked loss of earnings, another, under the same circumstances, might be stimulated by his misfortune to greater efforts and his earnings might even be increased. The case histories of 4,404 men with permanent orthopedic disabilities, covering a period of 13 years, were examined by Anderson, and the actual jobs they had held for that period of time were listed. The findings indicated that among 10,176 jobs held by these men there were 635 different types of work, representing 70 percent of the 557 occupations and occupational groups listed in the United States census of 1930. These figures give striking evidence of the versatility of these handicapped men.

In 1925 the United States Federal Board of Vocational Education made a study of the occupations in which 6,097 disabled persons were employed after being rehabilitated. The analysis showed that there was a remarkable diversity of jobs in which these persons were employed, with no less than 625 different occupational classifications.

It has been the writer's privilege to have examined over 75,000 cases of accidental injuries for the New Jersey Rehabilitation Commission during a period of 15 years. In this large group of injured workers a change in vocation was necessary only in disabilities of a very major character, such as amputations or ankylosis of major joints. Even in those cases, in which as much as 75 percent loss of efficiency of the body for the routine pursuits of life had been estimated, the disabled person with courage and perseverance was still able to pursue his former calling.

The determination of the economic incapacity of a person who has suffered a fractured spine, a musculospiral paralysis, an ankylosed joint, or silicosis can only be made by arbitrary methods. The clinical examination provides no means of scientifically determining the work capacity, nor does it show the type of work for which a patient is fitted. What special operations in a particular job cause physical strain? When does the greatest fatigue take place? Are special constitutional types necessary for different tasks? The lack of adequate data makes it impossible to answer these questions from a physiological point of view. Recent developments in the field of psychotechnique, such as the testing of mental and physical traits, at first seemed encouraging. However, they have not measured up to expectations. There is little doubt that many decisions by physicians concerning disability must be entirely false in an objective sense. The capacity for work, which is frequently evaluated in industrial accident cases, is a concept that has no definite interpretation.

It is very difficult to determine the meaning of the terms "unfit", "defective", and "abnormal." The use of the term "normal" implies a judgment in which we, who consider ourselves normal, use ourselves as the standard and the subject of our attention as the possible deviation from this standard. The concept of a normal being is a social judgment and represents a series of physical traits consistent with social prejudices and attitudes.

How do these physically disabled persons manage to make their physiological adjustments? How do they accommodate themselves to the unusual demands made by disease or by congenital or acquired defects? The answer will depend on the presence of human safety factors. The human organism must maintain its normal function in the presence of disease or it dies. This is accomplished by drawing upon extra resources in its own structure. An individual can get along with one-quarter of a lung capacity, with one-third of a kidney, with one-quarter of a liver, without a stomach, without a large intestine, with one-tenth of the suprarenal, with one-half of the total volume of blood, with 20 percent hemoglobin. Among these safety factors one notes the excessive amounts of ferments in the digestive tract, the ability to substitute one foodstuff for another. The kidney, for example, can eliminate much more water than it is usually called upon to do, as in diabetes insipidus. Muscles are capable of more work than they are ordinarily called upon to perform. One structure may substitute for another, such as the skin for the kidney. It is through these factors of self-repair, regeneration, hypertrophy, and vicariousness of function that the body is able to combat its environment. This role of adaptation in the rehabilitation of the physically handicapped is an important one. It is a biological and natural process and consists of the continuous adjustment of internal conditions.

Personality maladjustment plays an even more important role in the causation of incapacity to work than the physical deformity; it may be so great as to completely suppress the individual. Conversely, the organic defect may act as a stimulus to overcompensation so as to practically eliminate the physical defect from consideration. According to Alfred Adler, the majority of us are equipped with potentialities which have not been developed to their fullest extent. Yet with this incomplete development good performances are turned out, just as our ancestors produced great work with imperfect tools. It is possible for a man with defective organs actually to develop an ingenious technique to overcome the rigors of his environment. He may pay a great deal of attention to detail, devise more unerring short cuts, and undergo a more intensive training. Great and really worth-while accomplishments have been achieved by individuals through the exercise of powers requisite to meet these demands. Despite all these theoretical difficulties we are faced with a practical problem, and what are we going to do about it?

Though the evaluation of work capacity is theoretically impossible, we are nevertheless faced with the task of providing a practical solution to the problem. The nearest approach to an accurate judgment of reduced working capacity is that encountered under conditions simulating a work environment. This can be carried out by utilizing a workshop similar to one associated with the New



Jersey Rehabilitation Commission. This is equipped as a complete woodwork and paint shop and contains all the tools used in carpentry and cabinetmaking, with the exception of automatic machinery.

A disabled person is referred to the shop and is then assigned to work consistent with the nature of his handicap. Generally the worker commences with coping saw practice, sandpapering, or rough painting. As he demonstrates his ability he is advanced to light carpentry, and finally to general carpentry. When he has consistently demonstrated his ability to undertake the heaviest operations for 1 month, he is referred for placement.

Observation of the individual in the workshop is a valid means of determining his capacity to work. The work processes are graded into three classes—light, moderate, and heavy—and an arbitrary percentage of disability is designated for each class.

Although the curative workshop serves as a laboratory for the determination of the work capacity of the individual, the period of observation in the shop frequently results in recovery. Not only are the workers with marked neurosis materially benefited, but even those with definite focal injuries demonstrate a working capacity far beyond the estimates made by the examiners.

Mr. GARCELON. I understand that Mr. Kratz, of the Vocational Rehabilitation Division of Washington, is with us this morning, and I will ask him to please rise and take a bow.

Now we come to the very live subject of lump-sum settlement in compensation administration, which Dr. R. M. Little will present at this time.

### **Lump Sums in Compensation Administration**

By R. M. LITTLE, *Director of Rehabilitation Division, New York State Education Department*

#### **THE PROBLEM**

One of the most difficult problems in the administration of workmen's compensation is to commute compensation to one or more lump-sum payments to injured workers in the interests of justice. It is comparatively easy to grant lump-sum payments, but to do so in the interests of justice to all parties at interest is an intricate and baffling problem.

There are three principal types of commutation: First, advance awards of scheduled losses, the amount usually being deducted from the end of the award; second, full payment of a scheduled award at one time; third, the full settlement by one payment of non-scheduled awards upon the basis of an agreement entered into by the claimant, the carrier, and compensation officials. There are also lump-sum payments to claimants when insurance companies are liquidated and when judgments are obtained against employers who have failed to carry compensation insurance. As these are exceptional cases, they need not be discussed in this paper.

#### **THE LAW**

The usual method by which compensation should be paid to injured workers is well stated in the New York act, in the following lan-

guage: "The compensation herein provided for shall be paid periodically and promptly in like manner as wages, and as it accrues, and directly to the person entitled thereto without waiting for an award by the industrial board, except in those cases in which the right to compensation is controverted by the employer." The exceptional method of payment is stated in the following language: "The Industrial Board, whenever it shall so deem advisable, may commute such periodical payments to one or more lump-sum payments to the injured employee, or, in case of death, his dependents, provided the same shall be in the interests of justice." Thus, while compensation should be paid promptly in like manner as wages, the industrial board may decide that it shall be paid in any other way which would be to the best interests of the claimant. The compensation acts of other States have the same or similar provisions as to the manner in which compensation shall be paid. The laws permit compensation officials to make lump-sum payments to claimants only when it is in the interests of justice. These words, "In the interests of justice", have been interpreted by the courts to mean some unusual circumstances in the claimant's life which require that the lump sum be granted, otherwise injustice would be done the claimant. The basic rule in administering workmen's compensation is that it be granted as and in lieu of wages during a period of disability; that is, bi-weekly. Unless an investigation clearly established the fact that a grave injustice would be done a claimant if his compensation were not commuted to a lump-sum payment, a lump sum should not be granted.

#### THE PRACTICE OF GRANTING LUMP SUMS

The practice of commuting compensation to one or more lump-sum payments has characterized the administration of every compensation law in the country, and this at times to an alarming degree. Why has this been so? First, because compensation officials, claimants, and other parties at interest have not recognized the fundamental distinction between workmen's compensation and other forms of insurance. The fact that life insurance, fire insurance, automobile insurance, and other forms of insurance are paid in full when losses have been incurred has caused a great many people to think that workmen's compensation should also be paid in a lump sum when the loss has been established. Compensation officials have been known to approve lump-sum payments because they thought of it as ordinary insurance and also because it was a quick way to dispose of claims and expedite administration. Insurance companies have frequently encouraged lump-sum payments because this method closed the business, reduced reserves, and was less costly. Employers at times have favored lump-sum settlements. Physicians for some claimants have advocated lump-sum payments on therapeutic grounds. Lawyers have pressed for lump-sum payments for their clients that they might receive lucrative fees. Runners and pseudo-friends have done their part to help claimants get money in lump-sum payments in order that they might share in the awards. Real-estate men and others in the commercial field have advocated lump-sum payments in order that they might sell real estate or something else, or collect debts. Politicians have used their influence to secure lump-sum payments to please their constituents. In short, an injured

worker who has a considerable amount of compensation to be paid to him will have a lot of friends and advisers to persuade him that if he can get his money at once he will be much better off than if he receives it in biweekly payments.

When one considers the circumstances under which workmen's compensation was inaugurated and the prevalent misunderstanding of the philosophy and purpose of compensation acts, and the fact that the administration of compensation is intricate, it could hardly be expected that the danger in commuting compensation to one or more lump-sum payments would be recognized by officials and that they should have been on guard against this weakness in administration. There had been no broad experience upon which to base administrative practices, and we have had to find our way to sounder methods. However, there have been sufficient studies made and facts checked to show conclusively that more serious consideration should be given to the granting of lump-sum payments.

#### THE RESULTS OF THE PRACTICE

Every study which has been made of a considerable number of claimants who received their compensation in one or more lump-sum payments has revealed distressing results from the practice. Large sums of money which should have been granted to injured workers biweekly, upon which they and their families could live, have been quickly spent and frequently wasted. The purpose of the compensation law has then been defeated. An injured worker, having lost his money, has been doubly hurt; first, by the injury, and second, by the lump-sum payment. It is not reasonable to expect that the industrial class of people, who are not accustomed to handling large sums of money, will be prudent and wise in the use of considerable sums of money placed in their hands.

In January 1924 the industrial commissioner of New York requested the rehabilitation division of the education department to make a careful investigation of the lump-sum payments which had come to its attention to ascertain whether or not the lump sums had been beneficial to the claimants. Eighty cases in different parts of the State were carefully investigated and a detailed report furnished the industrial commissioner. Some of these 80 cases had been handled by the rehabilitation division before the settlements were made, but most of them had come to the attention of the division after the lump sums had been granted. The study showed that two-thirds of the claimants would have been much better off if they had received their compensation biweekly. For most of them the lump sums had not lasted as long as their compensation would have lasted if it had been paid biweekly. Only a few had conserved their money and profited by its use, and this under careful guidance and supervision.

Time does not permit the citation of studies made in other States, but a number of such studies have been made and the uniform findings have been that the practice of freely granting lump sums is injurious to the claimants and their families. The workers often are embittered by the loss of their money and seek to have their cases reopened. Instead of the lump sums satisfying the claimants and improving their conditions, they have been a prolific source of dis-

satisfaction among claimants and have caused criticism of the law and its administration.

### AN IMPROVED SYSTEM

As the compensation laws grant officials power to commute compensation to one or more lump-sum payments, and as there is great pressure upon them to do so, how can the administration at this point be improved? First of all, we would say that lump sums should not be entirely prohibited by a change in the laws as has been advocated by some students of the subject. Circumstances do arise in the lives of claimants whereby it is to their advantage that they receive their compensation in one or more lump sums. Claims do come before the boards which cannot be adjudicated in any other way than by a lump-sum settlement. It is much easier to criticize and condemn weak practices that have developed than it is to establish a more just and intelligent system of handling the problem. However, some attempts have been made to improve the system, and there are in nearly all the States facilities and agencies for handling this bothersome subject in a more constructive way. Perhaps the experience of New York may be suggestive and of interest to others.

Mention was made above, that in 1924 the industrial commissioner requested the rehabilitation division of the education department to make a careful investigation of some claimants, who had come to its attention, who had received their compensation in lump sums. After that investigation was made and a report rendered, the industrial commissioner requested the rehabilitation division to investigate all requests for lump sums in the Buffalo district when the amount involved was \$250 or more and to make reports and recommendations as to whether or not the requests should be granted.

The reason why the industrial commissioner asked the rehabilitation division to make these investigations, reports, and recommendations, and also to supervise the distribution of funds, was because the rehabilitation act established a functional relationship between the two departments for service to injured workers under the compensation act, and the provisions of the two laws coalesce in purpose at the point of compensation settlement. Claimants who make requests for lump-sum payments have nearly all been seriously injured and are in need of the rehabilitation service; therefore, the administration of lump-sum payments and the rehabilitation of disabled workers should go hand in hand to accomplish the most beneficial results. The granting or the not granting of a lump-sum payment may assist or hinder the rehabilitation of an injured worker. The purpose of compensation is that workers may have money to live upon during a period of disability. The purpose of the rehabilitation act is to make it possible for an injured worker to return to his job or another job.

The rehabilitation division undertook the task, and the workers were instructed to adhere to the following principles and methods in making the investigations and reports:

The investigations are to be made from the rehabilitation point of view because the words "In the interests of justice" have been interpreted by the courts to mean the economic and social advantage to the claimant above the biweekly system of payments, and rehabilitation aims to improve the economic and

social condition of injured workers. A careful study of the claimant and his family, if he is married, should be made to determine the need of the lump-sum settlement and to ascertain the specific purpose for which the money would be used if granted. When a lump sum is requested to pay debts, the debts should be verified. When a request is made in order that a claimant may purchase real estate, the value of the property should be conservatively ascertained by consulting assessors, bank appraisers, and other competent and impartial authorities. When a request is made for the purpose of buying or establishing a business, a thorough investigation of the location, opportunity, and type of business must be made, including a complete and conservative inventory of all stock and fixtures. Nothing should be paid for good-will. In determining the practicability of a business venture, the worker must give special consideration to the ability of a particular claimant to succeed in the business, and not what someone else might do. A lump-sum settlement should not be favored for the purpose of entering upon a speculation nor to be deposited in a bank, as the deductions from the lump sum would be more than equivalent to the interest on time deposits in a bank. A lump-sum settlement should rarely be granted to purchase a minority partnership in an enterprise in which the claimant has no experience, nor should it be granted to engage in a business enterprise in which he has had no experience. If recommendations are made that lump-sum settlements should be granted in order to purchase homes, to pay on mortgages, to cancel debts, or to enter business enterprises in which workers have experience and aptitude, it is the duty of the rehabilitation workers making the investigations to follow through the transactions and see that the compensation is used for the purposes intended and that the claimants are advised and guided in their business enterprises for a reasonable time to become well established.

The workers are also instructed to make a careful study of the compensation act and its administration and to follow carefully all court decisions concerning lump sums.

The industrial commissioner issued instructions to the referees that they should follow the recommendations of the rehabilitation division unless there was strong evidence to the contrary. Fortunately the assistant to the industrial commissioner was aware of the weaknesses in freely granting lump sums and was also greatly interested in rehabilitation; likewise, the director of the rehabilitation office was keenly interested in the administration of workmen's compensation, and these two men developed a fine system of cooperation and an intelligent handling of requests for lump-sum payments. In the four other compensation and rehabilitation districts of the State the rehabilitation offices often were requested to make investigations and reports concerning cases, but the full plan was not put into effect in these districts until later. The system worked so well in the Buffalo district that when Miss Frances Perkins became industrial commissioner she requested the board of regents of the education department to authorize the rehabilitation division to handle this work for the whole State; that is, to make investigations, reports, and recommendations on all requests for lump-sum settlements of scheduled awards when the amount involved was \$250 or more. Sums less than \$250 were not included because there are many nuisance awards from \$25 to \$250 upon which the referees felt that they could exercise their own judgment without doing any particular harm to the claimants. In practice, however, a good many cases are referred for investigation in which less than \$250 is involved.

During the year closing June 30, 1930, 1,011 requests for commutations were investigated and reports rendered to the compensation officials. These requests amounted to \$1,674,381.88, or an average of \$1,656.16. The rehabilitation division recommended that there

should be granted \$388,658.91, and recommended that \$1,285,722.47 should not be granted. The referees usually followed the recommendations of the rehabilitation office.

For the year closing June 30, 1935, the rehabilitation division rendered reports and recommendations concerning 636 scheduled awards. These amounted to \$699,947.41, or an average of \$1,100.54. The division recommended that \$280,361.76 should be granted and that \$419,585.54 should not be granted. It is a significant fact that a larger amount proportionately was recommended by the rehabilitation division to be granted in 1935 than 5 years previously. There are several reasons for this: One is the depression and the fact that industrial workers had to have compensation advanced to them before it was due because of pressing obligations; another reason is because under the new system fewer requests without merit are being made.

In 1 year, of 736 investigations made, 201 resulted in rehabilitations. For 90 of those rehabilitated, advance awards or lump sums were approved, and 111 requests were disapproved. This last fact is significant, indicating that many injured workers request an advance award or lump-sum payment when a better economic or social advantage may be achieved through rehabilitation without the lump-sum payment.

#### COMPROMISE SETTLEMENTS

After 2 years of handling the lump-sum requests and scheduled awards for the whole State, the question arose as to the division's investigating and reporting upon the so-called compromise agreements or nonscheduled disability awards. The New York act schedules a great many disabilities, but it does not schedule a head or back injury, and there are a great many other injuries that are not scheduled in the law. These are the most difficult cases to adjudicate. Sometimes they are the result of trauma in relationship to a preexisting disease or a former injury, and they become the type of cases that are continually being controverted in the courts. They involve many hearings, disputed testimony, and become a burden upon the administration and a trial to everyone at interest. The result is that after a long time the claimant and the carrier get together, their minds meet, and they agree upon a settlement. Usually there is a considerable amount of money involved, and the question arises: If the claimant gets from \$1,000 to \$5,000, will he make proper use of the money?

It was agreed that all compromise agreements in which the amount involved is \$1,000 or more in New York City and \$500 or more in the up-State territory should be referred to the rehabilitation division for investigation and report as to the economic and social advantage to the claimant if he settles his case. The rehabilitation division cannot enter into the amount of the award but is requested to study and report upon the use of the money. Unfortunately, after the award has been made, the money belongs to the claimant and many of them are not susceptible to the advice and guidance of the rehabilitation division in the use of their money.

During the year closing June 30, 1935, there were 517 requests for investigations and reports concerning compromise agreements. These requests amounted to \$1,055,890.08, and there were recommended settlements amounting to \$996,499.08, and there was recommended

that \$59,391 should be disallowed. These figures indicate that the rehabilitation division has found it necessary to approve most of the so-called compromise agreements because all other parties have reached an agreement and an adverse report from the rehabilitation division would not be welcomed. The division accomplishes some rehabilitations among the compromise cases but not as many proportionately as in the scheduled-award cases.

After 3 years of making investigations and reports concerning compromise agreements and recognizing that the system is not satisfactory, an assistant in the rehabilitation division was assigned to make a careful study of 200 compromise cases in New York City and 122 in the up-State territory. This study has been completed and the report is in process of preparation for publication. The following methods were employed in making the study: A selection was made of 322 cases, which had been settled by compromise for 1 year or more. The average age of the group was 42 years, the settlements amounted to \$3,700 each, and the cases had been open in the compensation courts for about 3 years. A careful examination of all the pertinent data in the compensation-case folders was made and likewise a study of investigations and reports that had been made by the rehabilitation division. After assembling all the pertinent data concerning each case at the time of settlement, including the physical condition of the claimant and the reasons assigned in the records for the settlement, visits were made to the homes of the claimants. These visits were made by experienced workers. The object was to discover the economic and social conditions of the claimants and the effect of the settlements upon them. Some of the claimants were visited a number of times, and many interviews were held in the rehabilitation offices as well as in the homes of the claimants. Eighty-nine claimants who had received a settlement for therapeutic reasons were carefully examined by a competent neurologist in their homes and in the offices to determine the therapeutic value of the settlement. As the facts were developed many conferences were held with compensation officials, industrial surgeons, neurologists, and other students of the problem. Time only permits a condensed statement of some of the important findings:

1. Of the 322 compromise cases studied, 187 had been referred to the rehabilitation division, and only 36 of these referrals resulted in rehabilitations. Age and disability and the fact that the rehabilitation division had no control of the use of the money made it exceedingly difficult to accomplish the rehabilitation of this group. Over half the group had a seventh-grade education or less, only 15 percent had any high-school training, and two-thirds of the number had dependents. Few were susceptible of training and many were not in physical condition to return to work. The neurotic men offered a great deal of resistance to rehabilitation plans. As the cases had been open 3 years or more, most of the claimants displayed a dull and apathetic attitude toward any suggestions about employment.

2. One hundred and forty-four claimants were found in employment, 21 of them in government-made jobs. The wages of those employed were 40 percent less than before the accident; that is, the average wage before the disability was \$41 per week and after the settlement, although employed, they were receiving only \$21 per week. One hundred and seventy-three were unemployed and five were deceased.

3. At the time of the last interview more than two-thirds of the men had spent all their money. A considerable part of the expenditures had been made 18 months or 2 years previously. Two hundred and seven of the claimants used at least a part of their final settlement for debts. The reason much

of the money was spent for debts was because the majority of the cases were open in the compensation courts for more than 2 years, compensation payments were frequently irregular, and some of the claimants received no compensation at all until the final settlement, when the debts absorbed most of the payment. Other expenditures were for living, legal, and medical expenses. Ninety-six of the claimants had some of their money at the time of the last interview, but only 15 of them had as much as 50 percent. Only one-third of the claimants were able to manage their affairs in such a way as to keep out of debt. Fifty-one admitted having lost \$45,000, and a conservative estimate would be \$70,000 entirely lost and much more than that unwisely spent. For the group as a whole, it cannot be said that the lump-sum settlements were to their advantage. Most of them would have been better off if they had received their money in biweekly payments.

4. Of the 322 compromise settlements, the records showed that 89 were deemed to be neurotic at the time of settlement, but at the time of investigation only 17 of these neurotic cases had received any therapeutic benefit by the settlement, and it was very slight in 6 of these cases. Undoubtedly physicians and compensation officials have vastly overrated the therapeutic value of compromise settlements. In most cases it does not improve the claimant's health nor his mental attitude. Many of the neurotic cases were found to be dissatisfied and bitter over the settlement and wanted to have their cases reopened.

The study shows conclusively that the present system of handling compromise cases fails in what it is trying to accomplish. The economic status of the claimants is not as good as under the biweekly system. The health conditions have not improved; the employment status is not strengthened; considerable sums of money are lost and larger sums unwisely spent; and injured workers and their families who ought to have compensation upon which to live become public charges. Of the 200 cases studied in New York City, 29 of them were found on public relief. The rehabilitation service is placed at a distinct disadvantage by the present method of settlement of compromise cases, as the workers can exercise little or no control over the way the money is spent.

The compromise settlements will continue to be made and what shall be done about it? Compensation officials should use their legal power to divide compromise settlements into two parts: First, before the cases become chronic, and on the basis of an official medical examination, adjudicate the cases and determine the loss, and inscribe in the record the particular disabilities for which the settlement is made; second, direct that the amount of the settlement shall be placed in a State fund and be paid to the claimant biweekly. If a claimant has received a compromise settlement and wishes an advance award or a lump sum, he would have the right to make a request for it, which request should be fully investigated either by the compensation office or by the rehabilitation service to determine the necessity of an advance award or full payment of his compensation, the use to be made of the money, the soundness of the plan, and whether or not it would be to the advantage of the claimant and his family to receive the money in a lump sum.

### CONCLUSION

Obviously, the granting of lump-sum settlements of any kind in compensation administration needs to be seriously studied and administration at this point greatly improved. Under the best administration that can be developed it will be a bothersome subject, but if compensation officials and rehabilitation agencies in the various



States will develop a cooperative plan to handle the problem, large wastes can be avoided; fraud can be prevented; more injured claimants can be returned to employment; many of them can be rehabilitated; all of them can be better advised and guided in the use of their money; and the public will be saved from supporting many families who under the present system become public charges.

## DISCUSSION

Mr. WALKER (North Dakota). I want to take this opportunity to express my sincere appreciation for the paper. In the jurisdiction of North Dakota we have never made a final lump-sum settlement to any claimant. We have in many cases made partial lump-sum settlements where the claimant was taking or has taken vocational-school training, and in that case we have advanced enough so he could perhaps equip a little electric shop or some other little business and go ahead from there. The money advanced has been deducted from the weekly payments over a number of weeks, and when that time has been reached the weekly payments are the same as they have been in the beginning before the partial lump-sum settlement. Of course, the case may be reviewed and reopened at any time and we never make a final adjustment until the claimant has died. That is the only way the claims are ever finally closed out. In various instances we have advanced money to buy a home or to finish payments on a home partly paid for. It has been our policy wherever a lump sum was asked to make a complete survey of all the conditions, and then the commissioners use their discretion, and if they think it is to the claimant's advantage, they advance a partial lump sum.

Mr. MURPHY (New York). In explanation of the doctor's paper, I would like to say the compromise settlements do not constitute a lump sum or prohibit the claimant from reopening his case. A case is never irrevocably closed in New York. I would also like to point out that, while the numbers seem to be rather large as compared to the others, there are comparatively few cases closed in this manner. You will note from Dr. Little's paper that during the year 1934 more than 577 cases were referred, and there were approximately 160,000 cases indexed in New York that year. We discourage it wherever possible. I quite agree with Dr. Little that we should endeavor to initiate a system whereby in the average case these payments be made biweekly. I do not want this audience to have the idea that it is a common thing for New York to grant lump-sum settlements at will. We investigate requests pretty thoroughly and discourage them if possible.

Mr. WRABETZ (Wisconsin). We grant a lump sum in Wisconsin only when we are convinced that the money will be conserved. I would like to ask Dr. Little one question. He referred to a case where \$6,000 was paid into a bank on a trust agreement that the money was not to be withdrawn. I understood him to say that within a week request was made for the use of funds. Is that right?

Dr. LITTLE. Yes, that is right. It is only a voluntary trust fund; no legal power. When a man is given his sum he might say, "I will agree to this", but there is no legal power behind it. We know that, and the bank knows it. We have handled a large number of cases

with a voluntary trust agreement where the money is deposited in the bank and subject to withdrawal biweekly, and it works all right.

Mr. WRABETZ. We had a case about 6 months ago in which an attempt was made to attach the fund, and the court dismissed the case because our compensation money is exempt from debt and garnishment.

Dr. HATCH. After you make a lump-sum settlement in Wisconsin, I suppose it takes the form of an award. Now, having made an award, if the claimant insists that legally he should have that money, can you stop him from getting it all in one sum?

Mr. WRABETZ. Yes, sir. We control the funds all the time.

Dr. HATCH. I want to endorse all that Dr. Little has said in his admirable paper and particularly to emphasize that the lump-sum business is a factor from which trouble arises, and I want to go one step further with him and emphasize that you can get all the therapeutic values and the rehabilitation values of a closing settlement without a lump-sum payment.

Now we all have in our laws a schedule of losses. Every one of those is in the nature of a closing settlement of a case with the actual extent of disability in that particular case absolutely unknown. New York allows 75 weeks for total loss of a thumb. Now, who knows that 75 weeks is right in the case of this particular claimant? Nobody. It may be that we are way too high as far as disability is concerned but we award 75 weeks. That is a compromise settlement that the legislature itself has especially provided for. So if the legislature in schedule losses has fixed that rate, we say all right, we will put up a reasonable average and give everybody that average. Now that is a settlement, but here is the point I want to drive home. Your legislature never said you can give a fellow 75 weeks in a lump sum. That was for biweekly payments through the 75 weeks. That is the thing you have to come to. Get away from the lump sum and stick to the biweeklies in accordance with the general principle that compensation should be biweekly over a period of time. Settle the case in a period of time but not in hundreds and thousands of dollars!

Mr. PARKS. May I suggest in opening my few remarks that perhaps we have heard enough from New York. I think in these discussions we should have something from the other States. We have had three papers from New York already. In my opinion Dr. Little's paper was a finished product. Dr. Little knows his business. I have been administering our compensation law for 23 years, and he has taught me a lot this morning. I am going to take a dozen of those papers back with me and ask every one of the commissioners in Massachusetts to study them very carefully and to be guided by them. Apparently they have the facilities in New York for investigating these things and following them up, and it is well for us to be guided by them. That paper is chuck full of meaning and those States that are making lump-sum settlements should take it to heart. I am sorry that in Massachusetts the lump sums are growing and growing. I remember one of the commissioners only a couple of weeks ago said, "You will be lump-summing yourselves out of business if you don't watch out. There will be nothing to do." And

there is a good deal in that. What is causing it? The main thing as Dr. Little has said is lawyers, real-estate men, friends, relations. Why are they interested? Not for the injured workman but for what they can get out of it. They are commercializing the act. That is what is happening in our State. Now Dr. Hatch was surprised that the man from Wisconsin, Mr. Wrabetz, stated that they had control over the lump sum. I don't see why you can't. In Massachusetts we exercise supervision over that lump sum if we believe it is advisable and this is how we do it. The board does not have to approve a lump sum. It is the board's prerogative to approve or reject. If we approve it, we can approve it conditionally. We approve the payment of a lump sum of \$1,000, provided that that lump sum is left in the bank under your supervision and cannot be drawn out without our permission or our order and we approve it. We do not believe that if we approve a lump sum like that, that the man can take that lump sum and say, "It is mine." It is not his. We say he can only receive it say \$10 or \$15 a week, as we stipulated.

Mr. BROENING. Do you base your award in conformity to its agreement?

Mr. PARKS. Of course, it is a long story. If there is a question of doubt, we make a compromise settlement. We may say we will settle this by compromise for \$1,000 if the board members are agreeable. We don't make an award. We won't approve it unless the conditions are complied with. Suppose a man wants a lump sum to go back to Italy. We will approve that if we think it is for his best interest but we will see that he goes back to Italy. We have an inspector buy his ticket. If he backs out and says he does not want to go, then he does not get his lump sum.

Mr. BAKER (Kansas). In case you approve of the money being paid in a lump sum, do you believe in placing that money in a bank? Why do you take it from the insurance carrier or employer and put it in a bank? Do you consider the bank safer?

Mr. PARKS. When you have made a compromise settlement of a case, the insurance company and employer have agreed to commute the future payments to a lump sum. When the insurance company pays the lump sum, it is out of their hands.

Mr. BAKER. I don't see why that can't be settled by a partial lump-sum payment from the company, as needed, and continue with the payments. That is what we try to effect.

Mr. PARKS. It could stay in the hands of the insurance company, and the employee could continue to draw from the company. It could be done that way.

Mr. BROENING. I am in accord with Dr. Little. That is a splendid paper with much meat in it. Our law in Maryland permits compromise settlements, but we must approve all those cases. The parties must appear before the commission. We interrogate the carrier and the employee and ascertain the reason for the lump sum, and we endeavor insofar as possible to find where the money is going to be applied and to what purpose and whether it will have the desired effect in enabling the claimant to rehabilitate himself or develop some other line of activity. If he is so incapacitated that he cannot assume his former employment, we advise the claimant that he cannot appear

before the commission again for the purpose of getting additional compensation. We throw all possible safeguards around it. In our compromise settlement agreements, we also require a recital of the character of the injury and the reason why the compromise is entered into. Frequently it is because there is a doubt in the mind of either the carrier, the claimant, or his counsel that in event of an appeal being taken they may not be able to prosecute it successfully. In conclusion, I wish to compliment Dr. Little. I shall certainly carry back one of these copies to give it serious thought. I think the main thing is to rehabilitate the individual and prevent him from becoming a public charge.

Dr. LITTLE. I am sure you don't want to continue this longer, but permit me a few more remarks. In the discussion of my paper there was a good deal said about money and, of course, you as compensation officials are thinking primarily about that. I may be wrong, but I have been a compensation commissioner myself. We think about the money and the adjudication of the case. Our real thinking should be about the claimant. That is more important than the money. It is being lost through the loose system of lump-sum payments and compromises in New York. My greatest concern, however, is the welfare of these injured workers. Nearly all of those that make requests for lump-sum settlements, or compromise settlements, have been permanently injured.

Now Dr. Walker has set up a system of cooperation between compensation officials and rehabilitation officials of these States. He calls attention to the fact that the Federal rehabilitation requires the State to match Federal money for the rehabilitation of injured people, a cooperative relationship for the agency of administering compensation. Furthermore, the rehabilitation effort in this country had its inception in compensation. It was intended primarily as a follow-up service in compensation cases. Now there are 45 States that have rehabilitation agencies. In many they are weak. The personnel is not large. The experience in workmen's compensation administration is negligible. They don't know any more about the administration of workmen's compensation than you know about rehabilitation. There is a hiatus existing between compensation and rehabilitation agencies in every State in America, whereas the law is intended to bring these bodies together and put them in operation along constructive lines for the best results of the injured workers.

They do some things in Massachusetts that would not apply in other jurisdictions, but the main principle can be brought together in every State. We all have similar provisions, and we all have injured workers and they all need constructive guidance and a satisfactory return to a gainful occupation. So I am pleading that you compensation officials commence to think not only of how to save money but also how to save workers.

Mr. WILCOX. I want to make one suggestion. Dr. Little has mentioned a special investigation of cases of lump-sum awards and these compromise settlements. The industrial accident commissioners of Virginia are putting through a Federal project whereby investigations of the actual working out of lump sums in every State could be made. I left no stone unturned to get the project through, for apparently it is difficult to get money for a State project. I would

suggest that if you want to get more facts that will strengthen the commission on taking a stand on lump sums, you need to have investigations made. It is a type of investigation that will receive favorable consideration from all groups. The difficulty is to find an investigating corps of sufficient caliber and to give them the necessary support. Even if there are some difficulties, I would suggest that it is a worthy use of money and will give a battery of facts to a commission so that they can successfully set up the type of plan that Dr. Little recommends; even though the claimant wants the money, the lawyer wants the money, and his relatives want it.

Mr. McSHANE. I think this is a very important subject and the discussion and the papers were replete with good information. However, I believe the old-timers will remember that it is not a new issue. We all remember the very violent opposition of Dr. Stewart to lump-sum settlements, which he said were creating a new disease known as "lump-sum neurosis." I am of the opinion that this body is also getting somewhat neurotic over a subject that has been handled, and I believe pretty well handled, in the various jurisdictions. If you will take in your own State the number of lump sums that were made in comparison with the requests and the number of cases that came before you, you will find that it is almost an infinitesimal proposition. I think your figures from New York justify this statement. I am very much in favor, however, of saying "amen" for all of us to the splendid paper that has been read.

Just one word on compromise settlements. In our jurisdiction we make a final compromise settlement only in very few doubtful cases when we approve the claim, and then it becomes final and binding on all parties. In our other claims there is always a reservation to the effect that if a man returns at a later date and the doctor's testimony shows that the condition existing at the time he makes his last request is different from the condition for which he was paid, then the case may be reopened and award made as the merits of the case justify.

Mr. JOHANNSSEN (Illinois). I was very much interested in the paper read here today, although I am not so sure that the great Empire State of New York can find an adequate solution for the lump-sum problem. I am certain that the average working man wishes to determine for himself the best way for him to spend his money. I know that when a man gets his check and the boss tells him how to spend it, he resents it. He has a similar resentment toward public officials who are so cocksure how he should spend his money.

Now as to the elimination of compromise settlements. How can you control them? Is a commissioner to be influenced by the danger of this man spending his money carelessly or by the danger of this man not getting any money? Now we have also a schedule in Illinois like the one in New York with so much for back injuries, head injuries, or rib injuries, and so forth. We find that in contested cases plenty of doctors with their professional and expert advice are available to a carrier or employer. Then we find lawyers who are also willing to advocate lump sums so they can get their fees. But the danger is, if we reject the lump sum in that kind of a controversial case, the injured man will not get anything and where will

he go then? On the question of contested cases, invariably the lump sums are not only warranted, but the lump sum is the only method of definitely settling the case, and often it is the best cure, better than pills and medical treatment. The elimination of traumatic neurosis enters into this picture and you try to reason with a man that it is a state of mind and the longer you delay his settlement, the worse he becomes and quite frequently a settlement is the best cure. I find from my own experience, both as a member of a commission and as an adjuster for a number of years, that quite frequently the medical adviser on both sides recommends a reasonably early settlement based upon a lump sum so that the man can get it off his mind and think about something else. As a working man I resent professional advice as to the best method of spending my money.

Dr. DONOHUE. I think it is pretty generally conceded that lump sums are undesirable. We have all agreed on that, but there are many places where they have their use, and I am thinking of what was said in regard to settlement of the cases of partial disability by the ending of the cases but not paying it in a lump sum, as apparently the lump sum is the thing that we have to look out for. That is definitely true in the particular case when we are interested in using the lump sum as a therapeutic measure. I have used it myself, and it has worked very satisfactorily notwithstanding all the statistics to the contrary, and I want to say that I notice that they have not had the success with the functional neurosis cases which I thought they might have. The statistics in Dr. Little's paper do not agree with the statistics which we get from the European countries like Holland, Denmark, and Germany, where the functional neurotic is pretty well taken care of by a definite closing of the case. That is my objection to Dr. Hatch's idea, to close the case but still allow it to be open by payment on the weekly plan. The trouble with that situation is that the subconscious mind of the neurotic is always thinking of impending future disaster. He does not stop until you definitely close the case.

Mr. DORSETT. Have you been able to satisfactorily prove to yourself in every case that the payment of lump sums actually clears up the neurotic condition?

Dr. DONOHUE. No; but in a particular type of case it does. We don't try to touch the case of the neurotic with organic defects. But with the neurotic of a functional type it is customarily cured. If there is any further possibility of looking toward future compensation, then that case is never closed.

Mr. DORSETT. Don't you think the same results may be obtained by telling the man his case is closed or relieve him of coming to the commission or insurance company regularly for his money, or you might get the same by saying he will get so much money?

Dr. DONOHUE. That will not do. You have to definitely cut off payments. I might cite a number of cases of fellows who got lump sums who were cured and working, when they probably never would have been if they had been kept on compensation. I am positive of that.

Dr. HATCH. I am not going to talk about New York now. Some years ago Mr. Wilcox, of Wisconsin, described a method of final

settlement for the purpose of curing the neurotic which appeared to be the right thing. It was done on the basis of an agreement of partnership, on a basis of understanding. The injured worker was to get ample coverage for all disability and he understood that was the final settlement, but there was a private understanding between the carrier or employer and the commission that if and when that money had gone as far as it could, the man was not cured by the settlement, then the commission would have the right to reopen the case. It is the same thing in the man's mind. If he thinks he is through with the case, you know he will get all right. Now we have two factors: The reservation of the possibility of supplementing the compensation so as to be sure he gets all he is entitled to, and at the same time the idea that final adjudication keeps the man's thoughts off it. I thought that scheme has met both factors.

Dr. DONOHUE. I think the weekly receipt of that money is going to keep that psychic domination in the mind of that individual, which is going to defeat the purpose for which you intended the money. That is the trouble with that.

Mr. WRABETZ. We still continue to use the procedure to which Dr. Hatch referred and we find it very, very successful. In my experience with the commission, which runs over a period of 16 years, both as examiner and commissioner, I think we have had only three cases that have come back or seemingly failed, but we found in those three cases that they were not purely psychosis cases; there was some remaining disability besides, so we do not count them. The result of these awards which we call psychic, in which we have a private plan with the insurance company or self-insurer, that if conditions do not improve we will still have the case opened, has been satisfactory.

Mr. DORSETT. Do you have a system of paying lump sums biweekly?

Mr. WRABETZ. We have in some cases, of course. It is not a lump sum when you get an agreement on disability and then provide for payment by a bank or trust company or insurance company because it does not give the injured worker a lump sum. I suppose the vast majority of cases are paid on the weekly basis. There are cases which we treat as suggested by Dr. Little. We do grant lump sums for good purposes such as rehabilitation, probably setting the man up in business, in a little farm or something like that when we are sure he is going to successfully go through with the plan and that the funds will be conserved.

Mr. GARCELON. The next topic is Doctors and Lawyers as Compensation Administrators, by G. Clay Baker.

### Doctors and Lawyers as Compensation Administrators

By G. CLAY BAKER, *Chairman, Commission of Labor and Industry, Kansas*

On May 8, 1935, I wrote J. Dewey Dorsett, president of this association, as follows:

MY DEAR DORSETT: I would refer you to the article on Modern Industrial Surgery by one Dr. Marshal J. Payne in the March issue of Industrial Medicine, and particularly to the paragraph in that article which reads as follows:

"It is not possible for courts and commissions of nonmedical men accurately to decide medical or surgical problems. The procedure is wrong in principle

and harmful in practice. A court of impartial medical men or surgical men should be consulted in cases in which medical or surgical conditions are to be determined. Jurists should decide points of law involved in personal-injury cases. Competent and impartial medical men should pass on the medical aspects of the case. Any other plan is fundamentally wrong and should be abolished."

This party is bespeaking, I believe, the minds of a great number of the medical profession who do not seem to understand that the medical profession is allowed and permitted to perform a very distinct function when called upon to give expert medical opinion, and the doctors are considered as expert witnesses, thereby being able to testify in a manner not accorded to a lay witness; that what a commission or court does is to weigh the varied expert opinions given by the medical profession in any particular case. If the medical profession had some appreciation of the great variance of its expert opinions given, it should then have some appreciation that that very variance calls for the necessity of a legal or semilegal body weighing the varying expert medical testimony of the medical profession and reaching some decision in the matter.

Now, I am not writing you so much to discuss this article as to say that I do think the expression of this doctor is a culmination of the thought of a considerable number of the medical profession. It, therefore, gives a hint to a subject that might be provided for on the program of the next convention. It is not that I am ambitious to handle such a subject, for I am not, and, if there should be such an assignment, it rightfully should go to someone other than the writer.

Mr. Dorsett in part did and in part did not follow my suggestion. In a short time our secretary wrote assigning me the subject: *Doctors and Lawyers as Compensation Administrators*.

The letter I received assigning me this subject stated:

What we wanted was your thoughts and experience upon the very much discussed question as to whether the compensation law is best administered by doctors or lawyers, or both, or neither.

When my paper is completed, it will be for you to determine whether or not I, as a member of the bar, have been prejudiced in my discussion of the subject.

My letter of assignment further stated:

In New York, where I had my own experience, we constantly were confronted with printed articles in medical journals to the effect that the referees and compensation board members should be doctors, because most questions of fact pertain to medical subjects. On the other hand, in law journals and in the newspapers we frequently were faced with articles supporting the contention that all referees and board members should be lawyers, since the work involved legal questions.

My idea of the proper approach to this subject is that of first setting up the standard or qualifications of a compensation administrator, and then, since the subject deals with professions and not persons, considering the training of the two professions; i. e., the medical and legal professions, to determine if compensation laws should be administered by either doctors or lawyers or both, or whether members of either or both professions should be barred as administrators.

I think you will agree that any person administering a compensation act should have a sense of fairness and justice and a sympathetic understanding of the labor world and industrial problems. However, incensed as some persons may become over observance of dishonesty on the part of certain doctors and lawyers, some of the latter often referred to as "snitch lawyers" and "ambulance chasers", yet, I am going to accept, and I think rightfully so, that the integrity, honesty, and inherent desire to do justice is just as



prevalent in both the medical and legal professions as among the laity or any of the other of the professions. As to an understanding of the labor world and industrial problems, I don't believe that the training of either of the professions make for any special qualifications as to this, except that the study of law does give some insight into such labor problems as mediation, arbitration, property rights, and so forth. I believe it rightfully can be said that the medical and legal professions do not have any special understanding of the labor world and industrial problems.

A compensation administrator must be a trier of facts. Probably his most important duty is that he must elicit all the facts, medical and otherwise, and make a determination, often from very conflicting evidence, what the true facts are and then he must apply the law to these facts. He must be a trier of facts in a somewhat different sense than the judiciary. It is regarded as the duty of a compensation administrator that he is not merely to weigh the evidence that comes to him but to either procure or have procured all the facts necessary to a fair determination.

I know of nothing in the training of the medical profession that particularly qualifies its members as triers of facts. I know of nothing in the training or background of this profession that especially endows it with the ability to investigate and elicit facts and to weigh evidence and facts. Where a doctor is naturally addicted to fairly developing this side, he, of course, would make a splendid administrator because of his medical knowledge. However, my experience with the medical profession warrants my making the statement that not only is the medical profession lacking in training qualifying it for such work, but that it a profession lacking in such qualifications. I do not like the idea of one group or profession berating another group or profession, and I do not make these remarks in that light, for I have utmost respect for our medical profession, and it has rendered a great service to society through its splendid achievements.

I heard a case once in which two doctors disagreed as to whether or not a workman had a hernia. The doctor contending the workman had a hernia offered to bet the other a hat that the operation would prove a hernia. He contended the other doctor would not come in the operating room for proof. Both doctors testified before me at the hearing—both very much in disagreement and both very much incensed at the other. They left the courtroom quarreling over the situation. I do not feel that it was necessary for me to have been a trained doctor in making a proper determination in that case quite as much as it was for me to be able to judge between the two witnesses.

A certain doctor advocated to me that he did not see how I was able to decide cases because of such a conflict in medical testimony and that he thought every commission should have a doctor whose word would be final. I told him it might not be advisable to set one doctor's opinions up against the rest of the doctors and that might be the result of such action. One week after the very same doctor testified before me as the attending doctor to a workman on whose leg a rock had rolled, and in his testimony declared the workman had suffered but a slight sprain of the knee and there was

no reason why he should not return to his work in a rock quarry. The evidence showed that the workman had endeavored to carry on the work after his accident but was unable to do so. When the company doctor persisted in the idea that the injured could work, he then went to a young doctor who took X-rays of the knee and at the hearing produced what he described as X-ray evidence of fracture at the knee joint, the external tuberosity, with displacement outward and downward. The company doctor was called back to the stand to view and testify as to the X-ray that had been produced and he offered as his opinion that the X-ray did not show the fracture described. There was no question in my mind but that the X-ray showed the fracture. However, as a matter of verification, I took the X-ray to a specialist and without giving him any information had him read the X-ray, which reading verified the fracture as described. The means of determining the facts were available to me, and the significant thing was that of pursuing investigation that would assure fair determination and conclusion.

And then there are cases where the medical testimony varies not because of prejudices but because of difference in medical theory, and it is a question if it is not well for one outside the medical profession to weigh such conflicts.

As a profession it is my opinion that doctors can best serve as witnesses and interpreters bringing to the administrators their expert knowledge but which expert testimony must be questioned by the administrator and weighed and not accepted as infallible because it comes from an expert. Doctors will, either justifiably or unjustifiably, disagree, and it is up to those trained in weighing such disagreements to determine the facts. The party weighing the testimony need not be an expert in the field himself although he should have a fair degree of knowledge in the field of the expert.

I believe it will generally be conceded that the training of the legal profession is such as to adapt the profession in the matter of investigating, eliciting, and weighing facts, and that the training of a lawyer does tend to fit him as a trier and investigator of facts. It may be said, however, that the lawyer has certain handicaps to overcome in adapting himself as a compensation administrator. The matter of eliciting or seeing that all facts are brought forth rather than merely depending upon the presentment of facts as made by the parties, the matter of avoiding delay in proceeding and effecting conferences to avoid litigation, and the reaching of early determination of rights so that compensation, if owing, is paid at the time of disability and need are at least to a degree somewhat foreign to the method followed by a great number in the legal profession. Again he must acquaint himself with conditions of the labor world and industry. He must know workmen. However, the legal profession, in my opinion, does have a background of training that especially adapts it to eliciting and determining facts and the administration of compensation laws.

Proper administration of a compensation law calls for one specially trained in the field. It might well be looked upon as a profession in itself, calling for these qualifications: Integrity, knowledge of labor and industrial world, ability to elicit facts, sufficient medical and legal knowledge to reach proper conclusions. No set of persons

or professions has a monopoly on the development of these requirements. A layman may well develop into an excellent administrator. There is, I believe, proof of that today. However, as professions go, I am of the opinion that the legal profession has a background of training that peculiarly fits it for the work, whereas there is nothing in the background of training that gives ground for selecting out the medical profession experts qualifying as administrators, but rather can the medical profession better serve as interpreters for administrators.

May I divert from the confines of my subject in closing to say that the time I have spent as administrator of a compensation law impresses upon me the fact that it is a work that calls for special adaptation. There are many intricacies connected with the work which neither time nor my subject will permit my dwelling on. Just recently my office effected correction in a case that meant a great deal to the injured parties concerned and I have often queried in my own mind if I would have effected the settlement I did had I dealt with the case in the early part of my administration. A lady came to my office concerning her husband who had been injured over 2 years prior and who had made a settlement with the employer for \$36.75. At the time of her visit her husband was an inmate of an insane institution. The medical report of the attending doctor, who was selected by the workman himself, gave justification to the settlement effected. Further, the findings of the doctors on the insanity commission practically annulled the idea that insanity and permanent disability was due to the injury. Added to this time had elapsed under the law for any recourse. No order I could make would have any valid effect. Being without jurisdiction did my duties cease? Such was more or less my conception at the onset as an administrator. A compensation administrator's duties, however, do not necessarily cease in such a case.

On investigation, I learned that the workman, an oil-field worker, had never been normal after his injury; also, that during the interim between his injury and confinement to the State institution, which was a period of 19 months, the wife, with a 9-year-old girl and invalid mother, as well as the husband under her roof to provide for, had carried on the husband's work. For months she had gone in the field with the husband, doing his work and trying to impress him he was carrying on, thinking she would help overcome his mental condition, and finally doing herself the work of the workman. I further learned at the State institution that an X-ray taken there showed a skull fracture and depression and that the workman would more than likely be a permanent patient, this due to his injury. By laying the facts of my investigation before the insurance carrier I readily secured its willingness to disregard its technical defense and to pay out on the case on the basis of disability.

In a large measure it depends upon the administrator whether technicalities of the law will be abusive and harmful. I know of no case where an unjustifiable settlement has come to my attention, and I procured facts which warranted my contention that a fair presentment of the situation to the company effected a willingness to do justice. Sometimes I think a compensation administrator's berating insurance companies is evidence of his own shortcomings.

When one stops to consider what rests on the shoulders of a compensation administrator it is a sad commentary that under our present systems virtually no qualifications or training are required in appointment or consideration of tenure and attainment in continuing in the responsibility of the work.

## DISCUSSION

Dr. DONOHUE. That is very interesting. I suppose there is no harm to know about any subject you have to pass upon, and if you happen to be a doctor and know a whole lot about medicine and there are a couple of doctors testifying and you know whether they are bluffing or not, I suppose that is precious knowledge to have. Some of the lawyers have not got it, and I am going to say this in all justice to the court. I have seen a judge listen to a lot of expert medical testimony and I felt as if they were throwing that information up against a wall. I never felt like a little extra knowledge ever hurt anybody and, of course, I know that the legal profession is inclined to feel that it is better able to evaluate testimony than other classes, and I think probably its training is such that it should be able to. On the other hand, there is not a single question, medical or surgical, which comes before a compensation board but that to properly evaluate the testimony plenty of experience is needed. I always feel that the "green" compensation commissioner faces a pretty tough situation and until he gets his medical and surgical book and does plenty of studying, I do not think he is going to be able to do much. I think compensation revolves around the medical testimony and medical information he gets. Mr. Baker spoke of a case of two doctors finding a fracture and another one could not. If Mr. Baker was an X-ray man and could look at the plate, he would know the truth. A little medical knowledge does not hurt.

Mr. PARKS. Dr. Donohue, may I ask you a question? I have often wondered what a man like you sitting on a case as administrator would do if a doctor appeared before him testifying to a medical fact, which because of his knowledge of medical work he knew was not so, and could not be so, although there was nothing to contradict it—could he separate himself from being an administrator and render a decision based upon his personal knowledge, which was not in evidence?

Dr. DONOHUE. If I could, I would not let the other side get away with it. I certainly would ask for some doctor to come in, and I would want that expert to tell the facts. If he agreed with the other fellow, I would accept his judgment.

Mr. JOHANNSEN (Illinois). For the past 15 years, every year that our legislature assembles, there is introduced a bill to have the industrial commission made up exclusively of lawyers. In our legislature all those matters are referred to the judiciary committee, made up exclusively of lawyers, and every year the bill has been almost unanimously defeated in the State Legislature of Illinois. On the whole, I would say that a man with ordinary intelligence. With some information as to what happens in industry, and with a real desire to try to find out the facts, I say that kind of a

man will make as good an arbitrator or commissioner as anyone from the professional ranks. I appreciate your paper but I cannot agree with your notion that lawyers alone are competent to judge evidence.

Mr. McSHANE. I think that some of the doctors and lawyers have the wrong concept of Mr. Baker's paper. As I interpret it, he simply held that administrators outside of either of those professions might be competent and just as able as the doctors or lawyers.

Mr. PARKS. I might offer some comfort to the gentleman from Illinois. When I was first appointed commissioner, I was a weaver in a cotton mill, and after my term had expired I went to law school and became an attorney, but for 8 years I was administrator of the workmen's compensation act without being a member of the bar. My legal training helped me, but it did not help me as much as common sense, which I got by working in the mill. We have a member of our board, Mr. Gleason, who has been there 18 years. There is no better administrator in the United States than Mr. Gleason. At the time of his appointment he was a ticket agent in a railroad office. He is not a member of the bar, yet he has a lot of horse sense which makes him a good administrator. I should not want to advocate a law that would mean that all members of the administrative board should be lawyers.

Dr. MEHLER. I have had 5 years' experience as a referee, and I do not advocate doctors sitting as referees or commissioners for the simple reason that very frequently they have to get another angle of the case from the layman. However, with reference to the case that was cited here, I had a good many of those cases come in, and in a great majority it was the insurance company or the self-insurer who had the doctor testify and the claimant sat there without anybody to testify from a medical standpoint. A doctor sitting in as a referee cannot testify, but in such cases my recommendation always was to go out and bring in a doctor and have him testify as to the condition. The other remedy was to send upstairs and bring down one of the State medical examiners.

Mr. ZIMMER. I am very much in agreement with the general thought of Mr. Baker's paper, though, perhaps, I would not agree with the exception he has made as to lawyers. It always seemed a little strange to me that if lawyers are preeminently qualified to evaluate testimony, why they never serve on juries in personal injury or other suits. It would indicate that our jurisprudence is wrong in the best approach to the administration of justice when it does not permit the best qualified men to sit on the jury. In New York I never heard of a lawyer or doctor sitting on a jury in an injury case. It seems to me that there is no particular distinction in the duties of a referee or a commissioner from those of jurymen. I would say that at least 90 percent of controversies hinge on questions of fact and not more than 10 percent on questions of law. I have observed over a period of years that referees who are lawyers are just as frequently reversed on a point of law as are laymen. It seems rather a significant thing that one of the New York industrial commissioners, who is now a Supreme Court judge, was decidedly of the opinion that referees need not be lawyers. All the other com-

missioners in that State seemed to subscribe to the idea that a good referee can be secured from the ranks of laymen.

If, as Mr. Baker has said, and Mr. Parks, too, a referee has a reasonable supply of ordinary horse sense, plus sufficient experience in dealing with human beings, as to be able to evaluate the testimony before him, together with the faculty for concentration upon essential issues, he will not suffer in comparison with associates in either the legal or medical profession. At least that is my opinion.

Mr. GARCELON. If there is no further discussion, we will proceed with the last topic of the morning, Interstate Compensation for Transportation Workers, presented by John B. Andrews.

### Interstate Compensation for Transportation Workers

By JOHN B. ANDREWS, *Secretary, American Association for Labor Legislation*

In 1926, at the Hartford convention of the International Association of Industrial Accident Boards and Commissions, a special committee submitted a report and the association unanimously adopted a resolution "most earnestly and heartily" recommending and petitioning the Congress of the United States "to enact suitable compensation laws for occupational injuries in interstate and maritime employments."

Five months later, on March 4, 1927, the Congress enacted a Federal compensation law for those maritime workers injured on board vessels at the dock. This Longshoremen's and Ship Repairmen's Act is one of the most successful of our compensation laws, and when Congress adopts the amendment recently recommended by the House Judiciary Committee, eliminating the unfortunate maximum total amount limitation, it will set a standard among the most liberal acts as urged by this association 9 years ago.

Two groups of workers embraced in the association's unanimous resolution of 1926 are still unprotected by compensation legislation: First, the seamen; and second, the workers injured in interstate commerce. Although bills were carefully prepared and introduced in Congress for the compensation protection of these two remaining important groups, no progress could be made at the time because of opposition from certain influential representatives of labor. This association accordingly disbanded its committee, and the suggestion was made that the American Association for Labor Legislation was the appropriate organization to carry on the educational work until such time as prospects for action might be more encouraging. The latter organization meanwhile has been preparing the way for this legislation. The need now, therefore, is to report progress of the past half dozen years.

The published proceedings of the compensation commissioners' association indicate very clearly that interest in this problem has continued. The papers presented in 1930 by Commissioner Wilcox, of Wisconsin, on "Interstate and intrastate cases", and by Commissioner Laughlin, of Oregon, on "Border line between maritime law and compensation cases"—with discussion by Deputy Commissioner Locke, of the Federal Commission—are noteworthy contributions. A high light also in the statement of the opposition arguments was

the paper by the then Secretary of Labor Doak, at the Richmond convention in 1931. Mr. Doak, as a member of the Brotherhood of Railway Trainmen, presented very ably the extreme opposition arguments of his particular labor group, which has consistently opposed workmen's compensation from the beginning.

In January 1932, however, representatives of the railroads and the railway unions agreed to study workmen's compensation through a joint committee. In order that a concrete plan might be available for distribution and study, Senator Wagner, in June 1932, introduced in Congress the interstate-compensation bill of the American Association for Labor Legislation, which was prepared in cooperation with compensation-law administrators. Copies of this bill were widely distributed for criticism and suggestions. When revised the bill was reintroduced by Senator Wagner in February 1933, and again in April of that year. Under the auspices of the Association for Labor Legislation an all-day conference was held in November 1933, in which representatives of railroad carriers and railroad unions participated. At another all-day conference, arranged upon request of the railroad labor organizations, the bill was critically examined in every detail. With further revision the bill was reintroduced in May 1934, and after further conferences and discussion with representatives of the Federal Department of Labor and the Coordinator of Transportation it was reintroduced in its latest form by Senator Wagner on June 25, 1935, as S. 3152. This bill, covering 62 printed pages, has, therefore, been subjected to 4 years of criticism by those especially interested throughout the country.

This legislation covers not only railway employees—the largest single group of American workers who are still without modern accident compensation protection—but it also applies to other employees of interstate carriers, including sleeping and dining car, express and pipe-line company employees, bus and truck drivers, and aircraft employees. The adoption by Congress of the Motor Carrier Act, in August 1935, providing for Federal regulation of transportation by motor carriers, also suggests their inclusion in a Federal accident compensation system. The aggregate number thus subject to the jurisdiction of Congress is estimated to be not fewer than 2 million, about one-half of whom are railway employees. Measured by pay roll and number of workers affected, the proposed legislation, when enacted, will be more important than any of the existing workmen's compensation laws, except possibly those of the two most important industrial States. The geographical coverage is measured only by the limits of our great country, with, of course, resulting special problems of administration.

Indicative of growing interest in the subject is the number of articles on this proposed legislation that have appeared recently. One of the most timely and helpful of recent articles is by Prof. Walter Gellhorn, of the law school of Columbia University, which appeared in the June 1935 issue of the *American Labor Legislation Review*. Arrangement was made for a very important study of the *Cost of Railroad Employee Accidents, 1932*,<sup>1</sup> which was completed during the past 2 years by the Federal Coordinator's Office, at the

<sup>1</sup> S. Doc. No. 68, Washington, D. C. 1935.

suggestion of Senator Wagner. This official report indicates that injured railway employees would have been on the average considerably better off under a workmen's compensation law like that provided by Congress for longshoremen. This timely study at last furnishes the information which compensation commissioners and others have long desired, and it removes one of the former occasions for delaying action.

It would be exaggeration to say that the principal obstacle to the adoption by Congress of a Federal interstate workmen's compensation law—the opposition of certain labor leaders—has been overcome. Apparently the time is near when we may expect legislation protecting the seamen. But powerful minority factions among the railway unions are still insisting that they will oppose any legislation affecting their particular group unless they are given the right to decide *after the injury* whether they will take compensation or sue for damages. This is the position now of two or three of the national brotherhoods, the remaining dozen and a half of the national transportation unions being favorable to workmen's compensation as the exclusive remedy. But the Railway Labor Executives Association, representing all of the 21 transportation unions, acts as a unit in national legislation and has not yet endorsed any specific measure.

The initiative in promoting this compensation legislation may not come from the Railway Labor Executives Association without unanimous agreement. The first impulse, therefore, in the public interest may have to come from the outside. In support of this is the generally accepted conclusion that workmen's compensation is the superior remedy and beneficial to all concerned, including the consumers who ultimately pay the cost. The Federal commission report 23 years ago was unanimously favorable to this legislation. The official report this year of the Coordinator of Transportation finds this legislation desirable for railway workers. Commenting on the present liability system of disposing of railroad accidents this latest Federal report says that it "takes on many of the aspects of a lottery, from which a few employees draw large sums but from which many receive insufficient amounts. It is this inequity which constitutes the greatest indictment of the system and furnishes the most powerful argument in favor of a reasonable Federal workmen's compensation law." Otto S. Beyer, the director of the labor relations section of the Federal Coordinator of Transportation, who supervised the recent investigation, writes that "if railroad employees are to receive the protection against loss of earnings due to accidents to which they are entitled, a Federal workmen's compensation law must be passed. \* \* \* The Wagner bill (S. 3152) now before Congress," says Mr. Beyer, "will in large part do away with the injustices of the present system. Its enactment is essential to a satisfactory solution of the railroad employee compensation problem."

George M. Harrison, acting chairman of the Railway Labor Executives' Association, in a recent article (in the December 1934 issue of the American Labor Legislation Review), points out that in those cases where a large verdict is secured in the higher courts the full amount is in all cases deceptive. "One-half or more of the amount



recovered", he writes, "will have to be expended in the costs of the litigation; and months and even years may be consumed in litigation before damages are recovered." He also refers to "the rule enforced by most railroads, which forbids an employee to take legal action against the company except under penalty of losing his job" with the result that "thousands of minor injuries go uncompensated."

Mr. Harrison declares that "long experience has finally convinced railway workers that the supposed advantages of the Federal Liability Act are illusory and that the vast majority of employees would be benefited by the adoption of a Federal workmen's compensation act. The great majority of them are convinced that they have much to gain and little to lose in substituting compensation for the damage-suit system, and are prepared to support interstate workmen's compensation legislation similar to the bill introduced in the last Congress by Senator Robert F. Wagner." Mr. Harrison concludes: "There are still some railroad labor organizations that think an injured employee should have the right to make a choice as between compensation and the right to sue, but these organizations are in the minority. With a very substantial majority of the unions convinced of the advantages of a compensation act, there is every reason to believe that Congress will enact such a measure without much delay."

The position of railroad employers in reference to the desirability of adopting the principle of workmen's compensation has been favorable throughout the 23 years which have elapsed since the Federal commission made its favorable report in 1912. At that time both houses of Congress adopted the commission's bill, but conferees were not appointed to iron out differing amendments. The attitude of railway employers is still sympathetic to the principle of compensation, and any opposition to the proposed legislation from that quarter would be directed toward specific features which they might consider unduly liberal.

The Committee on Economic Security—the so-called Cabinet Committee—in its report to President Roosevelt in January 1935 recommended "passage of accident compensation acts for railroad employees and maritime workers." It must be regarded as an essential part of any "well-rounded program of social insurance", as promised by the President.

The late Chief Justice Taft, in an address before the American Law Institute on May 9, 1929, said:

A good many years ago it was attempted in Congress to provide a workmen's compensation act, or what was equivalent to it, with reference to that great body of men whose lives are constantly at stake in the operation of the transportation systems of this country. We in the Supreme Court, and all judges who have to do with the active conduct of litigation, realize the amount of time that is taken up in litigation of this kind, and also realize how much has been saved to the courts of the country by workmen's compensation acts. But we have no such system in the Federal courts. We need it.

Senator Wagner is entitled to great credit for keeping a specific plan for interstate workmen's compensation before the country. In reintroducing this legislation (S. 3152) in June 1935 Senator Wagner said:

The inadequacies and evils of the existing system of employers' liability for interstate commerce workers indicate the necessity for modern legislation to meet present-day needs which will effectively and adequately protect all inter-

state-commerce carriers' employees who are injured in the course of their employment. Such legislation can be worked out to the advantage of employers and employees and will at the same time relieve the public of the various expenses growing out of litigation.

Compensation commissioners in their own States can render a great social service by acquainting Senator Wagner and their own representatives at Washington with the facts developed out of their experience with personal injuries occurring in interstate commerce.

[The report of the legislative committee was presented by Mr. Klaw, its chairman.]

#### REPORT OF THE LEGISLATIVE COMMITTEE

By ABEL KLAW, *Chairman*

Your legislative committee, at the suggestion of President Dorsett, has given consideration to the drafting of an occupational-disease provision which may be used as a basis for bringing diseases of occupation within the purview of the workmen's compensation law.

The committee recognizes that provision for the inclusion of occupational diseases within the scope of compensation may take either one of two forms, viz., an all-coverage act or an act restricting its scope to those diseases specifically enumerated. Some States will favor the all-coverage form, while others will prefer the restricted type.

Accordingly, it has been deemed expedient that two separate provisions be recommended and submitted, so that in either case a working basis may be available to those fostering the enactment of legislation of this character.

Your committee submits the following as a uniform provision for an all-coverage occupational disease amendment to the workmens' compensation law:

The term "injury" means accidental injury or death arising out of and in the course of employment and such occupational disease or infection as arises naturally out of such employment.

Your committee is of the opinion that the drafting of an occupational-disease law restricting compensation to certain specified diseases will of necessity call for special wording so as to conform to the peculiar requirements of the particular State. It is therefore recommended that the North Carolina occupational-disease law be taken as a working basis or pattern to be followed generally and subject, of course, to such word changes as are indicated by local constitutional and statutory restrictions. The specific diseases to be listed will also have to be formulated with relation to the industries located in the particular jurisdiction and the disease peculiar thereto.

Your committee is of the opinion that any compensation law including occupational diseases within the compensation system should contain sufficient safeguards against framed or spurious claims. We commend the wording of the North Carolina law in this respect but call attention to the fact that local conditions may call for additional safeguards.

Generally, we submit that with regard to occupational diseases provision should be made with reference to the following:

- (a) Payment of compensation should be confined to diseases due to the nature of and arising out of the claimants' employment.
- (b) The date of disability should be held to correspond to the date of the accident or injury in determining the time to which the obligation to pay compensation should relate.

(c) Limitations relative to the filing of claims distinctly appropriate to occupational diseases should be provided for.

(d) Provision should be made recognizing the possibility that the diseases may have arisen during different periods of employment under different employers in order to determine which employer or which employers shall pay the compensation.

(e) Provision should be made also to protect the employer in the payment of compensation against a willful misstatement of prior history on the part of the employee, or in the payment of compensation in the case of a disease, the occurrence of which or the disability incident to which shall be due to the willful act of the employee.

Your committee has intentionally avoided making a recommendation with regard to which of the two types of occupational disease law is the more desirable. We believe that this is a matter for determination by each jurisdiction in the light of their individual requirement.

Respectfully submitted.

ABEL KLAW, *Chairman.*

DONALD D. GARCELON.

HOWARD KEENER.

O. F. MCSHANE.

EDGAR C. NELSON.

R. H. WALKER.

Dr. HATCH. This is a pretty important subject and a pretty important recommendation. If it would be in order, might not this report be referred to the executive committee for action.

Mr. PARKS. I do not think we should consider it at all. We are in a hurry to get out now. I suggest that the report be accepted and be referred to the next convention. That may sound unappreciative of the committee's work, but it is not our fault. The committee has had an entire year to consider these things. I think the members of this association should have time to consider it. I think we should be careful not to commit the different jurisdictions to principles that maybe we do not believe in. I move that the committee's report be accepted and deferred to the next convention, and that copies of the resolution be sent to all the States before the next convention so the delegates can be appraised that it is coming up.

Mr. KEENER (Arizona). I do not think it was the intention of the committee to crowd this proposed legislation down the throats of the various States which now have coverage of occupational diseases. Of the 48 States having compensation laws, very few cover diseases of any nature. The committee's report was merely meant as sort of a guide for those States which have no coverage whatever. Occupational disease laws should be passed in all States. Many States do not know how to amend the law for this purpose. At the last session of the Arizona Legislature an occupational-disease law, written by some attorney, I believe, was presented at the request of a couple of labor leaders. This bill embraced everything from ingrown toenails to dandruff and there was no suggestion as to the responsibility on the part of the employers and no method of collection was provided. For that reason it was not recommended by the judiciary committee of the legislature.

Mr. KLAW. I am wondering if it is not true that members have misconstrued the purpose of the report just made. There is no recommendation made to commit any jurisdiction to anything. It

is not the purpose of this committee to formulate laws nor for the gentlemen attending this convention to commit their States to this law. This is my fifth year on this committee. We have never attempted to put a law down anybody's throat. We have never attempted to lobby in favor of a law. The committee has merely given time and study to the forms of particular divisions of the workmen's compensation laws that the association has felt might need a little change. After study we have said it is our deliberate judgment that if you will change your law in this respect, you will have effected a change that will be beneficial, striving of course to an ultimate goal, which of course will never be reached, that of uniform legislation throughout the country.

If you will permit me, I think I can save some time in connection with this whole matter. President Dorsett asked us to give consideration to drafting an occupational-disease provision which might be used as a basis for bringing occupational diseases within the scope of the workmen's compensation law. Those States that already have an occupational-disease law, and especially those that have an all-coverage law, would have no interest in the report unless they are not satisfied with their own law. The committee recognized two types of occupational-disease laws—one the all-coverage, and the other specifying certain diseases. We suggest that the association give approval to our report, recommending that for those States that want an all-coverage occupational law, certain language be adopted: "the term 'injury' means accidental injury or death arising out of and in the course of employment and such occupational disease or infection as arises naturally out of such employment." That is word for word the occupational-disease provision of the United States Longshoremen's Act adopted by the Congress of the United States some 8 or 10 years ago. We have said that where you are going to specify certain diseases and not have an all-coverage act, we advise you to take the North Carolina act as a working basis. That is all we have said:

It is therefore recommended that the North Carolina occupational-disease law be taken as a working basis or pattern to be followed generally, and subject, of course, to such word changes as are indicated by local constitutional and statutory restrictions.

We have not said anything about how that type of legislation should be worded. We said if you want a pattern, here is something to be used, but naturally there have to be changes to meet local requirements and statutory and constitutional restrictions, and we have cautioned legislators to draft their laws with these in mind. Then we have adopted the suggestions made by the Pennsylvania commission appointed by Governor Pinchot of Pennsylvania, and which devoted about 15 months of study to this subject. We concluded by saying that we made no recommendation in regard to which of the two types of law is more desirable. We think this is a matter for the determination of each individual jurisdiction.

Now, I have taken time to submit to you my impression of the committee's report. I will be delighted if some one will point out to me why it is necessary to defer action on it, or wherein anybody voting for the adoption of this committee's report will be committing his jurisdiction.

I also want to say that I received notification of my appointment as chairman of this committee in February of this year. The committee was composed of 10 members living in widely separated States. Of necessity we could not have a meeting of the committee. I wrote to the members asking them if they would come a day before the meeting of the convention so we could have a meeting to make our report. Unfortunately, on account of faulty train connections, we were unable to meet Sunday, and that is why we asked for some extra time. I grant you what Mr. Parks says is right, that the committee should have a great deal of time to consider these matters. I am going to make a suggestion that the incoming administration consider the geographical location of our committee members from the standpoint of the ability of the committee to function. Now a committee like this that is going to function during the year should be composed of three members who live close to each other, otherwise it is impossible for the committee to do anything.

Mr. McSHANE. As a member of the committee, I wish to make this explanation. It may be the impression that the committee has given no consideration to this subject prior to this week. That is not true. For the reason that the occupational disease problem would be the main feature in this convention's program, our chairman asked us to give consideration to the matter, and we did all our studying individually instead of collectively. In support of what Mr. Klaw has said, I want to make this observation: If this report is referred to 11 people, I wonder whether, if their decision should be against the adoption of the report, it would be interpreted as a repudiation by this organization of the theory that the man who gives his life and just effort to an occupation and reaches a point that he is permanently and totally disabled because of that occupation, is not to be thrown on charity, while the man who simply has an accident after a very brief employment is given compensation.

I have no objection to this matter going over, but I would not like to have the impression go out that this organization was fearful of approving a report that simply gives a sort of skeleton outline of what a State should do, if it wants to do it. If the jurisdictions pay as much attention to these recommendations as they paid to the work of the committee on the subject of how to reach permanent partial disability, it won't be much. That committee made a study covering 3 years, and yet I do not know of a jurisdiction in the United States that adopted our report wholly and completely, and I only know of one State that came near to it. We do not want to leave the impression here that we are afraid to act on our own convictions. I would rather the report be spread upon the minutes and forgotten than have a motion made to defer action for 1 year indicating that no agencies can or will use this sort of legislation, and so the report was turned down in the convention of the International Association of Industrial Accident Boards and Commissions.

Mr. PARKS. Our act is far more liberal in its treatment of occupational diseases than the language you have there. Now the other thing that I am asked to approve is the principle of the North Carolina act. Now I have a lot of respect for North Carolina, but I must confess my ignorance of the North Carolina act, and yet I am

asked to adopt the principle of that act as a model for this association. I confess I cannot do it.

Dr. HATCH. In view of the clarification of the nature of the report which has been given us by the chairman and other members of the committee, I rise to withdraw any objection that I made. I think that the chairman asked that we accept the report and place it on file, and that is all right. We have not done anything about alternatives in the report, and there are several, but I am entirely in favor of the suggested action at this time.

Mr. PARKS. I am in favor of having it filed.

Mr. JOHANSEN (Illinois). Illinois is having a special session at this moment dealing with this problem. There are several groups, one group advocating full coverage, another group advocating another thing.

I do not see anything in the recommendation of this committee that would commit anybody. You can use this as a yard measure if you like, and you can make such changes as you see fit. It is merely a recommendation. I do not see why we cannot accept it.

Mr. PARKS. I am in favor of striking out the words "accidental injury" so that it may read: "The term 'injury' may be injury or death arising out of and in the course of employment and such occupational disease as arises naturally out of such employment." Taking out the words "accidental injury", I want to warn these members, narrows the effect of the workmen's compensation.

Mr. KLAU. Do you accept Mr. Parks' suggestion? If the other members do, I will.

Mr. MC SHANE. I will be glad to accept it, but I do not think it has much place here.

Mr. GARCELON. Mr. Parks, do you withdraw your motion?

Mr. PARKS. Yes.

Mr. BROENING. I do not see any objection to accepting his report. It does not compromise any member of this convention. Maryland has appointed a commission to study this question, and it hopes to have a report ready for a special session of the legislature. I think it will be very helpful to put ourselves on record as deeming this question of sufficient importance to commend its study and consideration. I think the report ought to be accepted, spread upon the minutes, and its study and consideration commended and I so move.

Mr. GARCELON. Is there any objection? Without objection, the report as amended is accepted and placed on file. A copy of the report will be sent to the various States for their study and consideration.

#### PROPOSED AMERICAN STANDARD FOR COMPILING INDUSTRIAL INJURY RATES

[Read by Mr. Wilcox]

##### SECTION 1.—*Exposure.*

1.1. Man-Hours of Exposure shall be the total of man-hours actually worked by all employees. (See R3 and R16.)

1.2. The Average Number of Employees shall be the daily average number of workers employed, during a stated period, in the industrial unit whose accident experience is under consideration. Each unit shall include all departments,

such as production, maintenance, transportation, clerical, office, and sales. (See R1 and R2.)

**SECTION 2.—Industrial Injuries.**

2.1. An Industrial Injury shall be the term applied to any injury arising out of and in the course of employment that results in death, permanent total disability, permanent partial disability, temporary total, temporary partial disability, or first-aid case, as hereinafter defined. (See definition 5.1, also R4, R5, R6, R7, and R9.)

2.2. Death shall be the term applied to any injury which involves the loss of the life of the injured.

2.3. Permanent Total Disability shall be the term applied to any injury (other than death) which permanently and totally incapacitates the injured from following any gainful occupation. The loss of, or loss of use of, both hands, or both arms, or both legs, or both feet, or both eyes, or any two thereof, suffered in one accident, shall be considered a permanent total disability.

2.4. Permanent Partial Disability shall be the term applied to any injury (other than death or permanent total disability) which involves (a) the complete loss of any member of the body, or part thereof, or (b) the permanent impairment of any function of any member of the body or part thereof. (See R9.)

2.5. Temporary Total Disability shall be the term applied to any injury (other than death, permanent total disability, or permanent partial disability), which, in the opinion of the doctor, makes it impossible for the injured employee to return to work on the next calendar day following the day on which the injury occurred. (See R6.)

2.6. Temporary Partial Disability shall be the term applied to any injury (other than death, permanent total disability, permanent partial disability, or temporary total disability) which, in the opinion of the doctor, makes it impossible for the injured person to return to his regular job and which does not make it impossible for him to perform the normal duties of some other regularly established job. (See R6.)

2.7. First-aid Cases shall be the term applied to any injury (other than death, permanent total disability, permanent partial disability, temporary total disability, and temporary partial disability) which receives at least first-aid or medical treatment but which, in the opinion of the doctor, does not make it impossible for the injured person to return to his regular job not later than at the start of the next calendar day following the day on which the injury occurred.

**SECTION 3.—Injury Rates.**

3.1. Frequency Rate shall be the number of injuries per 1,000,000 man-hours of exposure. (See R12.)

3.2. Severity Rate shall be the total time charged per 1,000 man-hours of exposure. (See R13.)

3.3. Standard Frequency and Severity Rates shall include all injuries causing death, permanent total disability, permanent partial disability, or temporary total disability.

3.4. Advanced standard rates shall include also temporary partial disabilities, or temporary partial disabilities and first-aid cases. (See R14.)

**SECTION 4.—Time Charges.**

4.1. The term Time Charge is the measure of disability stated in days as specified in section 4 and 5 of this code.

4.2. Time Charges for Death.—Six thousand days shall be charged for each death. (See sec. 5, also R5 and R10.)

4.3. Time Charge for Permanent Total Disability.—Six thousand days shall be charged for each permanent total disability. (See sec. 5, also R5 and R10.)

4.4. Time charge for permanent partial disability shall be as follows:

(a) The time charge for any injury resulting in the complete loss or complete loss of use of any member of the body shall be the number of days specified in the "Scale of Time Charges." (See secs. 5 and 7, R5, R9, and R10.)

(b) The time charge for any injury resulting in the loss of a part of a member or the permanent impairment of any function of any part of the body or part thereof shall be a percentage of the number of days specified in the "Scale of Time Charges." (See sec. 5.) The percentage of same to be used shall be the percentage loss or loss of use sustained by the injured worker, as determined by the local compensation authorities. (See sec. 7, R5, R8, and R10.)

4.5. Time Charge for Temporary Total Disability. The time charge for any temporary total disability shall be the total number of calendar days of disability, excluding the day on which the injury occurred and the day on which the employee returned or in the opinion of the doctor was able to return to work. (See R6, R7, R9, and R11.)

**SECTION 5.—Scale of Time Charges.**

5.1. The accompanying scale shall be used to determine the time charges in number of days so specified in definitions 4.2, 4.3, 4.4a, and 4.4b.

	<i>Days</i>
Death .....	8,000
Permanent total disability.....	8,000
Arm at or above elbow.....	4,500
Arm below elbow.....	3,600
Hand .....	3,000
Thumb.....	600
Any one finger.....	300
Two fingers, same hand.....	750
Three fingers, same hand.....	1,200
Four fingers, same hand.....	1,800
Thumb and one finger, same hand.....	1,200
Thumb and 2 fingers, same hand.....	1,500
Thumb and 3 fingers, same hand.....	2,000
Thumb and 4 fingers, same hand.....	2,400
Leg, at or above knee.....	4,500
Leg below knee.....	3,000
Foot.....	2,400
Great toe or any two or more toes, same foot.....	500
Two great toes.....	600
One toe, other than great toe. (See sec. 8, R9.)	
One eye, loss of sight.....	1,600
Both eyes, loss of sight.....	6,000
One ear, loss of hearing.....	600
Both ears, loss of hearing.....	3,000

NOTE 1.—Days shown in table are charged for complete dismemberment or complete loss of use of member (definition 4.4a). For partial dismemberment or partial loss of use of member a percentage of these figures is charged, as explained in definition 4.4b.

NOTE 2.—The charge for any permanent injury other than those specified in the scale shall be a percentage of the charge for permanent total disability corresponding to the ruling of the governing Workmen's Compensation Commission. (See R9.)

**SECTION 6.—Rulings and Interpretations.**

R1. Any report on any basis other than the all-inclusive basis provided in definition 1.2 shall state which groups or departments are included and which are excluded.

R2. Average Number of Employees.—To obtain average, count names on pay roll and salary roll of those at work for each day during period covered and divide the aggregate number of names by the number of working days. For example: 25 working days in November, aggregate number of names of those on pay roll and salary roll and at work, 15,000. Divide 15,000 by 25 and the quotient (600) represents the average number of employees.

R. 3. Total Man-Hours Exposure.—This figure should preferably be calculated from the time clock or foreman's card, or pay-roll records. If such records are not available, the man-hours exposure should be estimated from the average number of employees. Assume a plant with 600 average number of employees working 50 hours a week for 52 weeks. The total man-hours exposure for the year (all employees) would be 600 by 50 by 52, or 1,560,000 man-hours.

R. 4. The Number of Injuries, not the number of accidents, shall be recorded. For example, if 10 employees are killed in one boiler explosion, 10 disabling injuries shall be recorded.

R. 5. Every Permanent Partial Disability as well as every death and permanent total disability shall be counted as injury even though the injured does not lose any time from work.

R. 6. No matter at what time of day the employee is injured, if no permanent disability exists and if at the beginning of the next calendar day he is unable



to work in the opinion of the doctor, to perform his ordinary duties or the normal duties of some other regularly established job, that is, a job which is not set up solely to avoid counting the case as a temporary total disability, the injury shall be counted as a temporary total disability. On the other hand, if he is able to perform the normal duties of some other regularly established job, the injury shall be counted as a temporary partial disability.

R. 7. Example of Time Charge.—Example 1: Employee is injured March 5 and returns March 22. Calendar days of disability 16. Time charge 16 days. Example 2: Employee is injured April 2 and returns April 9; he again was unable to work on April 15 due to same injury, and returns May 1. Calendar days of disability, 22. Time charge, 22 days.

R. 8. Permanent Impairment of Functions.—Example 1: If a complete loss of a hand is compensated by payment for 150 weeks, any impairment of function of the hand which is compensated by payment for 75 weeks shall rate as one-half of the complete loss of the hand or one-half of 3,000 days as specified in the "Scale of time charges" (sec. 5) or 1,500 days of disability. (See also R. 10.)

R. 9. Hernia, loss of teeth, and loss of any toe, other than the great toe, are considered temporary disabilities only. (For details see R. 6.)

R. 10. The actual time lost due to injuries specified in definitions 4.2, 4.3, 4.4a, and 4.4b shall not be charged.

R. 11. All injuries should preferably be charged to the calendar period in which they occurred. For example: Man scratches hand on July 31; he reports for first aid on August 2, but on August 3 infection sets in, causing several days' disability. The injury should be charged to July 31. An exception may be made if the charge affects an annual summary. Thus, if an injury is in December 1931, does not cause any disability until February 1932, after the 1931 summary has been prepared, the work involved in changing the annual summary is hardly worth while, and it is better to consider the injury as occurring in 1932.

R. 12. To obtain the Frequency Rate, multiply by 1,000,000 the total number of injuries classified under definitions 2.2, 2.3, 2.4, and 2.5, and divide by the total man-hours of exposure as defined in definition 1.1.

Formula: Frequency Rate.—Number of injuries multiplied by 1,000,000, divided by number of man-hours of exposure.

R. 13. To obtain the Severity Rate multiply by 1,000 the total time charges in days as determined from definitions 4.2, 4.3, 4.4, and 4.5, and divide by the total man-hours of exposure as defined in definitions 1.1.

Formula: Severity Rate.—Total time charges multiplied by 1,000, divided by number of man-hours of exposure.

R. 14. Standard rates should be compiled by all agencies. When advanced standard rates are compiled, they should be in addition to standard rates, and they should be accompanied by a statement of what injuries besides those for standard rates are included.

R. 15. When in doubt as to whether or not to count a specific injury case, the decision shall be made in accordance with the ruling of the governing workmen's compensation commission on this or similar cases.

R. 16. For Ship Operations.—Compute man-hours of exposure by using eight (8) hours daily for each employee, regardless of actual length of time worked. Man-hours of exposure for longshoremen should be computed from pay rolls.

R. 17. For Ship Operations.—Count all injuries occurring on shipboard or off ships while on duty. For injuries to longshoremen count only those cases occurring while on duty.

R. 18. In reporting the time charges, if one or more injured employees have not yet returned to work at the time report is made, the doctor or doctors in charge shall estimate the time charges for each case, such estimates shall be included in the report in lieu of actual figures.

OCTOBER 2, 1935.

## October 3—Evening Session

[The following report of the resolutions committee was read and adopted.]

### REPORT OF THE RESOLUTIONS COMMITTEE

By G. CLAY BAKER, *Acting Chairman*

*Be it unanimously resolved*, By the I. A. I. A. B. C. in annual convention assembled at Asheville, N. C., this 3d day of October, 1935, as follows:

First. That this convention heartily commends the faithful and efficient service rendered during the past year by J. Dewey Dorsett, president; Verne A. Zimmer, secretary-treasurer; and the various committees and their respective chairmen for their untiring efforts devoted to the progressive achievements in behalf of the organization.

Second. That the convention endorse the careful selection of subject matter presented and the painstaking consideration given the subjects discussed by the several speakers in such a concise and concrete form.

Third. That the members of the convention, jointly and severally, express their deep gratitude and unqualified appreciation to the North Carolina Industrial Commission, its officers and employees; the North Carolina Claims Men's Association; the employers of North Carolina; the North Carolina Federation of Labor; members of the medical profession; the insurance companies writing compensation insurance in North Carolina; the management of the Grove Park Inn; the Asheville Hotel Men's Association; the Asheville Country Club; the Asheville Chamber of Commerce; the officials of the city of Asheville; the State, county and city motorcycle officers; Madam Secretary of Labor, Miss Frances Perkins; His Excellency, Governor J. C. B. Ehringhaus; Dr. Frank P. Graham; the transportation committee with L. B. Carpenter, chairman; the Greyhound Lines; and the distinguished medical experts who appeared on the convention program in the first occupational-disease symposium; and for the gracious character of hospitality manifested in the many appointments perfected for the comfort and enjoyment of the members of the convention as their guests.

### DISCUSSION

Mr. ARMSTRONG (Nova Scotia). Since our last meeting at Boston, one of our very prominent members has passed away and I feel this association should in some way recognize its loss. Mr. Watson, from the first time he attended a convention, made himself very well liked, and those having any contact with him felt that they had met a person thoroughly interested in the work of the convention. I therefore move that the incoming president and secretary be authorized to send a letter to the widow of Mr. Watson.

Mr. DORSETT. I concur fully in Mr. Armstrong's remarks and I know the entire association does likewise. If there is no objection, the resolution will be carried out.

Mr. WISE (Michigan). I move that the president be empowered to appoint a committee, the size to be left to the discretion of the president, to study the question of universal compulsory coverage of all risks.

[The motion was seconded and approved.]

[The following resolution by Mr. Murphy was approved:]

Whereas the principle of workmen's compensation, now almost universally applied throughout the United States, has in practice commended itself as a superior modern method in dealing with occupational injuries; be it

*Resolved*, By the International Association of Industrial Accident Boards and Commissions that it is the considered judgment of this organization, largely composed of the experienced administrators of accident compensation laws, that an appropriate Federal workmen's compensation law, liberal in its provisions as the exclusive remedy for transportation workers injured in the employment of interstate carriers, will be found socially desirable and of general benefit to the transportation industry as a whole and on the average will result in much greater satisfaction to the injured workers now deprived of this modern protection.

[The following report of the auditing committee was read and approved:]

#### REPORT OF THE AUDITING COMMITTEE

By MICHAEL J. MURPHY, *Chairman*

Your committee wishes to report that it has checked the receipts with the bank receipts and disbursements with the vouchers and finds the following report of the treasurer to be correct.

#### FINANCIAL STATEMENT OF THE TREASURER, INTERNATIONAL ASSOCIATION OF INDUSTRIAL ACCIDENT BOARDS AND COMMISSIONS, SEPT. 30, 1935, TO OCT. 3, 1935

##### BALANCE AND RECEIPTS

1934		
Sept.	15. Balance in bank-----	\$365. 81
	26. Iowa Workmen's Compensation Service, 1935 dues-----	50. 00
Oct.	13. New Jersey Bureau of Workmen's Compensation, 1935 dues--	50. 00
	16. Semiannual interest on 4¼ Treasury bond-----	21. 25
	Premium on \$50 Canadian check-----	1. 23
	24. California Industrial Accident Commission, 1935 dues-----	50. 00
	26. Connecticut Board of Compensation Commissioners, 1935 dues (proportionate share fourth district)-----	10. 00
Nov.	1. Industrial Commission of North Carolina, 1935 dues-----	50. 00
	28. Sale of United States bond no. A-00031871 (\$1,000)-----	1, 122. 83
Dec.	12. Nevada Industrial Commission, 1935 dues-----	50. 00
	29. Paterson Mortgage & Title Guaranty Co., interest on certificate-----	20. 62
1935		
Feb.	14. Lelfur Magnusson, 1935 associate dues-----	10. 00
	W. F. Ames, associate membership dues, 1935-----	10. 00
	27. Indiana Industrial Board, 1935 dues-----	50. 00
Apr.	17. Paterson Mortgage & Title Guaranty Trust Co., interest on certificate-----	20. 63
May	21. Arizona Industrial Commission, 1936 dues-----	50. 00
	23. West Virginia Workmen's Compensation Department, 1936 dues-----	50. 00
	Industrial Commission of Virginia, 1936 dues-----	50. 00
	23. Wm. Schobinger, associate dues, 1936-----	10. 00
	Nevada Industrial Commission, 1936 dues-----	50. 00
	Lelfur Magnusson, associate dues, 1936-----	10. 00
	Walter F. Dodd, associate dues, 1936-----	10. 00

## BALANCE AND RECEIPTS—Continued

1935			
May 29.	National Council on Compensation Insurance, associate dues, 1936-----		\$10.00
	31. American Mutual Liability Insurance Co., associate dues, 1936-----		10.00
	31. Ontario Workmen's Compensation Board, 1936 dues-----		50.00
June 4.	Pennsylvania Self-Insurers' Association, associate dues, 1936-----		10.00
	E. I. du Pont de Nemours & Co., associate dues, 1936-----		10.00
	8. Workmen's Compensation Board of Nova Scotia, 1936 dues--		50.00
	10. Wisconsin Industrial Commission, 1936 dues-----		50.00
	Kansas Commission of Workmen's Compensation, 1936 dues--		50.00
	11. Oregon State Industrial Accident Commission, 1936 dues--		50.00
	12. Industrial Accident Prevention Associations, associate dues, 1936-----		10.00
	17. W. F. Ames, associate dues, 1936-----		10.00
	18. North Dakota Workmen's Compensation Bureau, 1936 dues--		50.00
	21. Massachusetts Department of Industrial Accidents, 1936 dues-----		50.00
	22. Paterson Mortgage & Title Guaranty Co., interest on certificate-----		20.63
	24. Industrial Commission of Utah & The State Insurance Fund, 1936 dues-----		50.00
	Wyoming Workmen's Compensation Department, 1936 dues--		50.00
	25. Interest on Treasury bond No. B0069192, due Apr. 15, 1935--		10.63
	Interest on Canadian bond no. 024880, due Feb. 1, 1935----		22.50
	28. Maryland State Industrial Accident Commission, 1936 dues--		50.00
July 1.	R. M. Crater, associate dues, 1936-----		10.00
	22. State of Iowa Workmen's Compensation Service, 1936 dues--		50.00
	Georgia Department of Industrial Relations, 1936-----		50.00
	Idaho Industrial Accident Board, 1936 dues-----		50.00
	25. Maine Industrial Accident Commission, 1936 dues-----		50.00
	27. California Department of Industrial Relations, 1936 dues--		50.00
	Missouri Workmen's Compensation Commission, 1936 dues--		50.00
	29. Minnesota Industrial Commission, 1936 dues-----		50.00
Aug. 1.	Paterson Mortgage & Title Guaranty Co., interest on certificate-----		20.62
	26. Interest on Canadian bond No. 024880, due Aug. 1, 1935---		22.50
	30. North Carolina Industrial Commission, 1936 dues-----		50.00
Sept. 7.	Connecticut Workmen's Compensation Commissioners, 1936 dues-----		50.00
	9. Illinois Industrial Commission, 1936 dues-----		50.00
	10. Florida Industrial Commission, 1936 dues-----		50.00
	17. Paterson Mortgage & Title Guaranty Co., interest on certificate-----		20.63
	Industrial Commission of Ohio, 1936 dues-----		50.00
	19. New Brunswick Workmen's Compensation Board, 1936 dues-----		50.00
	New Jersey Department of Labor, 1936 dues-----		50.00
	Indiana Industrial Board, 1936 dues-----		50.00
	Total-----		3,549.88

## DISBURSEMENTS

1934			
Nov. 1.	Mary J. Clark, services at Boston convention-----		\$25.00
	Mary F. Hicks, services at Boston convention-----		25.00
	Mrs. Fred Cammon, services at Boston convention-----		25.00
	Gibson Bros., printing 1,000 programs and 200 envelopes for Boston convention-----		62.10
	Lilley-Ames Co., 250 badges for Boston convention-----		35.93
	27. Richard J. Martin, reporting Boston meeting-----		387.00
	J. Dewey Dorsett, expenses-----		118.05
	Chas. E. Baldwin, honorarium-----		100.00
	80. Purchase of United States bond No. B00009192 (\$500), 4%, 1952-47-----		566.22
Dec. 12.	Cash, postage, and telegraph-----		5.00

## DISBURSEMENTS—Continued

1935		
Jan.	9. Maryland Casualty Co., bonding secretary-treasurer (\$5,000)-----	\$15. 45
Feb.	2. Caslon Press, 500 letterheads and 500 envelopes-----	22. 75
Apr.	1. National Savings & Trust Co., rental safety box-----	5. 50
	10. J. Dewey Dorsett, stenographic services-----	75. 00
May	4. Caslon Press, printing and stationery-----	30. 90
	13. Cash, postage, and telegraph-----	5. 00
	31. Caslon Press, printing 500 receipt forms-----	4. 50
	J. Dewey Dorsett, expenses-----	30. 00
June	13. Exchange on Canadian Bank of Commerce check, Toronto-----	. 17
	22. Exchange on Canadian Bank of Commerce, Halifax check-----	. 26
Aug.	23. Cash, postage, and telegraph-----	<sup>1</sup> 5. 00
	26. C. B. Rhodes, railway certificates for use of members attending Asheville convention-----	7. 75
Sept.	17. J. Dewey Dorsett, (stamps, \$25; long-distance-telephone calls, \$7.85; telegrams, \$7.43; travel, two trips to Asheville, \$75.00; stenographic assistance, \$75)-----	190. 28
	Edwards & Broughton Co., printing programs, envelopes, invitations, announcements, etc., for Asheville convention-----	203. 50
	Commercial Printing Co., 500 letterheads-----	<sup>2</sup> 10. 25
	The Pettibone Bros. Manufacturing Co., 300 buttons for Asheville convention-----	28. 46
	Tax of 2 cents on 9 checks-----	. 18
	Total-----	<u>1, 982. 25</u>
Sept.	25. Balance in bank-----	<u>1, 567. 63</u>

## SUMMARY

*Receipts*

Cash in bank, Sept. 15, 1935-----	\$365. 81
Membership dues-----	1, 880. 00
Interest on securities-----	180. 01
Premium on Canadian check-----	1. 23
Sale of United States bond no. A-00031671 (\$1,000)-----	1, 122. 83
	<u>\$3, 549. 88</u>

*Disbursements*

Clerical services at Boston convention-----	\$75. 00
Reporting Boston convention-----	387. 00
Printing programs and envelopes for Boston convention-----	62. 10
Badges for Boston convention-----	35. 93
Honorarium to Chas. E. Baldwin-----	100. 00
Purchase of United States bond no. B-00069192 (\$500) <sup>4</sup> / <sub>4</sub> -----	506. 22
Bonding secretary-treasurer-----	15. 45
Printing, stationery-----	68. 40
Printing, programs, envelopes, invitations, announcements, etc., for Asheville convention-----	203. 50
Buttons for Asheville convention-----	28. 46
Traveling expenses, J. Dewey Dorsett-----	221. 05
J. Dewey Dorsett, stenographic assistance-----	150. 00

<sup>1</sup> Of this check for \$5 for postage and telegraph there remains the amount of \$3.14 unexpended at the end of the year.

<sup>2</sup> Note for auditing committee.—This check had not been returned to the bank on Sept. 24 and should be deducted from the balance of \$1,577.88 shown on the bank statement—\$1,577.88—\$10.25—\$1,567.63.

*Disbursements—Continued*

Rental safety deposit box-----	\$5. 50	
Postage and telegraph-----	55. 28	
Miscellaneous-----	8. 36	
		1, 982. 25
Bank balance-----	1, 567. 63	\$3, 549. 88

*Assets*

Cash in bank-----	\$1, 567. 63	
Securities:		
Canadian bond-----	\$1, 000	
United States bond-----	500	
Mortgage certificate, Patterson Mortgage & Title Guaranty Co-----	1, 500	
		3, 000. 00
Cash in postage and telegraph fund-----	3. 14	\$4, 570. 77

The following securities are in safety deposit box P-273, National Savings & Trust Co., Washington, D. C.—secretary-treasurer, International Association of Industrial Accident Boards and Commissions:

United States bond no. B-00069192-----	\$500
Dominion of Canada bond no. 024880-----	1, 000
Paterson Mortgage & Title Guaranty Co. certificate no. 8478, series 435, due October 19, 1933-----	1, 500
	3, 000

Respectfully submitted.

V. A. ZIMMER,  
*Secretary-Treasurer.*

September 24, 1935.

REPORT OF THE NOMINATING COMMITTEE

By FRED ARMSTRONG, *Chairman*

For president, G. Clay Baker.

For vice president, Donald D. Garcelon.

For secretary-treasurer, Verne A. Zimmer.

Executive committee: Elmer F. Andrews, A. G. Matthews, Joseph A. Parks,  
Howard Keener, George Wilkie, Voyta Wrabetz.

[The report was approved and the officers declared elected.]

[Expressions of appreciation for the wonderful hospitality shown by Mr. Dorsett and other North Carolinians were made by various members of the conference. Brief statements were made by the outgoing and incoming presidents.]

Mr. WILCOX. The committee on statistics and costs submitted a draft of the definitions and rules for rates, dated October 2, 1935:

The committee on statistics and costs submits herewith a draft of definitions and rules for rates, dated October 2, 1935. This draft has met with the unanimous approval of those members of the committee who are in attendance at this meeting of the association and of all others invited into the sessions of the committee to represent various interests and points of view. In the opinion of the committee, this draft successfully resolves the difficulties which have delayed action for some years. Your committee accordingly offers the following resolution:

*Resolved*, That this association receive the supplementary report of the committee on statistics and costs, submitting and recommending a draft of definitions and rules for rates, dated October 2, 1935, and that this association hereby authorizes the executive committee to take action on this draft, changed if at all only in minor particulars, when such draft is received from the American Standards Association for action by this Association as one of the three sponsors.

Mr. DORSETT. Those in favor of this resolution indicate by saying "aye", those opposed "no." Resolution is adopted.

# Appendixes

## Appendix A.—Officers and Members of Committees for 1935-36

*President*, G. Clay Baker, Commission of Labor and Industry, Topeka, Kans.  
*Vice President*, Donald D. Garcelon, Industrial Accident Commission, Augusta, Maine.

*Secretary-Treasurer*, Verne A. Zimmer, Division of Labor Standards, Department of Labor, Washington, D. C.

### EXECUTIVE COMMITTEE

G. Clay Baker.	Howard Keener, Arizona.
Donald D. Garcelon.	A. G. Mathews, West Virginia.
Verne A. Zimmer.	Joseph A. Parks, Massachusetts.
Elmer F. Andrews, New York.	George Wilkie, Ontario.
J. Dewey Dorsett, North Carolina.	Voyta Wrabetz, Wisconsin.

### COMMITTEE ON STATISTICS

Sidney W. Wilcox, District of Columbia, <i>Chairman</i> .	James A. T. Gribbin, New Jersey.
Albert E. Brown, Maryland.	L. W. Hatch, New York.
Niels H. Debel, Minnesota.	E. B. Patton, New York.
E. I. Evans, Ohio.	R. H. Gilles, West Virginia.
O. A. Fried, Wisconsin.	Edward L. Nolan, California.

### MEDICAL COMMITTEE

Dr. J. F. Hassig, Kansas, <i>Chairman</i> .	Dr. L. K. Ferguson, Pennsylvania.
Dr. Francis D. Donoghue, Massachusetts.	Dr. George J. Mehler, New York.
Dr. D. E. Bell, Ontario.	Dr. R. R. Sayers, District of Columbia.
Dr. James J. Donohue, Connecticut.	Dr. Phillip H. Kreuzscher, Illinois.
Dr. H. H. Dorr, Ohio.	Dr. Walter L. Small, Missouri.

### LEGISLATIVE COMMITTEE

Joseph Craugh, New York, <i>Chairman</i> .	William F. Broening, Maryland.
Thomas M. Gregory, Ohio.	David L. Ullman, Pennsylvania.
W. H. Nickels, Jr., Virginia.	

### ELECTRICAL SAFETY CODE COMMITTEE

Charles H. Weeks, New Jersey, <i>Chairman</i> .	B. P. Foster, Delaware.
J. Fred Cherry, Virginia.	G. P. Keogh, New York.
	J. E. Wise, Wisconsin.

### FORMS COMMITTEE

Hal M. Stanley, Georgia, <i>Chairman</i> .	M. J. Murphy, New York.
Miss R. O. Harrison, Maryland.	H. A. Nelson, Wisconsin.
Edgar C. Nelson, Missouri.	Coleman C. Martin, South Carolina.



## SAFETY AND SAFETY CODES COMMITTEE

Thomas P. Kearns, Ohio, <i>Chairman</i> .	R. B. Morley, Ontario.
C. H. Fry, California.	John Roach, New Jersey.
A. B. Funk, Iowa.	Paul F. Stricker, District of Columbia.
T. A. Wilson, North Carolina.	William H. Wise, Michigan.
E. Pat Kelly, Washington.	Ira M. Stouffer, Indiana.

## REHABILITATION COMMITTEE

Mark M. Walter, Pennsylvania, <i>Chairman</i> .	Dan J. Sullivan, Nevada.
Dr. Henry H. Kessler, New Jersey.	R. H. Walker, North Dakota.
H. L. Stanton, North Carolina.	Albert R. Hunter, Oregon.

## ADMINISTRATION AND PROCEDURE COMMITTEE

Voyta Wrabetz, Wisconsin, <i>Chairman</i> .	Wendell C. Heaton, Florida.
Frank M. Coffey, Nebraska.	Peter J. Angsten, Illinois.
M. J. Murphy, New York.	Edgar C. Nelson, Missouri.

## HONORARY LIFE MEMBERS

*Former presidents*

1914-15, John E. Kinnane, Detroit, Mich.  
 1915-16, Floyd L. Daggett, Spokane, Wash. (deceased).  
 1916-17, Dudley M. Holman, Mass.  
 1917-18, F. M. Wilcox, Madison, Wis.  
 1918-19, Geo. A. Kingston, Toronto, Canada.  
 1919-20, Will J. French, San Francisco, Calif.  
 1920-21, Charles S. Andrus, Springfield, Ill.  
 1921-22, Robert E. Lee, Maryland (deceased).  
 1922-23, F. A. Duxbury, St. Paul, Minn. (deceased).  
 1923-24, Fred W. Armstrong, Halifax, Nova Scotia.  
 1924-25, O. F. McShane, Salt Lake City, Utah.  
 1925-26, Frederic M. Williams, Waterbury, Conn. (deceased).  
 1926-27, H. M. Stanley, Atlanta, Ga.  
 1927-28, Andrew F. McBride, M. D., Paterson, N. J.  
 1928-29, James A. Hamilton, New York, N. Y.; Frances Perkins, New York  
 N. Y.  
 1929-30, Walter O. Stack, Wilmington, Del.  
 1930-31, Parke P. Deans, Richmond, Va.  
 1931-32, Wellington T. Leonard, Columbus, Ohio.  
 1932-33, R. E. Wenzel, Bismarck, N. Dak.  
 1933-34, Joseph A. Parks, Boston, Mass.  
 1934-35, J. Dewey Dorsett, Raleigh, N. C.

*Former secretaries*

1914-15, Richard L. Drake, Highland Park, Mich.  
 1915-16, L. A. Tarrell, Milwaukee, Wis.  
 1916-20, Royal Meeker, New Haven, Conn.  
 1920, Charles H. Verrill, Washington, D. C. (deceased).  
 1921-32, Ethelbert Stewart, Washington, D. C., secretary-treasurer emeritus.  
 1932-34, Chas. E. Baldwin, Washington, D. C.

## ACTIVE MEMBERS

United States Division of Labor Statistics.  
 United States Employees' Compensation Commission.  
 Arizona Industrial Commission.  
 California Department of Industrial Relations.  
 Connecticut Board of Compensation Commissioners.  
 Florida Industrial Commission.  
 Georgia Department of Industrial Relations.  
 Idaho Industrial Accident Board.

Illinois Industrial Commission.  
 Indiana Industrial Board.  
 Iowa Workmen's Compensation Service.  
 Kansas Commission of Labor and Industry.  
 Maine Industrial Accident Commission.  
 Maryland State Industrial Accident Commission.  
 Massachusetts Department of Industrial Accidents.  
 Minnesota Industrial Commission.  
 Missouri Workmen's Compensation Commission.  
 Nevada Industrial Commission.  
 New Jersey Department of Labor.  
 New York Department of Labor.  
 North Carolina Industrial Commission.  
 North Dakota Workmen's Compensation Bureau.  
 Ohio Industrial Commission.  
 Oregon State Industrial Accident Commission.  
 Pennsylvania Department of Labor and Industry.  
 South Carolina Industrial Commission.  
 Utah Industrial Commission and the State Insurance Fund.  
 Virginia Department of Workmen's Compensation, Industrial Commission.  
 Washington Department of Labor and Industries.  
 West Virginia Workmen's Compensation Department.  
 Wisconsin Industrial Commission.  
 Wyoming Workmen's Compensation Department.  
 Department of Labor of Canada.  
 New Brunswick Workmen's Compensation Board.  
 Nova Scotia Workmen's Compensation Board.  
 Ontario Workmen's Compensation Board.

## ASSOCIATE MEMBERS

American Mutual Alliance, 230 North Michigan Avenue, Chicago, Ill.  
 American Mutual Liability Insurance Co., Boston, Mass.  
 W. F. Ames, Bethlehem Steel Co., Bethlehem, Pa.  
 Association of Casualty & Surety Executives, 1 Park Avenue, New York, N. Y.  
 R. M. Crater, American Telephone & Telegraph Co., New York, N. Y.  
 Walter F. Dodd, 33 N. LaSalle Street, Chicago, Ill.  
 Richard Fondiller, consulting actuary, 90 John Street, New York, N. Y.  
 E. I. du Pont de Nemours & Co., Wilmington, Del. (7058 du Pont Bldg.).  
 Arthur Gaboury, general manager, Quebec Association for Prevention of Industrial Accidents, Montreal, Canada.  
 Industrial Accident Prevention Association, Toronto, Ontario, Canada (J. L. Dodington, secretary).  
 R. G. Knutson, Hardware Mutual Casualty Co., Stevens Point, Wis.  
 Lelfur Magnusson, American representative, International Labor Office, Washington, D. C.  
 National Council on Compensation Insurance, 45 East Seventeenth Street, New York, N. Y.  
 Pennsylvania Self-Insurers' Association, P. O. Box 849, Harrisburg, Pa. (Frank Cross, treasurer, c/o Sun Oil Co., 1608 Walnut St., Philadelphia).  
 Puerto Rico Industrial Commission, Puerto Rico State Insurance Fund, San Juan, P. R.  
 William Schobinger, London Guarantee and Accident Co., New York, N. Y.  
 E. E. Watson, consulting actuary, 2730 A. I. U. Citadel, Columbus, Ohio.

# Appendix B.—Constitution of the International Association of Industrial Accident Boards and Commissions

Revision of September 27, 1934

## ARTICLE I

This organization shall be known as the International Association of Industrial Accident Boards and Commissions.

## ARTICLE II—*Objects*

The object of the association is to bring representatives of the various jurisdictions together at least once a year to discuss the problems and experiences arising out of the administration of workmen's compensation laws.

## ARTICLE III—*Membership*

SECTION 1. Membership shall be of two grades, active and associate.

SEC. 2. *Active membership.*—Each State of the United States and each Province of Canada having a workmen's compensation law, the United States Employees' Compensation Commission, the United States Bureau of Labor Statistics, and the Department of Labor of Canada shall be entitled to active membership in this association. Only active members shall be entitled to vote through their duly accredited delegates in attendance on meetings.

SEC. 3. *Associate membership.*—Any organization, self-insurer, or association of self-insurers or individuals actively interested in any phase of workmen's compensation may be admitted to associate membership in this association by vote of the executive committee. Associate members shall be entitled to attend all meetings and participate in all discussions, but shall have no vote either on resolutions or for the election of officers in the association.

SEC. 4. *Honorary life membership.*—Any person who has occupied the office of president or secretary of the association shall be ex officio an honorary life member of the association with full privileges.

## ARTICLE IV—*Representation*

SECTION 1. Each active member of this association shall have one vote.

SEC. 2. Each active member may send as many delegates to the annual meeting as it may think fit within the definition of membership.

SEC. 3. Any person in attendance at conferences of this association shall be entitled to the privileges of the floor, subject to such rules as may be adopted by the association.

## ARTICLE V—*Annual dues*

SECTION 1. Each active member shall pay annual dues of \$50, except the United States Employees' Compensation Commission, the United States Bureau of Labor Statistics, and the Department of Labor of Canada, which shall be exempt from the payment of annual dues.

SEC. 2. Associate member organizations, self-insurers, or associations of self-insurers shall pay \$50 per annum, except as hereinafter provided. Individual associate members shall pay \$10 per annum, except as hereinafter provided.

SEC. 3. Annual dues are payable on or before July 1 of each year, which date shall be the beginning of the fiscal year of the association; dues must be paid before the annual meeting in order to entitle members to representation and the right to vote in the meeting.

SEC. 4. It shall be within the power of the officers and executive committee to change the dues payable by any class of members, provided the maximum shall not exceed the amount stated in this article and that such changes shall be for but 1 year.

#### ARTICLE VI—*Officers*

SECTION 1. The officers of this association shall be a president, vice president, and secretary-treasurer. Only officials having to do with the administration of a State workmen's compensation law or bureau of labor may hold the office of president or vice president in this association, except as hereinafter provided.

SEC. 2. If for any reason the president or vice president of this association, during the term for which he was chosen, should cease to be an official of any agency entitled to active membership, he may serve out his term of office in this association. But if for any reason a vacancy occurs, the executive committee shall appoint a successor for the remainder of the term.

SEC. 3. The president, vice president, secretary-treasurer, and members of the executive committee shall be elected at the annual meeting of the association and shall assume office at the last session of the annual meeting.

#### ARTICLE VII—*Executive committee*

SECTION 1. There shall be an executive committee of the association, which shall consist of the president, vice president, the retiring president, secretary-treasurer, and five other members, elected by the association at the annual meeting.

SEC. 2. The duties of the executive committee shall be to formulate programs for all annual and other meetings; to pass upon applications for associate membership; to fill all offices which may become vacant; and in general to conduct the affairs of the association during the intervals between meetings. A quorum of the executive committee shall consist of at least four persons, the president or the vice president, or the representative of one of these, the secretary-treasurer or his representative, and two other members of the executive committee.

#### ARTICLE VIII—*Amendments*

This constitution or any clause thereof may be repealed or amended at any regularly called meeting of the association. Notice of any such changes must be read in open meeting, referred to a special committee, and cannot be voted upon during the same day in which it was introduced. A two-thirds vote of the members present and voting is required to change the constitution.

Appendix C.—List of Persons Who Attended the Twenty-second Annual Meeting of the International Association of Industrial Accident Boards and Commissions, Held at Asheville, N. C., September 30–October 3, 1935

CANADA

*Manitoba*

C. K. Newcombe, Workmen's Compensation Board, Winnipeg.  
Mrs. C. K. Newcombe, Winnipeg.

*Nova Scotia*

F. W. Armstrong, vice chairman, Industrial Commission, Halifax.

*Ontario*

A. W. Crawford, chairman, Minimum Wage Board, Toronto.  
George A. Kingston, Toronto.  
Mrs. George A. Kingston, Toronto.  
George Wilkie, chairman, Workmen's Compensation Board, Toronto.

UNITED STATES

*Arizona*

Howard Keener, Industrial Commission, Phoenix.

*Connecticut*

Dr. James J. Donohue, compensation commissioner, Norwich.  
Mrs. James J. Donohue, Norwich.  
Dr. Frank M. Dunn, industrial surgeon, New London.  
Mrs. Frank M. Dunn, New London.  
Frank E. Glynne, Hartford Accident and Indemnity, West Hartford.  
Joseph M. Tone, commissioner of labor, New Haven.

*Delaware*

C. W. Dickey, E. I. du Pont de Nemours & Co., Inc., Wilmington.  
Dr. G. H. Gehrman, E. I. du Pont de Nemours & Co., Inc., Wilmington.  
Abel Klaw, E. I. du Pont de Nemours & Co., Inc., Wilmington.  
Mrs. Abel Klaw, Wilmington.  
Donald R. Morton, Wilmington.  
Dr. Walter O. Stack, ex-president, I. A. I. A. B. C., Wilmington.  
Mrs. E. E. Warriner, Wilmington.

*District of Columbia*

Mrs. Clara M. Beyer, Assistant Director, United States Division of Labor Standards, Washington.  
Marshall Dawson, United States Bureau of Labor Statistics, Washington.  
John A. Kratz, United States Office of Education, Washington.  
Henry Lehmann, United States Bureau of Labor Statistics, Washington.  
M. G. Lloyd, National Bureau of Standards, Washington.  
Mrs. M. G. Lloyd, Washington.  
Lelfur Magnusson, director, Washington office, International Labor Office, Washington.

William McCauley, United States Employees Compensation Commission, Washington.  
 Beatrice McConnell, United States Children's Bureau, Washington.  
 Mary E. Plidgeon, United States Women's Bureau, Washington.  
 Dr. R. R. Sayers, United States Public Health Service, Washington.  
 Charles F. Sharkey, United States Bureau of Labor Statistics, Washington.  
 Dr. Paul M. Stewart, United States Employees Compensation Commission, Washington.  
 Louise Stitt, United States Women's Bureau, Washington.  
 P. F. Stricker, safety engineer, United States Department of Labor, Washington.  
 Mrs. Jewell W. Swofford, United States Employees Compensation Commission, Washington.  
 Sidney W. Wilcox, United States Bureau of Labor Statistics, Washington.  
 V. A. Zimmer, Director, United States Division of Labor Standards, Washington.  
 Mrs. V. A. Zimmer, Washington.

*Florida*

Wendell C. Heaton, chairman, Florida Industrial Commission, Tallahassee.  
 Mrs. Wendell C. Heaton, Tallahassee.

*Georgia*

Sharpe Jones, Department of Industrial Relations of Georgia, Atlanta.  
 Mrs. Maude Peteet, Department of Industrial Relations of Georgia, Decatur.  
 Lewis D. Sharp, Atlanta.  
 Ray M. Spangler, American Mutual, Atlanta.  
 Hal M. Stanley, Department of Industrial Relations of Georgia, Decatur.  
 Fred R. Vaughan, Liberty Mutual Insurance Co., Atlanta.

*Idaho*

Frank Langley, chairman, Idaho Industrial Accident Board, Boise.  
 W. L. Robison, member, Idaho Industrial Accident Board, Boise.

*Illinois*

Joseph P. Harris, Chicago.  
 Anton Johannsen, member, Industrial Commission, Chicago.  
 Mrs. Anton Johannsen, Chicago.  
 W. Dearn Keefer, National Safety Council, Chicago.  
 Dr. Philip H. Kreuzscher, Chicago.

*Indiana*

Ira M. Snouffer, chairman, Indiana Industrial Board, Fort Wayne.  
 Mrs. Ira M. Snouffer, Fort Wayne.

*Iowa*

A. B. Ferrell, Iowa Industrial Commission, Des Moines.  
 Frank E. Wenig, commissioner, Bureau of Labor, Des Moines.

*Kansas*

G. Clay Baker, chairman, Kansas Industrial Commission, Topeka.  
 Marie Brindell, Workmen's Compensation Commission, Topeka.  
 Mrs. Daisy Gulick, Department of Labor and Industry, Topeka.

*Maine*

E. D. Garcelon, chairman, Maine Industrial Accident Commission, Augusta.  
 Mrs. D. D. Garcelon, Augusta.  
 E. L. Russell, member, Maine Industrial Accident Commission, Portland.  
 Mrs. E. L. Russell, Portland.

*Maryland*

Thomas N. Bartlett, Maryland Casualty Co., Baltimore.  
 Mrs. Thomas N. Bartlett, Baltimore.  
 Dr. R. P. Bay, Maryland Industrial Commission, Baltimore.  
 Mrs. R. P. Bay, Baltimore.  
 William F. Broening, Maryland Industrial Commission, Baltimore.  
 Mrs. William F. Broening, Baltimore.  
 Albert E. Brown, Maryland Industrial Commission, Baltimore.  
 Roger B. Copinger, Baltimore.  
 A. R. Couchman, Baltimore.  
 Dr. Page Edmunds, Baltimore.  
 Mrs. Page Edmunds, Baltimore.  
 Mrs. Ethel M. Fulenwider, Baltimore.  
 Miss Rowena Harrison, State Industrial Accident Commission, Baltimore.  
 Dr. C. A. Reifschenider, Baltimore.  
 Mrs. C. A. Reifschenider, Baltimore.  
 Dr. Charles S. Warner, commissioner of labor, Baltimore.  
 T. C. Waters, Baltimore.

*Massachusetts*

David S. Beyer, Liberty Mutual Insurance Co., Boston.  
 M. M. Connell, American Mutual Liability Insurance Co., Boston.  
 Mrs. M. M. Connell, Boston.  
 Dr. A. W. George, Boston.  
 Leslie P. Henry, American Mutual Liability Insurance Co., Cambridge.  
 Arthur S. Johnson, American Mutual Liability Insurance Co., Boston.  
 Mrs. Arthur S. Johnson.  
 T. A. McGehearty, Liberty Mutual Insurance Co., Boston.  
 Joseph A. Parks, chairman, Massachusetts Industrial Accident Board, Milton.  
 Mrs. Joseph A. Parks, Milton.  
 J. Frank Scannell, Lumbermen's Mutual Casualty Co., Boston.  
 Mrs. J. Frank Scannell, Boston.

*Michigan*

Wm. H. Wise, compensation commissioner, Department of Labor and Industry,  
 Lansing.

*Minnesota*

J. D. Williams, industrial commissioner, Minneapolis.  
 Mrs. J. D. Williams, Minneapolis.

*Missouri*

Harvey T. Brock, Casualty Reciprocal Exchange, Kansas City.  
 Spencer H. Givens, Jefferson City.  
 Edgar C. Nelson, chairman, Workmen's Compensation Commission, Jefferson  
 City.  
 Mrs. Edgar Nelson, Jefferson City.  
 Miss Edwina Nelson, Jefferson City.

*Nevada*

James Fitzgerald, commissioner, Nevada Industrial Commission, Carson City.

*New Hampshire*

John S. B. Davie, commissioner of labor, Concord.  
 Mrs. S. B. Davie, Concord.

*New Jersey*

Charles H. Weeks, deputy commissioner of labor, Trenton.  
 Mrs. Charles Weeks, Trenton.

*New York*

Elmer F. Andrews, industrial commissioner, Department of Labor, New York  
 City.

John B. Andrews, American Association for Labor Legislation, New York City.  
 Dr. J. Hudson Blauvelt, Fidelity and Casualty Co., Nyack.  
 Erna Boorman, Albany.  
 Robert M. Crater, New York City.  
 Thomas J. Curtis, Building and Allied Trades Compensation Bureau, New York City.  
 W. F. Dougherty, New York.  
 Richard Fondiller, consulting actuary, New York.  
 Mrs. Richard Fondiller, New York.  
 L. U. Gardner, Saranac Lake, New York.  
 W. G. Gillson, Standard Oil Co., New York City.  
 Mrs. W. G. Gillson, New York City.  
 Dr. Irving Gray, Brooklyn.  
 Dr. Leonard W. Hatch, Pelham Manor.  
 R. M. Little, Albany.  
 Dr. W. J. McConnell, New York.  
 Dr. George J. Mehler, Long Island.  
 Mrs. George J. Mehler, Long Island.  
 M. J. Murphy, director, Division of Workmen's Compensation, New York.  
 Mrs. M. J. Murphy, New York.  
 E. B. Patton, New York State Department of Labor, New York City.  
 Mrs. E. B. Patton, New York.  
 H. F. Richardson, New York.  
 Henry D. Sayer, Association of Casualty and Surety Executives, New York City.  
 J. F. Schleisinger, New York.  
 William Schobinger, London Guarantee & Accident Co., New York.  
 Mrs. William Schobinger, New York.  
 Charles G. Smith, Scarsdale.

*North Carolina*

Matt H. Allen, ex-chairman, North Carolina Industrial Commission, Kinston.  
 Mrs. Matt H. Allen, Kinston.  
 H. B. Bishop, American Mutual Liability Insurance Co., Greensboro.  
 W. I. Blanton, American Mutual Liability Insurance Co., Greensboro.  
 Dr. W. C. Bostic, Jr., Forest City.  
 Dr. Ernest S. Bullock, Wilmington.  
 B. C. Burgess, Spruce Pine.  
 Mrs. B. C. Burgess, Spruce Pine.  
 P. M. Camak, Columbia.  
 Mrs. P. M. Camak, Columbia.  
 L. B. Carpenter, Maryland Casualty Co., Charlotte.  
 Mrs. L. B. Carpenter.  
 W. W. Coble, Liberty Mutual Insurance Co., Charlotte.  
 Mrs. W. W. Coble, Charlotte.  
 V. R. Cooke, Asheville.  
 Frank L. Crane, North Carolina Industrial Commission, Raleigh.  
 C. V. DeVault, Asheville.  
 Dr. J. Donnelly, Mecklenburg Hospital, Huntersville.  
 J. Dewey Dorsett, Industrial Commission, Raleigh.  
 A. B. Dreher, American Mutual Liability Insurance Co., Charlotte.  
 Mrs. A. B. Dreher, Charlotte.  
 Baxter Durham, State auditor for North Carolina, Raleigh.  
 T. M. Earle, Asheville.  
 Dr. H. F. Eason, North Carolina Industrial Commission, Raleigh.  
 R. W. Edgerton, Greensboro.  
 Mrs. R. W. Edgerton, Greensboro.  
 Arthur Eve, North Carolina Industrial Commission, Raleigh.  
 Frank Exum, Charlotte.  
 James E. Gay, Jr., Winston-Salem.  
 W. C. Ginter, Maryland Casualty Co., Charlotte.  
 N. E. Goode, Enka.  
 H. A. Greene, Greensboro.  
 Leon S. Harris, Fidelity and Casualty Co., Raleigh.  
 Mrs. L. S. Harris, Raleigh.  
 Dr. W. P. Herbert, Asheville.



Mrs. W. P. Herbert, Asheville.  
 L. E. Herring, Gastonia.  
 Dr. E. R. Hipp, Charlotte.  
 Dr. W. C. Horton, North Carolina Industrial Commission, Raleigh.  
 Walter Hoyle, Charlotte.  
 Dr. S. G. Jett, Reidsville.  
 Mrs. S. G. Jett, Reidsville.  
 H. L. Jones, Charlotte.  
 Henrietta Love, North Carolina Industrial Commission, Raleigh.  
 Harriette Mangum, North Carolina Industrial Commission, Raleigh.  
 E. B. McAuley, United States Casualty Co. and New Amsterdam Casualty Co.,  
 Charlotte.  
 Harry McMullan, chairman, North Carolina Industrial Commission, Raleigh.  
 Mrs. Harry McMullan, Asheville.  
 Dr. D. B. Moore, Carolina Aluminum Co., Badin.  
 Dr. G. W. Murphy, North Carolina Industrial Commission, Asheville.  
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*Wyoming*

P. J. Coady, Cheyenne.  
Mrs. P. J. Coady, Cheyenne.

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