UNITED STATES DEPARTMENT OF LABOR
FRANCES PERKINS, Secretary
BUREAU OF LABOR STATISTICS
ISADOR LUBIN, Commissioner

BULLETIN OF THE UNITED STATES BUREAU OF LABOR STATISTICS . . . . No. 602

WORKMEN'S INSURANCE AND COMPENSATION SERIES

DISCUSSIONS OF
INDUSTRIAL ACCIDENTS AND DISEASES

AT THE 1933 MEETING OF THE
INTERNATIONAL ASSOCIATION OF
INDUSTRIAL ACCIDENT BOARDS
AND COMMISSIONS, CHICAGO, ILL.

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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.
(1)	Jan. 12, 13, 1915	Chicago, Ill	do	Do.
2	Sept. 30–Oct. 2, 1915	Seattle, Wash	do	Do.
3	Apr. 25–28, 1916	Columbus, Ohio	Floyd L. Daggett Wallace D. Yaple	L. A. Tarrell.
4	Aug. 21–25, 1917	Boston, Mass	Dudley M. Holman	Royal Meeker.
5	Sept. 24–27, 1918	Madison, Wis	F. M. Wilcox	Do.
6	Sept. 23–26, 1919	Toronto, Ontario	George A. Kingston	Do.
7	Sept. 20–24, 1920	San Francisco, Calif	Will J. French	Charles H. Verrill.
8	Sept. 19–23, 1921	Chicago, Ill	Charles S. Andrus	Ethelbert Stewart.
9	Oct. 9–13, 1922	Baltimore, Md	Robert E. Lee	Do.
10	Sept. 24–26, 1923	St. Paul, Minn	F. A. Duxbury	Do.
11	Aug. 26–28, 1924	Halifax, Nova Scotia	Fred W. Armstrong	Do.
12	Aug. 17–20, 1925	Salt Lake City, Utah	O. F. McShane	Do.
13	Sept. 14–17, 1926	Hartford, Conn	F. M. Williams	Do.
14	Sept. 27–29, 1927	Atlanta, Ga	H. M. Stanley	Do.
15	Sept. 11–14, 1928	Paterson, N.J	Andrew F. McBride	Do.
16	Oct. 8–11, 1929	Buffalo, N.Y	Frances Perkins	Do.
17	Sept. 22–26, 1930	Wilmington, Del	Dr. Walter O. Stack	Do.
18	Oct. 5–8, 1931	Richmond, Va	Parke P. Deans	Do.
19	Sept. 26–29, 1932	Columbus, Ohio	Wellington T. Leonard	Do.
20	Sept. 11–14, 1933	Chicago, Ill	R. E. Wenzel	Charles E. Baldwin.

(1) Special meeting.

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THURSDAY, SEPTEMBER 14—AFTERNOON SESSION

Second Joint Session A.G.O.I. and I.A.I.A.B.C.

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

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No. 602 WASHINGTON MAY 1934

PROCEEDINGS OF THE 1933 MEETING OF THE INTERNATIONAL ASSOCIATION OF INDUSTRIAL ACCIDENT BOARDS AND COMMISSIONS, CHICAGO, ILL.

MONDAY, SEPTEMBER 11—MORNING SESSION

Chairman, R. E. Wenzel, president I.A.I.A.B.C.

The opening session of the twentieth annual meeting of the International Association of Industrial Accident Boards and Commissions convened at the Congress Hotel, Chicago, Ill., September 11, 1933, Mr. R. E. Wenzel, chairman of the Workmen's Compensation Bureau of North Dakota, president of the association, presiding.

[President Wenzel, after a few introductory remarks, appointed the auditing committee (see p. 18).]

[The president then introduced Mr. Charles A. Nowak, formerly chairman of the Illinois Industrial Commission and vice president of the I.A.I.A.B.C., and after expressing appreciation of the work of Mr. Nowak and of Mr. Peter J. Angsten, present chairman of the Illinois Industrial Commission, in making the convention a success, asked Mr. Nowak to preside over the meeting. Thereupon Mr. Nowak took the chair, and after a few words of welcome to the delegates called for the president's annual report.]

President's Address

By R. E. WENZEL, *Chairman Workmen's Compensation Bureau of North Dakota and President I.A.I.A.B.C.*

Can any good thing come out of Canaan? That question, asked originally centuries ago, has been asked ever since, and may be asked for many, many centuries more, playfully facetious or pointedly serious. It has been asked, I know, concerning the State of North Dakota. It is being asked concerning many well-known, better-known corners of the Nation, at this very moment. Everywhere, and nearly always, one notes that carping crispness, frequently condemnatory, occasionally damnatory—crispness such as one expects to accompany bitten words with biting inferences. Seldom, indeed, does one find even an inferential suggestion that the answer might be in the affirmative.

May we not, therefore, endeavor to put forth a joint answer today—one that carries no sign of retaliatory vindictiveness; one that may even have some soothing rather than inflammatory tendencies? May I even be permitted to try to voice a part of it? At any rate, I shall endeavor to do so; and I shall assume that I am speaking to as many who are not representatives of industrial accident boards and commissions as I am to those who are.

Good things can come, do come, out of the land of the "wild jackasses", just as they can come, do come, out of the land of the ambulance chasers, the baby snatchers, the income-tax dodgers, and the Capone racketeers. The surface evidences of things that are ought never to form the basis of our more premeditated conclusions concerning nations and peoples, or sections of nations and peoples.

Today we are most fortunately and happily situated. The Century of Progress—built, opened, and maintained amidst the most gruelling pummelling the economic, political, and social structure of our country ever has been given—is right at our door. That exposition presents us with—it is—concrete, eloquent evidence of the sterling character, the abiding courage, and the astounding resourcefulness of our people everywhere. It torrents forth, in shimmering, shining, overwhelming brilliance—it is a message of hope. It broadcasts, it symbolizes, it exemplifies, the fundamental saneness and soundness of our ideas and ideals. Battered, but never afraid, beaten but never conquered, defiled but seldom more than spotted, you, Chicago and Illinois, have driven through the murky, miasmal mists of doubt and despair, to bring leadership to America, Americans, and the world today. You, in a most remarkable manner, and with unfailing, unerring accuracy, point the way to a new faith, a new fidelity, a new century of progress.

We, the representatives of various provinces and commonwealths of this western world, have come to the scene of this inspiring spectacle. We have come with a firm, well-founded hope that we might be able to absorb some of the inspiration radiating from it. We have come because we really and truly felt that we could here deal more effectively with some of the more vexing problems that still engulf a storm-tossed industrial and occupational world.

You who are not representatives of the boards and bureaus and commissions, but representatives of larger groups, particularly employers and employees, have doubtless come with anticipatory hopes of a similar character. Being less weighed down with burdens of self-imposed responsibility, it is quite to be expected that you will depart from this gathering with more appreciable dividends than we can hope to obtain with our circumscribed, definite, prearranged program. But even we expect to make progress.

We do not expect to do more than touch some of the general problems. We do not expect to solve many of the vexing details. But we do expect to unravel some of the knotted skein, to straighten out a few kinks, to cut out some of the nasty snarls; and we expect to return to our respective jurisdictions with the ability, the power, and the will to produce a better administrative and technical garment.

You will pardon the suggestion, I trust, that these 3 years of unequaled adversity have brought some measure of knowledge to those of us who have been active in this field of administration for some time. Your facial expressions being indicative more of actual interest than of mere curiosity at the suggestion, I follow it with a second—an offer to have those administrators share that knowledge with those of you who have not had that broader contact and experience. Moreover, being revitalized by the brilliance and the bracing warmth of the occasion and our surroundings, we ought, at least, to be impelled to the effort to make some slight return for the inspirational values received.

And so, we accept your evident interest as a good omen, as an indication that here, at least, we find that the individual citizen, regardless of his relationship as an employer or an employee, recognizes that the administration of these laws is of vital concern to him, realizes that sane, scientific, fearless administration is economically advantageous to him, and senses that purely political tampering with the compensation mechanism may bring on unemployment, reduce or discontinue purchasing power, and pile up other evils and inconveniences.

Perhaps one of the most impressive lessons learned, for example, has been that of rediscovering the fact that the old law of "self-preservation" was the first law with most of our people; that it was, and still is, the "first law of life." Exigencies, whether of a moment, a month, or a year, usually lead to fear, and fear is the natural forerunner to the domination of individual desire or need over the common good. "I help him" readily and quickly changes to "I help me" (using the vernacular in which I heard it); and the ever-present pessimism one finds in groups of claimants easily develops into an incorrigible "I cannot will to work."

There is nothing remarkable about the fact, therefore, that the very continuance and existence of workmen's compensation was many times threatened during this turbulent period. Administrators of these laws everywhere became aware of this public inoculation with a seeming—yes, an actual—ruthlessness; and no cut, mark, or abrasion was required to start the virus worming its way into the actions and the thinking of our people. Human frailties were not only accentuated by the trials and tribulations that came upon us; they became almost dominant for a time.

And there was a highly favorable background for this development, if such it may be called. Knowledge concerning this technical business of workmen's compensation was confined to a comparatively small group. During ordinary times the process of increasing the field of knowledge found difficulties innumerable, and speed impossible; but the period of the depression increased the already innumerable difficulties, reduced speed below a snail's pace, and virtually barricaded all avenues to a sane, sensible, sound approach to the problems of this technical business.

It should be easily recognized, but is not, that the compensation law, the beneficiaries under it, and the people who pay the premiums, have nothing to fear from efficient, fearless, honest administration. The menace to each of them lies in the abuses that insidiously work their way into administration—abuses born of fraud, abuses developed upon bases of sympathy and economic need, abuses sanctioned by the ground-scraping abilities of political ears. The reserves of carriers, whether public or private, are trust funds. They cannot be "milked" indefinitely, from within or from without. The day of reckoning must come. And you and I, Mr. Average Citizen—purchasers of pickles and payers of taxes—are the ones with whom that final reckoning is done. Hence, I repeat a part of what I said last year, namely: Of what use is the finest and best compensation law, the highest schedule of benefits imaginable, the wisest and most humane administration, with an insufficient number of employers operating to supply workmen with employment at which they may be hurt? This is one budget that must be balanced; but it ought not to be balanced at the risk of running men out of business; for running men out of business

means throwing workers out of employment; and that, again, means the creation of breadlines and soup kitchens.

That abstract entity we call the "public" is a great complainer at any time, and of late it has been particularly vociferous. "Cut taxes!" "Eliminate waste!" "Get rid of bureaus!" "Get back to fundamentals!" it shouts. But who insisted on having all these bureaus? Who demanded dabbling in private business? Who wants special favors? Why, the public. And who, pray, is the public? Why, it's your fraternity brother. It's your personal friend. It's your political friend. It's I. It's you.

The public insists that a law be passed. It is passed. But the law is not self-executing. It requires a department to do the executing. When execution starts, the public feels the pinch. The law was, evidently, aimed at the public. Horrors! Why, the public intended to enact something that was aimed at and affected somebody else. So, the public "gets busy."

The bureau, or the commissioner, or the superintendent, or the chairman, is "approached." He must be properly "advised." If that does not succeed, appeal is made to the governor or the attorney general, or a "protective association" is organized. The enforcement official must be made to "understand" his duties.

Oh, yes, the public wants ability in public service. The public wants efficiency in public service. The public wants honesty in public service. But the public does not always get ability, or efficiency—or even honesty—sometimes. And the main reason is that the public's record is an open book. That book discloses that it prefers the handshaker, the baby kisser, and the man ready to postscript official missives with an underscored "I don't mean it." It discloses, further, that it has not grasped, fully, the importance and significance of these laws, refuses to recognize the administrative bodies as something more than opportunities for clerical, political positions, and, therefore, "approaches" or "attempts to approach", through political, social, or fraternal "seek-easies", and, when these fail, reverts to the world-old method of throwing out of office.

If this association does nothing else this year, it should engage in an educational program. It should impress upon the minds and memories of all classes of people the one important fact that the administration of workmen's compensation acts, even in States where no so-called State fund is involved, is not a mere clerical function, to be performed by any free, male white, whose pigeonholed qualifications disclose no affirmative evidence of insanity. This, of course, is a general observation, and no reflection upon the men and women who have recently assumed places of authority in our midst. The virility of the phraseology is intended solely to impress the fact that this is a real job anywhere, even where brain-wracking, technical, actuarial analyses are not part of the everyday work and worry; that ordinary knowledge of affairs is not sufficient qualification; that there must be expert, trained guidance, continuity, and security of service, with reasonable remuneration attached.

Wisely have those States acted where staggered terms of office prevail. Too few, however, have displayed that wisdom. Yet how often have we heard that the 2-year term of office is an abomination in any relationship? As applied to this important, particular, technical business, it is sheer absurdity, and rash extravagance. It prevents nearly all constructive effort, prohibits deliberative

decisions of policy, throws process and procedure into the maelstrom of political plunder and "parasitis", and paves the way to periodical "joy-rides" of passion and prejudice. Let the present trend exhibited in some quarters progress just a little further, and we shall be ringing the funeral chimes for a goose that once laid a golden egg. Let the lawmakers about face, however, and make provision for the selection of the right men (under civil service, perhaps), make their terms of office fairly long, their positions secure and independent, their remuneration reasonable, and then destroy the opportunity for momentary obliterations of personnel, and our children's children will be singing the praises of those who had the vision and the foresight to surround this beneficent legislation with the required safeguards.

Another lesson learned—at least, I think it is a lesson, and that we have learned it—is that compensation laws, though in existence for some years, are still very, very imperfect, and in their practical application disclose some pronounced inequities.

Aside from the well-known discrepancies, which permit a maximum payment of some $5,000 for the loss of an arm in some States (North Dakota was $6,300, is now $4,680), while others provide for a maximum death benefit that is about 40 percent less (New Hampshire, $3,000; South Dakota, $3,000; Rhode Island, $3,000; Vermont, $3,500; Wyoming, $2,000 lump sum), examples of inequities may be found in nearly all parts of the country—many of those inequities not making themselves particularly noticeable until the depression. One or two concrete illustrations will suffice:

1. A ditch digger was the beneficiary of an award for the loss of an arm; so, also, was an expert linotype operator. The award to the former was quite a bit larger than that to the latter, the reason, of course, being that the former chose the heights of prosperity for his accident, while the latter's fate carried him through without mishap until we were in the dumps of the depression; but the normal result, under normal conditions, is seldom equitable as between skilled and unskilled labor.

2. Over a period of 5 or 6 years premiums were paid on a yearly wage of $3,300 for the coverage of the same man. The depression came and, gradually, wages were reduced until they reached a level of $1,200 per year. Some months after this man reached the low-wage level indicated, he sustained a serious injury, and received compensation. With the limitation to $20 per week, he could never have drawn benefits exceeding $85 per month. As it was, he received $67 per month. Under normal conditions, he would have received 31 percent of his wage earnings. As the matter was properly adjusted, he received his allotted 66⅔ percent of his wages. Yet, on the other hand, insurance premium income (on the same basic rate) was reduced 63 percent, whereas compensation payment was reduced only 21 percent.

But whether conditions are normal or abnormal, there are many other situations that will bear consideration and possible adjustment. Let us consider just a few examples:

1. A mother, totally dependent for support on her son, is entitled to a maximum award of $7.50 per week, based on wage earnings of $30 per week by the son (North Dakota law). But if the son was married, instead of single, his widow would receive a maximum of $10.50 per week (on the same wage basis), even if she had an inde-

pendent income or was able to support herself. The mother, also, must prove dependency. The wife, ordinarily, need not.

2. A workman sustaining an injury that results in permanent total disability, at a time when his average earnings were $21 per week, would receive compensation of $14 per week for life, with a maximum payment of $15,000 (North Dakota law); but if his disability was 80 percent of total, he would be entitled to receive compensation of $14 per week for 400 weeks, making a total of only $5,600. Thus, 10 men, each receiving a disability rating of 10 percent (or 5 men, each with a rating of 20 percent), would be entitled to awards totaling $7,000, while the 1 man, with a 100 percent disability rating, would be entitled to the maximum of $15,000. And suppose these same 10 men (or the 5 men) were earning wages of $12 per week instead of $21, we would find their 100 percent limit reached at $3,200, while the man with the 100 percent rating, on the same $12 per week wage basis, would still draw out his $15,000, if he lived long enough.

3. Two men, working in different employments, are injured on the same day, with the same results; namely, temporary disability of 36 weeks and the loss of an arm at the shoulder. One is a coal miner, working 8 months of the year, earning $30 per week, while working, and a total of $1,040 for the year. The other is a garage mechanic, working 12 months of the year, earning $20 per week, and a total of $1,040 for the year. The coal miner receives compensation totaling $3,920, while the mechanic receives compensation totaling $3,690. And there is a strong probability that the coal miner might receive a total of $5,400, while the mechanic receives his $3,690.

And so I return again to some of the things I said last year. I repeat: That I believe in an arbitrary, but more uniform, fixing of values for all types of injury, at a point that will give due consideration to what the traffic can bear; that compensation ought to be fixed at, and premiums paid upon, the average weekly wage for each type of occupation, with additional consideration for men specially skilled; and that collection of premiums should be based on pay rolls which represent the proper number of weeks of employment times the weekly wage.

Now, no man, save the Son of Man Himself, ever went through life without making a mistake. It cannot and should not be expected that those who administer compensation legislation display the providential attribute of infallibility. Of course, there should be a minimum of error; but the way to a minimum of error is not through side entrances, ear whisperings, or club baitings. Successful work, good work, true work, is not to be achieved, even for time-measured periods, through the medium of political poundings and manipulations. They are achievable, however, through the medium of confidence and confidential support extended to men of competence and courage.

Nor need administrators fear adherence to a courageous stand for conscientious convictions, firmly based and predicated. Views based upon facts that bring conviction to an open mind may safely be relied upon; and eventually they will out-maneuver personal languishments, political leanings, and commercialized self-aggrandizement. Propagandized attacks usually end in rout at the impact of knowledge, courageously applied in affirmative defense. But battles are not

won by throwing up one's arms and shouting "Kamerad." The big things in life are achieved because men and women are continually willing and ready to "go over the top" after them.

As administrators of these laws, therefore, we make no suppliant's appeal. We come not as "squealers", trying to reach or retain a public trough. We come as men and women of experience, endeavoring 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 those signs for their own less worthy purposes.

We have the opportunity. May we embrace it. Those who listen to us will know whether we know what we are talking about. If we do, we may here lay the foundations for broad policies of constructive improvement; we may here designate and "earmark" the political and other evils that retard, and sometimes prevent, successful achievement; we may here frankly and openly advise our respective legislatures and our public, out of our experience, and pave the way to the administration of this great public trust in an earnest, efficient, honest, manly way. Manipulators and propagandists to the contrary notwithstanding, decisions can be based upon merit and right, and lack of information, or misinformation, alone will prevent their being recognized and acknowledged as such.

May we suggest, again, the definite, permanent need for this absolute divorce from politics, for staggered appointments, for longer terms, for security of tenure? May we suggest, further, the necessity for greater uniformity of schedules among States; for a revamping of details in items of schedules as between different groups of beneficiaries; for more equitable adjustment of benefits as between skilled craftsmen and unskilled workers; for the fixing of benefits on arbitrary but more scientific bases; for less fluctuation and more stability; for less of sensation and more of sound sense; for a fair, frank, full admission that we are administering workmen's compensation insurance and not community welfare legislation? We may never come to an agreement on the final details ourselves, but we can, and we should, arrive at, formulate, and sponsor such definite, fundamental proposals as meet our approval, and thus "set a standard to which the wise and the just can repair."

If now I were to summarize and place into words that which might be construed as a message in what I have said, it would be this: That 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 "pap"-dispensing machine; it is a highly technical, business institution, operated for two distinctively diverse groups, with consistently 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.

[The president's address was referred to the committee on resolutions.]

[Mr. Wenzel resumed the chair.]

BUSINESS MEETING

[Mr. Charles E. Baldwin, secretary-treasurer, read the following report:]

REPORT OF THE SECRETARY

The past year has been a critical one in the life of the association. While there has been no change in the active membership of the association, there have been many changes in the personnel of the boards and commissions which constitute our membership. Several of those who have in the past taken active parts in the activities of our association are not now connected with compensation administration and if absent from this meeting they will be greatly missed.

The active membership of the association remains the same as last year and is as follows:

United States Bureau of Labor Statistics.
United States Employees' Compensation Commission.
Arizona Industrial Commission.
California Division of Industrial Accidents and Safety.
Connecticut Board of Compensation Commissioners.
Delaware Industrial Accident Board.
Georgia Department of Industrial Relations.
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.
Nevada Industrial Commission.
New Jersey Department of Labor.
New York Department of Labor.
North Carolina Industrial Commission.
North Dakota Workmen's Compensation Bureau.
Pennsylvania Department of Labor and Industry.
Utah Industrial Commission.
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.
Quebec Workmen's Compensation Commission.

The above list includes three organizations—the United States Bureau of Labor Statistics, the United States Employees' Compensation Commission, and the Department of Labor of Canada—which are given full powers of membership by the terms of the constitution itself and are exempt from the payment of dues.

There have been two additions to the list of associate members, the National Council on Compensation Insuranee, New York, N.Y., and the American Mutual Liability Insurance Co., Boston, Mass. The applications of these two members were received prior to our last annual meeting, but by inadvertence were not presented for action of the convention; therefore, I submitted them to the executive committee for a letter ballot and, by majority vote of the executive committee, they were elected to associate membership. The following is the complete list:

Walter F. Dodd, 33 N. LaSalle Street, Chicago, Ill.
E. I. duPont de Nemours & Co., Inc., Wilmington, Del.
A. Gaboury, secretary general, Province of Quebec Safety League, Montreal.
I. K. Huber, The Empire Companies, Bartlesville, Okla.

Industrial Accident Prevention Associations, Toronto, Ontario.
Leifur Magnusson, American representative, International Labor Office, Washington, D.C.
Pennsylvania Self-Insurers' Association, P.O. Box 849, Harrisburg, Pa.
National Council on Compensation Insurance, New York, N.Y.
American Mutual Liability Insurance Co., Boston, Mass.
Puerto Rico Industrial Commission.
J. F. H. Wyse, general manager, Canadian National Safety League, Toronto, Ontario.

While the above is given as the present membership of the association, the exact membership is uncertain, as there has been no confirmation of membership during the year. Heretofore the test of membership has been the payment of annual dues. At our last annual meeting it was decided to waive the payment of dues for one year; consequently no bills were sent out; hence there has been no test of membership.

While we have not lost any member organizations, we have sustained a severe loss of two individual members of the association, two past presidents, who in the past rendered valuable services in the development and promotion of the interests of the association. On December 13, 1932, I received a telegram from Mr. Deland S. Duxbury informing me of the death of his father, F. A. Duxbury, who passed away that morning, after a short illness. I immediately sent to the family a letter of sympathy on behalf of the association and telegraphed a floral tribute to be presented on the day of the funeral. He was president in 1922–23 and continued his active interest in the association until the date of his death.

On May 25 I received a letter from Past President Fred M. Wilcox informing me of the death of our past president, Floyd L. Daggett, which occurred on May 12 at Spokane, Wash. I also sent a letter to Mrs. Daggett expressing the sympathy of the members of the association. Mr. Daggett was president in 1915–16, the second president of the association, and took an active part during that formative period of the association when wise counsel and sound judgment were most essential. The passing of these two distinguished past presidents will be deeply lamented by all.

One year ago the association voted to suspend the payment of dues for 1 year. As there has been no source of income except a small item of interest, it has been necessary to use the assets of the association to defray current expenses. As the amount of cash on deposit was not sufficient to meet the current expenses, it became necessary to dispose of a portion of our securities. On the authority of the president of the association I sold $700 par value of 4¼ percent Liberty bonds. These were sold at a little above par, yielding a small profit above the purchase price. I ask your approval of that action.

The assets of the association are not sufficient to meet the probable expenses of the coming year. Therefore, I recommend the resumption of the payment of annual dues and that each member organization be requested to pay the same amount as in former years.

The association has amongst its assets a $1,500 certificate of the Paterson Mortgage & Title Guaranty Co. of New Jersey. The company defaulted in the payment of interest on this certificate this year, the reason being that the company was included in the President's proclamation declaring a bank holiday, and that the company cannot do business until authorized to do so by the commissioner on banking and insurance, and up to date that authority has not been given. As this certificate will be due and payable October 19, 1933, some action should be taken at this meeting as to the disposition to be made of it.

The association has continued its cooperation with the American Standards Association in its work of drafting national safety codes.

Progress is being made in organizing the two American Standards Association sectional committees for the safety codes on exhaust systems and work in com-

pressed air, both now sponsored by the association, and meetings will be held in the near future.

A request has been received from the American Standards Association sectional committee on the safety code for the use, care, and protection of abrasive wheels for the sanction of the association, as joint sponsor, to amend the code by permitting increased speed for coping wheels, used in cutting brick, tile, or stone. The original request of the DeWalt Products Corporation for this change was, after approval by the Grinding Wheel Manufacturers' Association, submitted in April 1932 to the sectional committee, of which 26 members, including the representatives of this association, voted in favor of the proposition, one voted against, and one did not vote. The request is referred to the association for official decision.

The proceedings of the Columbus convention have been published by the Bureau of Labor Statistics as its Bulletin No. 577, and copies will be sent from the Bureau upon request.

Respectfully submitted.

CHAS. E. BALDWIN, *Secretary-Treasurer.*

[Mr. Baldwin also read the financial report of the treasurer. The secretary's report, together with its recommendations, was referred to the resolutions committee, and the treasurer's report was referred to the auditing committee.]

[The reading of the reports of the committee on statistics and costs, the medical committee, and the committee on safety and safety codes was postponed until a later session. The report of the committee on rehabilitation was dispensed with, as the subject was to be covered by a paper to be given at a later session.]

[The report of the electrical safety code committee was read by Mr. Baldwin, Mr. Charles H. Weeks, who submitted the report, not being able to be present.]

REPORT OF ELECTRICAL SAFETY CODE COMMITTEE

By CHARLES H. WEEKS, *Chairman*

(Read by Charles E. Baldwin)

In submitting to you the brief report of the electrical committee, I wish to state that the principal activity of this committee for the past year was the reviewing of amendments to be presented at the 1933 annual meeting of the electrical committee (National Fire Protection Association) held in New York City on March 14 to 17, inclusive. This meeting was attended by Delegates Charles H. Weeks and B. P. Foster, representing the International Association of Industrial Accident Boards and Commissions on the following committees:

Article 30. Cranes and hoists—Mr. Weeks.
Article 31. Elevators—Mr. Foster.
Article 34. Motion-picture studios—Mr. Weeks.
Article 35. Motion-picture projectors and equipment—Mr. Weeks.

At the 1933 annual meeting of the electrical committee, which was conducted in a very businesslike manner by Mr. A. R. Small, chairman, the revisions of the code, after much discussion and debate, were finally adopted, and the I.A.I.A.B.C. was ably represented at this meeting. As we now have an up-to-date code on all electrical matters, and the association is very active in connection with this code, I feel confident that the work of the committee is going to be very helpful to all the members of the I.A.I.A.B.C., and I want to take this opportunity of expressing my appreciation for the efforts and assistance rendered by my alternate, Mr. B. P. Foster.

I am very sorry, indeed, that, due to conditions in the labor department at this time, I am unable personally to present this report to the convention.

[The report was, on motion duly seconded and carried, ordered received, and incorporated in the proceedings.]

[The report of the committee on forms was read by Mr. Kjaer, Mr. Wilcox, who submitted the report, not being able to be present.]

REPORT OF THE COMMITTEE ON FORMS

By SIDNEY W. WILCOX, *Chairman*

(Read by S. J. Kjaer)

During the Columbus convention of the I.A.I.A.B.C. the forms committee of the National Council on Compensation Insurance promised to contact the commissioners of the various States in regard to adoption of the standard accident forms approved by the convention. This work was naturally handicapped by the administrative changes in a number of States, but your committee has been advised of good progress in this work. It is stated that some, if not all, of the standardized forms have been adopted, and some printed, in the following States:

Alabama	Nebraska
Connecticut	New Hampshire
Georgia	Tennessee
Iowa	Vermont
Louisiana	Virginia

It was not deemed advisable to take any action on additional forms. No meetings were held of the joint committee during the past year. Your committee, through its chairman, invited the forms committee of the National Council on Compensation Insurance to present in person a report of its activities in conjunction with the report of the forms committee of the I.A.I.A.B.C.

[On motion, duly seconded and carried, the report was referred to section B of the Tuesday morning session for discussion, to be reported back to the general meeting.]

[The report of the committee on workmen's compensation legislation was read by the chairman, Mr. Klaw.]

REPORT OF COMMITTEE ON WORKMEN'S COMPENSATION LEGISLATION

By ABEL KLAW, *Chairman*

At the last convention of this association the following motion was adopted:

It is the sense of the association that the committee on workmen's compensation legislation prepare a recommendation for the use of the various jurisdictions on the matter of an amendment to their law to procure some suitable second-injury legislation.

In pursuance of this action, a meeting of the committee was called for December 6, 1932, in the office of Miss Frances Perkins, in New York City. The following members of the committee were present in person: Miss Frances Perkins, Charles F. Sharkey, and Abel Klaw. Communications from F. M. Wilcox and O. F. McShane were received and given consideration by the meeting.

The final result of this meeting was the adoption of the following provision, which received the approval of all of the members of the committee:

Whenever a subsequent injury occurs to an employee who has previously sustained an accidental injury, the employer for whom such injured employee was working at the time of such subsequent injury shall be required to pay only that amount of compensation as would be due for such subsequent injury without

regard to the effect of the prior injury; and whenever such subsequent injury in connection with a previous injury results in a permanent partial disability of 75 percent or more of total disability, the compensation which is in excess of the amount to which the injured employee is entitled solely by the subsequent injury shall be paid out of the second-injury fund created hereunder.

The loss of both hands, or both arms, or both feet, or both legs, or both eyes, or any two thereof shall, in the absence of conclusive proof to the contrary, constitute permanent total disability.

There is hereby created a special fund to be known as the "second-injury fund." The employer, or if insured, his insurance carrier, shall pay into such second-injury fund for every case of injury causing death in which there are no persons entitled to compensation, the sum of $500. The commissioner of taxation and finance (or the State agency which controls the finances) shall be the custodian of this second-injury fund and the industrial commission (or the industrial accident board or workmen's compensation bureau) shall direct the distribution thereof.

A copy of this provision, as well as copies of the uniform provisions adopted at the Richmond convention covering the subjects of insurance, third-party liability, and extraterritorial coverage, was forwarded to the chairman of the workmen's compensation administration board of the 40 States wherein the legislatures were in session. Request was made that consideration be given to these proposals and that effort be made toward having the same enacted as a part of the workmen's compensation law.

Copies were also sent to interested agencies in the States of South Carolina, Arkansas, and Florida, with the suggestion that if a movement should be started in those States to effectuate the enactment of a workmen's compensation law, these proposals be submitted to the proponents of the same in order that proper consideration would be given to the advisability of incorporating these provisions as a part of the proposed law.

Of this total of 43 States to which copies were sent, 23 have no provision for a second-injury fund, 13 have a second-injury fund provision of some sort, 4 have no specific second-injury fund provision, and 4 have no workmen's compensation law.

The legislatures of the States of Alabama, Kentucky, Louisiana, Mississippi, and Virginia were not scheduled to meet in 1933.

Acknowledgments were received from practically all of the States to which communications were sent, and the general attitude was one of cooperation, although several of the States advised that the political situation was such that no favorable action on these subjects could be hoped for at the current session of the legislature.

From the latest information available, it appears that in 10 of the States where the legislatures were in session no change was made in the workmen's compensation act. In the remaining States, while your committee has been unable to secure verified copies of all of the laws enacted amending the workmen's compensation act, a preliminary survey indicates that in 8 of the States legislation was enacted tending to provide for the specific conditions in which the association, through its committee on workmen's compensation legislation, has interested itself.

Your committee feels that our movement has been given impetus, and that with the further cooperation of the various State commissions, favorable results can be looked for within the immediate future. Certainly it must be realized that complete results cannot be hoped for in matters of this sort within a short period of time. State agencies must be educated to realize the necessity for uniform provision and the difficulty of overcoming the prevalent feeling of self-satisfaction must be taken into consideration.

The committee again urges that the members of this association renew their efforts toward securing the enactment of these uniform provisions, and that they

take a more active part in sponsoring the same. If favorable results are to be accomplished, it must come about through the initiative and direction of the members of this association. Each State commission should consider itself as a committee of one in its own State to see to it that these proposals are introduced in its respective legislature. This initial step, to my mind, is of primary importance. After that has been accomplished, the rest should be easy.

[A motion for adoption of this report was made and seconded.]

DISCUSSION

Mr. PARKS (Massachusetts). I can see a great deal of merit to that second-injury amendment. I wonder if Mr. Klaw's committee considered other States than those stated in the schedule. I wonder if his proposed amendment could be drafted so that it would include States which may have a nonschedule method of paying compensation, such as we have in Massachusetts. I think the time is coming when that has to be taken care of, because of men receiving compensation for the same condition time and time again. It is resulting in discrimination against men who have some physical defect from some prior injury. I do not know whether there are any other States that do not pay by schedule. The only schedule we have is for specific injuries, in addition to the payment of weekly compensation for disabilities. I should like to have any suggestions Mr. Klaw has to offer. Perhaps the committee considered that.

Mr. KLAW (Delaware). Necessarily we could not work on this job with the idea of having it applicable to one State; we had to take in the country as a whole. First we discussed the general subject and the advisability of adopting one sort of provision as against another, and then we agreed upon the general form of the section. Then, of course, we realized that in some States there would have to be changes in the wording here and there in order to make it applicable to the particular State, and also as to the amount that was to be paid in each case where there were dependents. We felt that that would have to be left largely to the individual States; for instance, New York probably would want to make a larger assessment than that of some of the smaller States.

While the provision that we finally adopted may not be applicable to Massachusetts, or to one or two of the other States, we felt that we had set up a general idea which could be amended or supplemented so as to make it applicable.

Mr. STEWART (Washington, D.C.). It seems to me that the specific gain in this report is the recommendation of a universal second-injury fund. I do not like the proposal that in case of the death of a person who has no dependents the employer shall pay $500 into the second-injury fund. I think that is absurdly low. I do not care how you start, just so you get it started. What we want is a statute on the second-injury fund. I do not see how else this thing can be met. We know perfectly well that a man who has but one eye is not going to be employed in a State where the loss of the second eye means permanent total disability, the entire expense of which falls on the last employer. We have had all the experience with that sort of thing we want. Employers will not employ a man with one eye or one arm or one leg, where if he loses his other arm or other leg

they are soaked, not for the loss of one arm, but for the loss of both arms. The only way to meet that is to have a second-injury fund for that purpose, having it entirely separate from the ordinary schedule of injuries and the allocation of the injuries. We have been trying for 20 years to get that thing through, and if we get it adopted by this association, even as a starter along that line, it is that much gained.

I moved to accept the report, not because I liked its detail, but because it is the start of a thing which we must take some action on. We must provide some way to take care of the man whom the employer will not employ because of this law or we are going to lose the law.

Mr. HALFORD (Ontario). We do not understand that employers are very backward in taking injured workmen such as the previous speaker has outlined. We provide for that in what we call the disaster fund. It is a fund we use only in case of a disaster, where two, three, or four deaths occur. In case a man who has lost an eye or an arm is injured again, we take the money from this disaster fund. We have had no difficulty at all along that line. The employers are quite satisfied to accept that responsibility. If the disaster fund should happen to run a little low, we assess a quarter of 1 percent and in that way we keep it up to $300,000 or $400,000.

I am very much in favor of a provision being made for that double liability. Of course, I understand that most of your acts down here do not give you that power. We have that power and we use it whenever it is necessary.

Mr. STANLEY (Georgia). In Georgia, if a man loses a second eye the employer does not have to pay him for total disability unless he lost his other eye in the same employment. If the man has changed his employment, the employer simply pays for the one eye lost. A situation has arisen down there, and we do not quite know what the outcome will be. The courts have held that there is no maximum and minimum applying to specific disabilities. If a man is making $100 a week and he loses an eye he is entitled to $50 a week compensation. The courts have passed on that, and it looks as if it were final. I do not know. Of course, it gives the skilled man a great deal more compensation, but it cuts down the small or unskilled man, because there is no minimum in it. If the man has been making only $2 or $3 or $4 a week, his compensation is nothing.

Mr. KEENER (Arizona). The tendency with the compensation fund of Arizona is to consolidate all funds rather than to make them separate funds. I think the idea of making some legislative provision in connection with the second-injury proposition is all right where the fund is used for one purpose. The compensation is paid from one source, and the compensation for the second injury is also to be paid from the same source. I would rather have the proposition worked out on the basis of legislation providing for a second-injury payment from the same source than on the setting up of a separate fund and an increase in overhead.

In the small States, financially speaking, we are trying to reduce our overhead as much as possible. One fund answers the purpose of everything connected with compensation insurance. I should like to hear some discussion on legislation on that matter rather than on the creation of a separate fund.

Miss HARRISON (Maryland). We have that situation in Maryland. The courts to which our orders are appealed decided that a man who had lost one eye and then lost the other eye had a permanent total disability. We had men coming to us saying they could not get employment. Our legislation this year has corrected that by an amendment to the law which gives the employee the right to waive his right to permanent total disability in the case of a second injury, and he receives compensation only for the loss of the member sustained in the employment of the employer for whom he was working at the time of his last injury. When I say waiver of rights I do not mean for all permanent disability. There are just five kinds—the loss of a hand, an arm, a foot, a leg, or an eye.

Mr. STEWART. I am afraid the net result of that sort of thing is just a little more chiseling of the unfortunate workingman. We have gotten this down to where the lawyer and the doctor have more interest in the workmen's compensation law than the workingman has.

When a man has an eye put out he has lost one eye. When he has his other eye put out, his second employer says, and from his point of view he is right, "I will pay you only for the loss of the one eye you lost with me."

Compensation for two single eyes is not compensation for total disability. In whose interest is this legislation going to be? At the Baltimore convention a statement was made that workmen's compensation laws were enacted for the workingman. In the Buffalo convention the statement was made that workmen's compensation laws were not made for the workingman. That is the progress of the century.

Compensation for two single eyes is not compensation for a blind man, and wherever or however that man becomes totally disabled, it is not up to the legislature to try to chisel him out of the fact that he is totally disabled and that his power to support his family is gone. The purpose of these laws was to find a way to keep the wives and children, the families, of the workmen who were injured in industrial accidents off the charity rolls—that industry should pay for its own accidents; to charge their cost as a part of the cost of production; and to put that cost of production on the items and let everybody pay for them.

Are we going to forget entirely what these laws are for and simply try to relieve the employer from responsibility? I grant you that the second employer was not responsible for the fact that in his plant this man was totally disabled by the loss of his second eye. I grant you that. What we propose to do here is to meet that situation by taking care of it with a second-injury fund, secured in other ways, but still to protect the workingman and his family. This sort of legislation will do it, and it cannot be done too quickly.

Some States do it this way. If a man who has no dependents is killed, all the employer has to do is to bury him. What is the result, gentlemen? There is no use to shut our eyes to the fact that in the great industrial States a special effort is being made to employ the fellow who has just gotten off the boat, who has no dependents whatever in this country, so that if he is killed by accident the workmen's compensation law does not apply with full force to him.

If you are going to throw all the jobs into the hands of the young fellow or the unmarried man without wife, children, father, or mother, or relatives on this side of the sea, then that is all there is to it. Employers are doing it mighty fast. Some of you know it, and others of you could find it out if you looked around a little.

If the death of an employee by an industrial accident means just as much to the employer—just as much assessment against his compensation insurance—whether that man has any dependents or not, then the fellow who has no dependents has no special advantage as to getting a job. If the employer must pay that death penalty or total disability penalty anyhow, and that goes into a fund to take care of the fellow with one eye in case he loses the other eye, not only are we protecting the family of the fellow who does become totally disabled but we are checkmating employment of people simply because they have no dependents, by which the employer can get out from under the workmen's compensation law.

Chairman WENZEL. May I endeavor to clarify the situation a little? To my mind this matter is purely a matter of bookkeeping and mathematics. The man who loses 2 legs, 2 arms, or 2 eyes is permanently totally disabled. We of the State funds are in position under our laws to charge the excess loss that occurs by reason of the loss of the second eye to our statutory reserve, which is made up through contributions from all classifications, and hence the second employer for whom a man is working when he loses his second eye is charged only for the amount of the cost of that second eye, but the reserve is charged for the balance.

The purpose of this particular amendment is to do the same thing in the competitive insurance States. Nobody is getting any more. There is no increase in overhead, as the gentleman said a while ago. It is the same identical thing. It is simply a matter of fixing the responsibility of that excess upon the whole group instead of upon the individual employer. That is all there is to it. It is a matter of bookkeeping. The fund has to be raised some way. In State-fund States it is raised, just as it will be raised by the employer, by a special assessment of some kind. You can limit it to $500 or make it 1 percent of the premium. You can make it anything you like. The payment to the injured is not an additional payment. It is the payment to which the injured person is entitled. What difference does it make if a man loses 2 eyes in 1 accident or whether he loses them in 2 accidents. He has a permanent total disability and he is entitled to payment for that permanent total disability.

I wonder if you get that picture now. It is purely a matter of bookkeeping and mathematics, as I see it.

Mr. BAKER (Kansas). That may be all well and good in your insurance-fund States, which I think are in the minority, but what are we going to do in the private-insurance States with a man who has lost one eye while working for one employer and subsequently loses the other eye while working for another employer, and is thereby in fact a totally disabled man? There is no way there, as I see it, to assess it as excess cost to the industry in a general way. I question if very many of such States could procure a law which would place the excess cost on society through the creation of a special fund.

The problem there is quite different, I think, from that of the majority of States.

Mrs. TOUSANT (Massachusetts). I might say that Massachusetts is a competitive State in general, and we have a law which provides for and takes care of the situation very nicely. In every case where a person is totally and permanently injured and there are no dependents, the insurer pays into a fund held by the State treasurer $100, plus $150 for the undertaker. That is, in this fund is $100 for each injury or for each person killed, when he has no dependents. Then when a person receives an injury and is permanently totally disabled through the loss of eyes, legs, or arms, one half of the compensation is paid out of this fund and one half is paid by the carrier. That works out very nicely. One half of it is charged to the last employer. It works out very well, in our opinion.

Mr. DORSETT (North Carolina). We have a second-injury fund in North Carolina. When a man dies in North Carolina as the result of an accident, we do not take $100 or $500 out, but we take the whole amount out.

I agree with Mr. Stewart's observation that there is no sense, if industry kills a man who happens not to leave any dependents, in saying that the industry should not pay for that death. I represent industry on the North Carolina commission. When an injury in North Carolina results in a death, and the man does not leave a father or mother, his entire compensation goes to this second-injury fund and is administered by the North Carolina commission. If he leaves a mother and a father, half of it goes to the second-injury fund and the balance goes to the father and mother. We are accumulating a very nice fund to take care of these second injuries, because I think it is fundamental that when a manufacturer employs a man with one leg and the man loses that leg while he is in that manufacturer's employ, the employer should not be forced to pay for the loss of both legs. That is fundamental.

Mr. PATTON (New York). It hardly seems necessary to have a discussion on this question. Those coming from States in which there are second-injury funds will tell you without qualification or reservation that a second-injury fund is a most admirable thing. This association has discussed it in other years. We have agreed on it. I think I would agree with the report. While we may not all agree with the details of the report, it is a step in the right direction; it is a step to which this convention on many previous occasions has committed itself. I do not see any necessity for taking the time of the convention by discussing it.

If anyone wants to know how this thing has worked over a period of years, he has the right to talk with the representatives of States where it has been in operation successfully. As a matter of fact, for some years I have been strongly in favor of the attitude of North Carolina, as pointed out by Mr. Dorsett. There are many other injuries besides these five which ought to be compensated for. I see no reason, logic or otherwise, in New York's case, when the injured worker leaves no dependents, why the employer should not pay the average amount paid for all death cases, so that we will have a second-injury fund, not only for these five disabilities referred to, but for a number of other serious disabilities.

Mr. Klaw's recommendation is for a perfectly simple thing, which I think it is perfectly well understood was needed for years. I should like to vote not once or twice, but 10 times in favor of adoption of the report.

Chairman WENZEL. Is there any more discussion? The question has been asked for. The motion is to adopt the report as made by Mr. Klaw's committee.

Mr. PARKS. Does that include the recommendation? If it does not, I want to include that the recommendation be adopted.

Chairman WENZEL. I rule that it includes acceptance of the recommendation when we adopt it. If there is any different opinion, somebody had better make a different motion. That is understood, that the motion carries with it the adoption of the recommendation of the committee.

[The motion was put to a vote and carried.]

[The chairman appointed the nominating and resolutions committees, the personnel of which, and of the auditing committee appointed previously, is as follows:]

Auditing committee.—Eugene B. Patton, of New York, chairman; J. Dewey Dorsett, of North Carolina; Albert E. Brown, of Maryland; Marie Brindell, of Kansas; and Howard Keener, of Arizona.

Nominating committee.—Parke P. Deans, of Virginia, chairman; Fred W. Armstrong, of Nova Scotia; Thomas P. Kearns, of Ohio; Hal M. Stanley, of Georgia; and O. E. Sharpe, of Quebec.

Resolutions committee.—Dr. Stephen B. Sweeney, of Pennsylvania, chairman; G. Clay Baker, of Kansas; Charles F. Sharkey, of Washington, D.C.; P. V. E. Jones, of Manitoba; and Mrs. Emma S. Tousant, of Massachusetts.

[Meeting adjourned.]

Chairman, Peter J. Angsten, Chairman Industrial Commission of Illinois

Chairman ANGSTEN. The first speaker will speak on What Should be the Obligations and Rights of a Minor in Regard to Notice and Demand? I want to present at this time Mr. G. Clay Baker, chairman of the Commission of Labor and Industry of Kansas.

What Should be the Obligations and Rights of a Minor in Regard to Notice and Demand?

By G. CLAY BAKER, *Chairman Kansas Commission of Labor and Industry*

In my opinion, rights of minor workmen in employments subject to compensation acts should receive special consideration, and more consideration should be given thereto than a perusal of the compensation acts indicates has been the case. In a report of the United States Children's Bureau on the Illegally Employed Minor and the Workmen's Compensation Law (Bul. No. 214) it is stated:

> It is estimated that at least 1 in every 10 persons reported as injured in the course of employment in the United States is under 21 years of age. Many of these are mere children. The young worker, to an even greater extent than the worker of mature years, it is believed, is subject to accidents in industry and is susceptible to injury from such sources as industrial poisons, fumes, and acids.

The volume and seriousness of the accidents call for careful consideration of the status of minor workmen. To my mind, the most flagrant lack of consideration is that of not taking into account the probable future earnings as a basis for compensation.

But my subject does not extend to the question of the general status of minor workmen employed by industries subject to compensation acts. Further, it is not limited to a consideration of minor workmen. I take it my subject calls for consideration of all minors, whether workmen or not, having rights accruing by virtue of compensation laws, but it is limited to the matter of "notice and demand." I shall, therefore, endeavor to confine myself to the given subject; i.e., What should be the obligations and rights of a minor in regard to notice and demand?

The acts of the different States vary as to the giving of notice and demand in the case of minors. There may, for the purpose of compensation, be said to be 3 classes of minors to consider, and I believe that each of the 3 classes calls for separate consideration. The acts are at variance as to the obligation and rights with reference to these different classes I shall mention as to notice and demand. There is (1) the minor who is illegally employed; (2) the minor legally employed; and (3) the minor dependent upon a deceased workman.

The Illegally Employed Minor

The laws differ in different States in the treatment of minors employed in violation of child labor laws. Some States exclude illegally employed minors from the compensation acts, others include them without special provisions, and still others include them and require additional compensation for them.

Again quoting from the report above referred to:

> The number of minors receiving injuries while employed contrary to law and the proportion this group forms of the total number of injured minors is not accurately known. Statistics relating to the minor injured while illegally employed have been compiled or special studies have been made only in a few States. Limited as the information is, however, it emphasizes the unusual seriousness of the problem of the illegally employed injured minor. In all the States for which comparable figures exist the proportion of injuries resulting in death or permanent disability is greater, and the average period of disability is longer, for those injured while employed contrary to law than for legally employed minors, a result, of course, of the fact that so many of the injuries occur in occupations prohibited because unusually hazardous.

An example of the wide variance in the application of compensation acts in the case of illegally employed minors may be found in comparing the Illinois and Missouri acts.

Illinois provides that an illegally employed minor or his legal representatives may within 6 months after injury or death elect to reject compensation and sue for damages, except where he has already accepted compensation with the commission's approval. Missouri, on the other hand, provides that minor employees, whether legally employed or not, are deemed of full age for all purposes of the act.

It seems to me the Illinois act has a sound provision. One illegally employed should, in my opinion, be considered outside the law, with the right to elect to avail himself of the benefits thereof or to bring suit for damages. However, I do not think that as to such an individual the time within which he should elect and give notice and make demand should run from the date of the accident but rather from the time of his reaching majority or the appointment of a legal representative. In the case of the illegally employed, we are dealing with a case of a minor not even considered by law competent to engage in the work at which he receives his injury, and therefore a compensation act should not provide competency and impose upon him the duty of giving notice of accident and making claim for compensation. It seems only logical and fair that in such cases the time within which notice of accident and demand for compensation are to be made should not begin to run until the injured has reached the age of majority or a legal representative has been appointed, and if option of pursuing remedies under the compensation act or suing for damages is given, time within which such election may be made should not commence to run until the reaching of the age of majority or the appointment of a legal representative.

Legally Employed Minor

Many parties no doubt hold to the argument that a minor, though legally employed, should as to competency be regarded the same by compensation acts as he is generally regarded by law; i.e., that he is an incompetent, and time as to notice of injury and demand for com-

pensation should not begin to run against him until he has reached the age of majority or a guardian has been appointed. It may be said, Why should there be any exception in the application of a compensation law? By many of the acts a minor is deemed sui juris. It seems to me that if the State has deemed one of sufficient age to engage in a given work it is only fair that the obligations imposed by any system of remuneration for injuries resulting from that work should be incumbent upon such an individual.

My understanding of the purpose of compensation acts is that, for the benefit of both employer and employee, there be an early determination of rights and liabilities, and therefore there should be avoidance of any technicalities and impediments standing in the way of speedy ascertainment of rights and liabilities.

Certainly, if the State recognizes that one is competent, though a minor, to engage himself as a workman with a given industry, he should then be considered as legally competent, so as to bind him to the obligations of that contract of employment and the rights and duties that go with such contract of employment.

It would seem inconsistent to me for the State to regard one as competent to engage in a given work and, on the other hand, incompetent as regards the legal regulations as to that work. I feel that it is not only fair, but also that no injustice is done in placing a legally employed minor on the same footing as an adult worker as regards notice of injury and demand for compensation.

The legislature can fix the age at which one may be employed in hazardous industries, and it has power to fix the age at which disabilities of infancy shall be removed. When the legislature says one is of sufficient age to engage in a given occupation—in other words to enter into a contract of employment—why, then, should it not likewise say that such party shall himself be bound by that contract of employment and all the obligations thereof, including the compensation act and the requirement thereof as to notice and demand?

Minor Dependents

Certainly no compensation act should seek to impose upon a minor dependent the obligation of giving notice of accident and making demand for compensation, for to do so would be obviously unjust. It would be imposing knowledge and duty upon an incompetent, in the eyes of the law, which would be utter unfairness. I do not think any argument need be made that time for giving notice and making demand should not run against a minor dependent until reaching the age of majority or the appointment of a guardian. Otherwise, however, I see no occasion for a difference in the time limit from that of an adult dependent.

Conclusion

To summarize, it is my opinion that there should be no exception as to minors in the matter of requiring notice of accident and claim for compensation, except that in the case of illegally employed minors and minor dependents the time should not commence to run until such minors reach the age of majority or the appointment of legal representatives.

Chairman ANGSTEN. The next speaker deserves a great deal of credit and commendation from the officers of this convention. Your officers selected for the afternoon program a gentleman who was known and loved by all of us, the Honorable Fred Wilcox, formerly of the Wisconsin board. Mr. Wilcox intended to be here and would have been but for a strike situation that keeps him in the East. When we approached the next speaker whom I am to present, he said, "Why, certainly I will be glad to fill in any place you can use me."

The subject this afternoon I am going to have the speaker announce himself. We did not ask him until about three quarters of an hour ago, and we told him to name the subject he would talk on. I have the great honor to present at this time Mr. Joseph A. Parks, chairman of the Massachusetts Department of Industrial Accidents.

Workmen's Compensation Progress

By JOSEPH A. PARKS, *Chairman Massachusetts Department of Industrial Accidents*

The subject Workmen's Compensation Progress should be discussed by someone, I suppose, who has been associated with the work from the beginning. I know that many of the new commissioners do not like to be told what the beginning of this work was. They prefer their own ideas of what it is now. When you start to tell them what we used to do 20 years ago, they say, "Well, that might have been all right 20 years ago, but it doesn't go now." Gentlemen, it does go now. In order to administer the workmen's compensation act today, in this year of our Lord 1933, we have to remember why this act was placed on the statute books.

I listened with a great deal of attention and pride to the president's address. He told many truths. He told what the compensation act was for. Mr. Stewart added a little more to it; he said the workmen's compensation act was for the workman, no one else. The Buffalo convention (I was not there, but if I had been, whoever said it would not have said it without my taking issue with him) said that it was not for the benefit of the workman. The workmen's compensation act was passed 100 percent for the injured workmen of the United States, not 99 percent, 98 percent, or 97 percent. It is not for the benefit of the lawyers or the doctors or the hospitals. They come in for the consideration due them, but the primary consideration, first, last, and all the time, is the injured workman.

I began to be interested in workmen's compensation in my heart, not as a legal proposition, when I was a little chap working in a cotton mill in England. I was about 12 years old at the time, and I had been in the mill for some time then. I was a weaver. One day I was out in the mill yard and I saw two or three people around what they called the watchhouse—the office we call it here. I saw a man sitting in a chair in the office. He was holding his wrist like this [indicating]. His hand was hanging on by a piece of skin. No one was taking any notice of him; they weren't even giving him a look. I inquired, in my boyish way, "What happened? Why don't they do something for him? Why don't they get a doctor and bandage him up or do something? Why aren't they doing something for him?"

They said, "Oh, there will be a wagon here any time now. He will be taken to the infirmary."

As I stood there I saw a wagon come up to the door—there were no automobiles in those days. They put him in a spring wagon and he was taken away to the infirmary. A little while later I inquired about it. I said, "What will they do about that?"

"Oh, nothing. That is happening all the time. They won't do anything about it. They will put someone in his place."

"What will they do for his family?"

"Nothing."

They hadn't come to that yet; no one had thought of it. Of course, later on the workmen's compensation act was passed in England, Germany, and other European countries.

When I came to this country I became somewhat of a labor agitator. I became president of my union when I was about 21 years old, and I became interested in these labor problems. Immediately I began thinking about workmen's compensation—what we could do about the sort of fellow I had seen over in the old country.

I had the good fortune to be elected to the Massachusetts Legislature in 1904, and in 1905 I presented a workmen's compensation law to the legislature. I kept presenting it and presenting it, until in 1910 a commission to draft a workmen's compensation act was authorized by an act of the legislature, and I was appointed on that commission. In 1911 an act was presented to the legislature and passed, to go into effect July 1, 1912. It has been in effect ever since, and it is with its progress that we are concerned.

There has always been some argument and some little controversy as to which State was the first to pass such an act. We are not here to discuss that. About that time acts began to be passed, until today we have, with the exception of 3 or 4 States, a workmen's compensation act in every State in the United States and every Province in Canada.

We have made progress, naturally. We are having difficulties now. We had difficulties in the beginning, but when I look back at the progress we have made, I wonder whether this is the little compensation act that we squeezed by the Massachusetts Legislature. I think about the act when we got it through. We paid at that time, as I remember it, 50 percent of the average weekly wages of the injured workman, not to exceed $10 a week. We paid $10 a week for death, not to exceed $3,000. That was the limit. We went merrily along for a while. I remember attending a convention in Philadelphia of the industrial accident boards and commissions. One of the subjects I was given to discuss at that time was, What Should be the Percentage of Compensation to be Paid to Injured Workmen? I forget just what year that was—it was a good many years ago. I recall very distinctly that no State was paying over 50 percent of the average weekly wages for compensation at that time. I advocated there, as a standard, two thirds of the average weekly wage. I know what a sensation it caused. They said, "You are far ahead of yourself, Joe. Forget it. It is bad enough paying 50 percent, not to mention two thirds."

Now some of our States are paying big amounts. I do not like to mention them, but there is New York. North Dakota, I think, is one of the big-payment States. There are a good many others that are paying almost the full wages, and a good many States are paying during life.

That is progress. In Massachusetts we have gone from not to exceed $10 a week to not to exceed $18 a week, and from a total of $3,000 for the injured workman who is disabled to $4,500, plus a certain amount for specific compensation. The widow and the children are being considered. In Massachusetts the widow is getting $2 additional for each of her children, the total amount not to exceed $6,400. While I think that is miserably small, still it is twice as much as the widow got in 1912. That is progress, of course.

Medical attention then was given for not more than 2 weeks. When I look back, I think of how silly that was, but we had to make a start. Also, we had to make it look as though it would not be too expensive. They were talking about that, I remember, when we were agitating for it in Massachusetts. Some of the employers threw up their hands in horror, saying "My God, we are all going into bankruptcy."

I remember meeting a paper hanger in Boston, where I lived. He said, "Parks, that will make me bankrupt in no time."

"Will it?"

"Yes."

I thought that perhaps I could throw a little light on that because of his lack of information on the compensation act and of my knowledge of it. I said to him, "How many men did you have injured last year, for the whole 12 months of the year?"

"I don't remember."

"You had so few you don't remember them, do you?"

"Yes. I remember now. I had one man injured."

"How long was he disabled?"

"Oh, about 3 weeks."

I figured up the compensation and said, "Well, with the 2 weeks waiting period, he would get only 1 week. That would have cost you $10 for last year. If your business is poor and on the verge of bankruptcy, of course the loss of that $10 bill, plus medical expenses, would put you into bankruptcy."

"I didn't know it was as easy as that."

That is the way it looked to them at that time. I think that is why a good many of them let us get it by.

We progressed along the line of medical aid, until now in a good many States there is unlimited medical service. In Massachusetts, the law provides for medical attention for the first 2 weeks after the injury, and in unusual cases or cases requiring surgical or specialized care for a longer period at the discretion of the industrial accident board. That can be interpreted to mean full medical attention. The supreme court interpreted the word "unusual" very strictly, and we had to amend the law by putting in those words, "surgical or specialized care." You can readily see, with a broad interpretation of those words, that a man gets medical attention practically during his entire need of it.

Ours is an insurance State, and personally I have no apology to offer for being in an insurance company State. We get along very well with the insurance companies. If they do not toe the line, we see that they do, but they generally do. They have seen the light. In the beginning of the administration of this act they would stop giving a man medical attention a minute before the 14 days were up. At that time they could not see that leaving a man with a gaping wound on the fourteenth day was a hazard, that he might die of blood

poisoning and they would have a fatal case on their hands. Finally they came to realize that giving full medical attention was to their benefit as a business proposition, apart from the humanitarian end of it, and of course that is progress. I think that medical attention, properly supervised, is the best feature of the workmen's compensation act, next, of course, to safety and prevention of accidents. After the man is hurt the next thing is to make him well. It is easy to give compensation but it is not always easy to make the man well. I hope we can make more progress in making men well. I am sorry that we have not made the progress in that respect that we should have made in 21 years.

I will illustrate what I mean by this: I presided at a hearing on a case in one of our cities in Massachusetts. A doctor who conducted a sanitarium had been treating a back injury for 5 years. The man was on compensation all the time. When the man testified I asked him, "Are you any better now than you were the first day you went to Dr. So-and-so?" He said, "No; in fact, I feel a little worse."

Then the doctor testified. I said to him: "I suppose you have been treating this man for a back injury with all the things that your medical education gave you, all the experience of the years of study and of practice?"

"Yes; I gave him everything I had. I am still giving it to him."

"Aren't you disappointed, Doctor, that after 5 years you find him worse than he was when you started with him?"

"No."

He said he was going to continue to treat the man as long as he would come to him. I do not like that. That is an extreme case but it is a fact. I think the medical profession owes the compensation act a little more than that. I do not think that a man who gets a sprained back should be treated for it for 5 years without results. If a plumber came to fix your faucet, and after coming every day for 5 years it still leaked, and you were paying him all that time, you would want to know where he got his education as a plumber. Of course you would. While that may be a very poor comparison, still there is something in it.

The medical profession is one of the professions that have advanced. Some marvelous things are being done by doctors, but they owe more to the compensation act than just using it to collect bills. We want to know what they did, what the results of their attention have been, what they have done for that crippled hand, why they have not gotten it in shape so that it can be used. That should be a labor of love as well as a labor of business. We are looking for results. I think a doctor who deliberately prolongs a case for the purpose of collecting more and increasing his bill is the vilest creature we could describe, and yet we have some who will do that very thing.

We have some splendid doctors in our State, as you have in all your States. I dislike to talk about the exceptional doctor. I am saying this only so that we can bring the fine type of doctor forward and eliminate those chaps who do not give the service to which the injured workman is entitled under the compensation act.

We have arrived at the stage in the administration of the workmen's compensation act, particularly in these last 3 or 4 years, when we sometimes wonder whether it is going to survive, but of course it is. The workmen's compensation act is so big and so human and so full

of good things for the workmen of the United States that it simply has to go on. It cannot break down. But we have to be on our guard, we have to watch it.

A good many workmen are taking advantage of this great piece of humane legislation, to their own detriment, because after all it is our act—it is your business, it is my business. You are paying the bill. When these men take advantage of the workmen's compensation act they are taking advantage of every man they see on the street, of their friends, their neighbors, and their children, and they are impairing the compensation act which was designed for their benefit. Unfortunately, they get help. The legal profession helps them, not knowingly sometimes, but sometimes I think it does know it. The doctors help them, sometimes not knowingly, but I will swear that sometimes they do know it.

A doctor testified before me under oath that a man's fingers were so injured that he could not flex them, that the tendons were destroyed. Then the doctor left. I was sorry he did. The hearing went on. The man testified, after which he went out and sat in a room where fortunately I could see him. He was a nervous chap and he began to move his fingers. Those fingers that the doctor had testified the man could not flex because the tendons were gone were flexing just as well as mine are now. I called his lawyer and pointed to where this man was sitting and said, "Harry, look at your client's hand."

He said, "I will tell him now."

"No; you don't need to; I have seen enough. Tell that doctor of yours what I saw, and tell him for me that he didn't tell the truth."

That is the kind of thing I mean. That doctor did not tell the truth. The board is entitled to have the doctor who performs medical service for an injured man come before it and tell the truth about the injury. Thank God, those doctors are in the majority who look you squarely in the eye and tell you the truth. I know there may be honest differences of opinion. The opinions of the doctors may be different and yet they may all be telling the truth. I am talking about the doctor who deliberately falsifies to get a few dollars out of a case or to curry favor with the family of the man, and so forth. That is not progress at all. We have to be on our guard for that.

The new commissioners (and I am addressing my remarks principally to them) have not had the experience. I say that advisedly. I do not say that because I have been in this work for 10 or 15 years I know it all, but I have learned from experience, and I have come to know character a little more. When you have such experience you are not so gullible. I hear cases today that back in the year 1912 I would have given compensation on because I would have believed them then. I do not believe so easily now; 21 years have taught me to be on my guard. When a man was brought in between two members of his family and he groaned as he hobbled to the chair, my old heart used to go pitter-patter. The case was decided before I had heard the evidence. What more did I want to hear? Now, I do not blink an eye when such men are brought in, even if they are brought in on a stretcher; I do not even give the case a glance.

What is the reason for his being in that condition? What is it that makes him so helpless? I want the medical profession to tell me that. That is where the doctor comes in. The doctor has an

important function—to show you that the man can walk better than you can yourself and that he is deliberately putting it over. If the doctors would only say truthfully, "There is not a thing wrong with him. He can get up and walk out if he wants to"—if we could get them to tell us the truth about that, what a blessing it would be.

In Massachusetts we are making progress in that respect. The Massachusetts Medical Society, as it is at present constituted, has promised to give us every possible aid in that respect. It is going to cooperate with our board in suggesting to the next legislature various amendments that will be helpful in medical matters. That is what we want. We want the assistance of these medical societies of the United States. Perhaps I am talking to representatives of some States that have the same kind of act we have. I know ours is a continuing thing. We have no schedule except that when a man loses his arm, for instance, he gets 75 weeks at $10 a week, in addition to his disability compensation. His disability compensation is fixed but only so far as he continues to be disabled. It is a matter of competent evidence as the case progresses. The insurance company can challenge the question of disability at any time, and we have to have a hearing to decide whether the man is still disabled. Of course, most of the States say, "We give him 75 weeks and we are through with it." I am not criticizing that idea; as I said before, I think it has a lot of good points in it. We continue the man on compensation, and we have the doctors come in and testify frequently.

There are a good many things that we ought to be thinking about as to the future of the workmen's compensation act. I can afford, perhaps, to talk about another thing Mr. Wenzel talked about, as I have just been reappointed for another 5-year term, and the way my hair is whitening perhaps that may be the last one. It takes 5 or 6 years to get onto the ropes as a member of an industrial accident board, to get to know what your duties are, and if men are willing to put their time into the work and make it their life work, they should be permitted to do so. I am the only member of the Massachusetts commission who started in 1912. Of course, the others have not all been replaced—we have had some deaths.

I wish we could do something here more than to hope about the tenure of office. I do not know what system you have in your States. In Massachusetts we appoint judges for life. When I was a young fellow, before I went on the industrial accident board, I did not quite approve of that, but now I do, and I can talk about it without any feeling that I am trying to perpetuate myself. I am good for 5 years more anyway, so I do not have to be begging for a job. I think members of the industrial accident boards should be covered in the same way, because the members are just as real judges as there are in any court. The idea, of course, is to make them independent of politics, to make their minds free, so that if one of them while sitting there looks out in front and perhaps sees the chairman of the party committee to whom he is beholden for his job, he need not be prejudiced in his favor because he happens to owe him something. A man in such a position should be free of everything. I feel that I have always been free, but I want everybody else to feel that way. I have been free in Massachusetts to do just as I liked without anyone dictating to me. I have been appointed by three Republican governors and by two Democratic governors.

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The thing I want to bring about has been brought about in my case. I think it should be agitated. I do not think this convention would be accused of doing something that may sound like politics or something improper. I think we should have some resolution in this regard, either deploring the tendency of the times to have States and governors changing commissioners of industrial accident boards, something like that, or endorsing the principle of keeping them in office for a longer period of time. But certainly not to have anything like they have in North Dakota, or was it Arizona, where the governor was given power to remove a man without cause Imagine such an outrageous thing as that—remove a man without cause. A man may be trying conscientiously to do his duty day after day, but how can he do it? How can any man take up this work with the knowledge that after his 5-year term, or within 5 years, he has to leave it? He has to have one finger in his other business and one finger in this work. He says, "I will have to go back to it. I owe it to my family." Best of all, of course, is the principle that a man is free to render his decisions without fear or favor to anybody, to decide his cases in accordance with his conscience. That is the way they ought all to be decided.

In closing, I think we ought to remember one of the things that Mr. Stewart and Mr. Wenzel talked about. It is that this is first, last, and all the time a workmen's compensation act, for the benefit of the workman. All the rest is subsidiary to that. That is what we are all interested in. Every citizen, every noncitizen, every laboring man, every nonlaboring man, no matter what his religion is, is paying for the workmen's compensation act. For that reason, because we have to pay for it, we should be interested in it.

DISCUSSION

Mr. KEENER (Arizona). I should like to make a statement as to Arizona's standing on the removal of commissioners. The governor of the State appoints the commissioners; he cannot remove them without cause. In fact, the removal of those commissioners who were removed at the beginning of this year was for cause, a very good cause.

Mr. DORSETT (North Carolina). I offer this observation about something that stands in the way of progress of workmen's compensation legislation. Some of you probably have had the same experience we have had in the past two sessions of our general assembly. We found there lobbyists employed by the insurance companies, advocating taking away from the industrial commissioners their right to be the judges of the facts. Mr. Stewart could probably talk for hours on that subject. There must be some reason why the insurance carriers advocated it in North Carolina for 5 months, with no less than half a dozen separate and identical bills to take away from the industrial commissioners the right to be the judges of the facts. We find the facts and in my State the courts cannot alter our findings on the facts, any more than a judge can tell a jury that it has found the wrong facts. With the bitter fight we have had in North Carolina against the compensation law itself, we are proud of the fact that not one man has ever intimated that there has been anything wrong with the administration of that act. But for some reason the insurance companies were there, 2 years ago and in the past year, advocating taking away from the commissioners the right to be the sole judges of the facts. I think that is a thing we ought to be on guard against,

as that, in my judgment, will hinder progress in workmen's compensation legislation.

Mr. PATTON (New York). I presume the reason they did that was because of the ruling in New York, which was upheld by the Supreme Court of the United States, that the department was the final judge of facts. That was in the case of *Dahlstrom Metallic Door Co.* v. *Industrial Board of New York*, 284 U.S. 594. The employers took the case to the United States Supreme Court, covering nothing else but the right of the department to be the sole judge of the facts. The Supreme Court manifestly upheld the statute. The only way to get around it was to get the statute repealed. The employers would like to have in any jurisdiction the right of court review as to facts, and the only way they can do it is to have the statute repealed.

Mr. STEWART (Washington, D.C.). On the subject of being on your guard, the manufacturers accepted the workmen's compensation law because in general it was a guaranty and protection to them such as they had never had before. Under the old liability law, a man could have a single accident in his factory with 2 or 3 people killed. If their representatives went to court and got $30,000 or $40,000 or $50,000 apiece, as was entirely possible with a sympathetic jury, that man went out of business then and there. He wasn't crippled, he wasn't taxed; he was killed, his business was crushed.

The workmen's compensation law prevented the entire ruination of men here and there, a thing which all manufacturers and employers, particularly those working on a narrow margin, greatly needed. Such a fellow could go on pretty well until something happened whereby he had to pay a widow $10,000 or $20,000. If that was all he had in the business, it was his ruination. The manufacturers were perfectly willing to make a jackpot of it all and to pay the insurance premium and charge it to their cost of production, including it in the price of their goods. While the act was of assistance to the workmen of the community because it relieved public charity from the support of the widow and children of the injured man, it was also in that indirect way a great blessing to the manufacturer and particularly to the smaller manufacturer. Then along comes another element, the insurance carrier which takes this man's risk for a fee, based on an insurance premium rate. He hasn't that interest in the law that the smaller manufacturer has—that it is something established to protect his business. He has but one principal interest in the thing.

Mr. JOHANNSEN (Illinois). I am a new member of the industrial commission here in Illinois; I have served only 3 months. It seems to me that the progress of compensation depends largely upon the attitude held by the community. It is just like everything else. It seems to me that one of the important things in progress, in making compensation laws and their administration more effective and more capable of doing the things they are supposed to do, is to see to it, as far as possible, that the average man or woman in our communities gets as much information as possible, in a simplified fashion, as to what the law is and how to proceed thereunder. Having that in mind, the legislature in this State at its last session amended the law, making it mandatory upon the industrial commission to have the rules of procedure printed, not because the commissioners or the insurance adjusters or the lawyers needed that information, but that injured men and women in this State might have access thereto, so far as possible, and in consequence need less help to enforce their claims.

What does that mean? It means that after all, while it is important to have good laws, it is still more important or equally important to have an administration of those laws that not only is understanding and intelligent but also has in mind their function, namely, to see that injured people get what belongs to them under the law and with the least possible delay. Of course, while in many respects the insurance companies may appear bad or selfish or inclined to minimize, the fact remains that, on the whole, I would much rather deal with insurance companies than with the average employer without insurance. That has been my experience as a representative of a large group of workmen prior to being on the commission. I have found in my experience that whenever I was dealing with a contractor or an employer who had no insurance, I found difficulty in collection. In that connection the insurance carriers were more easy to deal with than employers who had no insurance.

We must not be unmindful of the fact that workmen are just as human as the rest of us. They are inclined to exaggerate the misery and sometimes the trouble that happens to them. When something happens to them, not only do they feel that they should get what belongs to them, but they demand something on the basis of what they think the law ought to be. So it is not so easy.

I believe the industrial commission in our State or in any other State should be the judge of the facts. It is just as important how the law is administered as it is what the law is.

It seems to me that no matter which way you look at it, it always comes back to the one point. The administration of justice in compensation or any other field depends largely upon the average intelligence of the community in which you live. If you can help that intelligence and understanding, then you will get better enforcement and a better citizenship. It seems to me that the industrial boards of all the States should exercise what influence they may have to the end that the average person will understand our laws and will know how to proceed under them—will know what the law provides and will have a reasonable understanding of what to expect. If you do that, then there will be less exploitation, and eventually, if the law is not what it should be, that same channel of information and understanding will make the law better from time to time.

On the whole, it was reasoned out years ago—before my time, of course—that the workman reasons on the law of averages. He knows that if he loses an arm in an accident, under the common law he may hire a lawyer and bring suit. He might get $20,000 for the loss of his arm or he might get $25,000, or he might even get $50,000—and he may get nothing.

When this proposition of a compensation law came along, it did what? It proposed certain specific amounts for specific temporary losses, for death, and so on. It also proposed something else. It proposed to take away from the employer his former right or defense under common law for the assumed risk. Formerly if an average workman on a dangerous machine was injured badly, he came into court. If the court found out that he knew that machine was dangerous and yet worked on it, he was told that because he worked on that machine the employer would not assume the risk; he would get nothing. Out of that experience came the compensation law. Everybody realizes that the compensation law not only is a step in the prog-

ress toward protecting injured men, but also that it influences to a great degree the progress of safety in dangerous occupations.

It seems to me that no matter where we may travel, we find that what we must hope for as commissioners of industrial commissions, as State officers, as local officers of city, community, or whatever it may be, is to do our small part in informing and enlightening the average man, so that the standard generally will become higher. When it is higher we will find that the politician does not lead; he will follow. In other words, the Government in our time or any other time has an opportunity to crystalize the public mind in any given direction for social legislation. This act, in its highest sense, it seems to me, is social legislation. It is not to be against labor or for labor; it is not to be for the employer or against the employer; but it proposes to see to it that industry as such will pay for its cripples and its injured and its dead. That is the purpose of it, and in its administration the commission, it seems to me, should always be the judge of the facts. Of course if it does not apply the law properly, there are certain courts to which to appeal on error.

In my experience I find that very few cases go to the supreme court. The average State commission is influenced, not by a desire to serve labor or to serve the employer, but by a desire to help to keep in balance the whole situation so that industry pays its reasonable proportion for the maiming and crippling of men and women in industry.

No matter where you go, I think you will find that the average man or woman you talk to recognizes that the workmen's compensation law is one of the most important, one of the most needed, and one of the most elementary laws passed by any State in the Union. It is one that reaches indirectly nearly everybody in every important city, especially the industrial cities in this country.

Mr. LEONARD (Ohio). I was very much interested in the remarks of Mr. Johannsen, especially on the matter of different kinds of coverage. I think the big proposition is to see that whatever the coverage is, it protects the workman. That, after all, is the purpose of workmen's compensation.

A year ago in Ohio Dr. Donohue, of Connecticut, asked me on the floor what would happen if the Ohio fund had to sell its securities. The Ohio State fund securities are entirely in Ohio municipal bonds. I replied to him that possibly, if a crisis came and we had to sell our securities, we would be in the same position as anyone else, we would have to take a loss. I said, "The time isn't here when we have to take a loss."

A short time after that we sold some securities at a profit of $20,000 to the State above what we paid for them. I had occasion to think of his remarks a good many times after that. On the first of March we should have had about $2,500,000 in the State fund. The bank holiday came along and we had probably $200,000. We had money due from public employers in Cleveland; I think we had a quarter of a million due the fund, from all over Ohio, and the money was tied up. The proposition came up, "Well, how about the payments to the injured workers?"

Another question was: "Can we go out on the market today and sell our securities?" We said we could not do it without taking a big loss.

The State of Ohio enacted a law authorizing the Industrial Commission of Ohio to issue scrip. The bill went through and we went to the officials and said, "We will possibly have to issue scrip for a little while." They said, "Things are shaping up around the State now so that the State doesn't have to issue scrip. How about the industrial commission?"

Then we got a bill through authorizing the industrial commission to borrow up to $10,000,000 on its securities in the banks. We went to see the bankers of Columbus. One man offered to loan us $400,000. We thought we would put it up to the clearing house. The banks had a meeting and decided that they would charge us 5 percent. We said, "The State of Ohio gives you its inactive funds at 1 percent interest. Why should we pay 5?" We did not pay 5 percent. The upshot of it was that one man offered to loan us $400,000 at 4 percent. Things opened up. We got our money from Cleveland.

We saw that we would never be able to go to the banks and ask them to loan money to us in any considerable amount unless we paid the price. We called up the Federal Reserve in Cleveland and were told, "You fellows are not under the Federal Reserve. The private insurance companies are. You fellows can't do it."

We thought the time was ripe to get busy down at Washington, so Senator Bulkley of Ohio introduced a bill under the banking act giving us the same rights to borrow money that the insurance companies had. Mr. Edmondson and I went down to Washington. The bill was passed by the Senate and lodged in the House of Representatives Banking Committee. We had considerable talking to do. Of course, it was a new thing for the Government to do, to allow anything but private business to come under the R.F.C. We said to them, "We want only the same opportunity as the private insurance companies have to put up our bonds. We are not asking for charity. We are not asking for something for nothing." They said, "Well, that is fair enough."

The bill was passed. The Ohio fund can go before the R.F.C. and put up its securities for a loan. The same thing applies to any State fund in the United States. We have to satisfy the R.F.C. that our securities are good in repaying the loan. That is a mighty important thing today in workmen's compensation in the United States of America.

I may say, for the Ohio Industrial Commission, that our funds commenced to come in. We did not have to borrow any great sum, even the $400,000. As a matter of good faith, we borrowed $100,000, and we did not really need that. That bank was decent enough to offer it, and we thought we would take a little bit of that $400,000. That money was paid back, or it will be paid back within a week or so.

Dr. SWEENEY (Pennsylvania). I was interested in the remarks on the importance of educating the worker as to his rights. I imagine that is not so important in some other States. In Pennsylvania we have found that it is very helpful to send out what we call our workers' rights letter whenever we receive a report of an accident. That has been going out for about a year and a half. I believe that we could trace an increasing number of agreements, and probably an increasing number of petitions to the board on contested cases, to the workers' rights letter going out in the case of every accident whether it is indicated that the accident is compensable or not.

[Meeting adjourned.]

TUESDAY, SEPTEMBER 12—MORNING SESSION

SECTION B.[1]—Problems of Private Insurance Carrier States and Competitive State Jurisdictions

Chairman, Parke P. Deans, member Department of Workmen's Compensation of Virginia

ROUND-TABLE DISCUSSION

Chairman DEANS. I think I have a sufficient number of questions for us to consider, questions which are important to every one of us. The first question we are going to take up this morning is one that was referred to us by the joint conference yesterday morning on: "The advisability of using uniform forms and their use by our commissioners."

Our association has endorsed at least five blanks or uniform reports that should be made. If I am correct, about nine States have adopted them. Mr. Jones, from Georgia, smiles at me as much as to tell me that six of them are from the South. Am I correct?

Mr. JONES (Georgia). I think so.

Chairman DEANS. Why is it that the other commissions cannot adopt these uniform blanks? I feel that it is due to the fact that you have not taken time to consider the proposition. The uniform blank has been recommended by this association and by the committee of underwriters. It is practically in accord with the report blanks used by our individual States. If there is any way in which we can get all the States to use these blanks, it seems to me that is a very important move for us to make.

I find in hearings held in the northern part of my State that many of the insurance adjusters have numerous different forms from two other States. This worries me in my hearings because possibly they have not covered exactly what the people to the south of me consider as essential parts of a report. If all of us could get together on the same basis it would mean much to the employees. For instance, a few weeks ago I had a case in which I had to rely on the employer's first report of the accident. It was a case which was going to our supreme court. I had occasion to look at the blanks of other States, some of which do not require as much as Virginia does and some require a great deal more. I felt that it was essential for the employer to give definitely this information, and I was gratified to find that the uniform blank took care of the difficulties as I had seen them.

First, I want to urge upon the other States to adopt the uniform blanks; second, because of the interest you have in this general question we feel you should at least try to coordinate your interest with ours.

One objection that has been made to these reports, I find, is due to the fact that our commissions have accumulated quite a number of blanks that were printed at different times. In Virginia we wait to

[1] No stenographic report of the proceedings of section A of this session was made.

put the different blanks into effect until our accumulated forms have disappeared. In that way we can go ahead and use the new uniform blanks without putting ourselves to any unnecessary expense. Will you now take up this subject?

[Mr. Kjaer read a telegram from H. F. Richardson, in which he suggested communicating to the convention the results of the resolution last year endorsing standard compensation claim forms as outlined in Mr. Bartlett's letter and advising the convention that continued efforts are being made to have forms universally adopted. The letter of Mr. Thomas N. Bartlett which was supplementary to the report given yesterday, is as follows:]

SUPPLEMENTARY REPORT OF THE COMMITTEE ON FORMS

You are correct in that no meetings of the joint committees have been held, but there were several meetings of the national bureau's committee because of the plan which was adopted in just selecting a few of the States and concentrating on them rather than to spread the proposition out over a large territory. We have not as yet approached all of the States by any means, and the States which I mentioned to you in my letter of the fifth * * * are not the result of a country-wide canvass. There has been much effort and a great deal of time spent in this concentration on a few States at a time and it naturally makes the work a little slow, in addition to the other reasons which I pointed out in my letter to you of the fifth.

Some members of the national council's committee have taken special trips to various points to confer with subcommittees and the industrial accident boards and commissions, just as you and I did in Washington, and as I did with the local committee of Richmond.

Commissioner Deans of Virginia and Commissioner Stanley of Georgia, both members of the forms committee, have done excellent work voluntarily by communicating with other boards and commissions, etc., and taking it all in all, there has been a large amount of preliminary and so-called groundwork done which may not be gone into in detail, but I just thought it advisable to mention to you in passing so that you could be prepared in answering any questions which might arise and not let any false impressions be gained as to the results thus far.

I think you and I and all other members of the joint committee should be gratified at the results thus far accomplished and the favorable reception we have received; also the favorable comments which have been made as to the forms by the various boards and commissions as we have contacted them. This all augurs well and I feel confident that just as soon as the fall starts and we renew our active work on the forms we shall have every reason to feel even more encouraged than we have up to this point. I for one feel that the results are highly gratifying.

DISCUSSION

Mr. KJAER (Washington, D.C.). I went with Mr. Richardson and Mr. Bartlett to the United States Compensation Commission. As there was a change pending in administration, the commission could not be contacted. The secretary, however, was favorably impressed with the progress in having these forms adopted by the States, so that they could be applied to the longshoremen and the harbor workers, which would simplify the work considerably in that respect.

Mr. STANLEY (Georgia). I cannot understand why any State hesitates to adopt these forms. They are better than any we have ever had before. We adopted the forms in our State, and although there

are a number of questions on the blanks that do not apply to us, I do not see why we should object to these questions being there when they do apply to some other States. If the various States will examine those forms carefully it seems to me that they must conclude that they are good forms. Certainly as their old forms give out they can put these new forms into effect, as we did. We notified all the insurance carriers to continue to use our old forms until they were gone, and then to use the new forms.

Mr. DORSETT (North Carolina). Where did the idea to have uniform forms originate? In whose mind did such an idea originate? I should like to have that answered.

Mr. KJAER. The idea originated in the forms committee of the I.A.I.A.B.C.

Mr. DORSETT. May I ask why the forms committee thought that the adoption of uniform forms by every State would aid anybody in the successful administration of the workmen's compensation law in a particular State?

Mr. KJAER. There is considerable use of forms from other States in neighboring States, due to extraterritorial conditions, and uniform forms are useful for that purpose. They will save a great deal of expense in printing costs and a considerable expense for insurance companies.

Mr. DORSETT. That's the point. What part has the insurance carrier played in fostering and sponsoring the adoption of uniform forms for every State?

Mr. KJAER. Considerable, because it means reduction of expense and reduction of premiums. Insurance will be cheaper than it would be if they have to spend so much for printing entirely different forms for the different States. In a good many places the insurance companies instead of the States supply the forms. There is considerably less expense and less premium to be paid.

Mr. DORSETT. North Carolina is one of our Southern States that has not adopted these forms, and it appears, in spite of our high regard for Messrs. Deans and Stanley, that we will not adopt these forms. We think it is important to get the full picture. I have had adjusters from both Virginia and Georgia come in and protest because we required the full picture. They tell us what each of you require, and it is my opinion that when you get your record you do not have the full picture. We have elected in North Carolina, for reasons satisfactory to ourselves, to get the full picture in every respect. We get it because we want to find out if that man who has been injured receives the proper medical treatment immediately after his injury. We want that doctor, on a particular form, to say when he saw that man. If an infection sets in we want to know when it sets in. We do that to find out whether or not that doctor is going to treat that man 485 times, as in the case Brother Stewart referred to last night.

Another thing is wages. We want that manufacturer's full report. We want to know what that man's wages were, how long he has been employed, and whether he is a skilled or an unskilled laborer. And then we want the full report from the insurance company.

In my State the brunt of preventing an increase in insurance rates every time the man changes employment has fallen upon the industrial commission. We are suspicious that the insurance carriers desire

the adoption of the uniform forms because they can evade furnishing North Carolina all of the information that its insurance commissioners, its industrial board, and its rehabilitation department ought to have. As soon as we are convinced that these forms will give us a clear picture I do not think that we will have any objection to adopting them. The insurance adjusters and the insurance companies can cry from now on, so far as we are concerned, about the number of forms that we have, but until we are convinced that we are getting too much information (and I do not think you ever can have too much information on these cases) we are going to continue to require them to furnish the information that we now require them to furnish. We believe it is well for both the injured man and the man who pays the bill that this information be received.

Mr. PARKS (Massachusetts). I notice the chairman said nine States. Do you know which States those are? Do you have Massachusetts among them?

Chairman DEANS. No, sir.

Mr. PARKS. Massachusetts adopted the uniform blanks. Certainly we have no apologies to offer for having adopted them. I see no reason why we should object to something uniform so that each State with practically the same problem can be getting somewhat the same information. I have noticed in these discussions every year the intense feeling there seems to be toward insurance companies. I hold no brief for the insurance companies, but Massachusetts is an insurance State and we deal with representatives of insurance companies all the time. I have a feeling that they are playing the game squarely with us. The fact that they have suggested or helped to prepare these forms should not mean that the proposition is loaded. They are engaged in the same work we are engaged in. As was said last night by an insurance representative, there should be closer cooperation, and I agree with that. We should sit down and talk with them and not be looking for the dagger they might have concealed. They are human beings, just as we are. Personally, I enjoy working with the representatives of these companies; most of them are square shooters. I have never seen them come in without putting the cards on the table and scrapping it out. I do not find that on the claimant's side, nor on the side of the attorneys. They are generally the ones who are trying to put something over.

In discussing this matter of forms, I think we should not be looking upon some part with suspicion, feeling that somebody is trying to hide something or to keep some information away from us. I looked over those forms, and like anyone else, I can think of something that could be added or of something that should not be in the forms. You can never get all of the States of the United States to agree upon one kind of form. There may be a clause to be added or withdrawn.

I think in the interest of uniformity we ought all to adopt these. If any State feels that it cannot, that is its business. I have not heard any valid reasons why these forms should not be adopted, even by the gentleman from North Carolina.

Mr. DORSETT. We have been going along here with our own particular forms. What good reason is there to change except to save something for the insurance companies? I have no brief for insurance companies, either.

Chairman DEANS. The only reason, Mr. Dorsett, is as I explained to Major Allen, chairman of your board. He suggested to us that we adopt the North Carolina plan, which was based on Pennsylvania's plan. He agrees on the principle that we should have a uniformity of blanks, but it is a question whether we should adopt the North Carolina blanks or the blanks adopted by the group of industrial commissions.

Mr. PARKS. There are some blanks in that group that do not fit our State at all. For instance, instead of an agreement to continue compensation we have what we call a discontinuance plan. Of course, that is not uniform. I can tell you that it ought to be one of the uniform forms, but it would not fit the rest of the States. We continue using that form and are using the rest of these uniform blanks which are applicable to Massachusetts.

Something has been said about the insurance companies saving money. Of course, they can save money if they can have this uniform blank and send it out broadcast to every State instead of having 44 different kinds of forms printed for the different States. That is expensive.

I have in mind the State fund advocates. We have them in Massachusetts. There is a running fight going on in the State, and before a commission of which I happen to be a member. The State fund is advocated for the curtailment of compensation work cost. One of the big things in it is that the insurance companies receive so much money—so much for overhead, so much to run their end of it. One of the expenses, of course, is for printing. If we can lower that expense and have uniformity along with it, I cannot see what valid objection there is to it. I rather like the phraseology of some of those forms; they are very carefully worked out. If we could get a substantial number of States to adopt them, I think it would be a step in the right direction.

Mr. KJAER. Mr. Parks asked what States use them. I find that 10 are on the list, and Massachusetts, I am glad to say, makes 11. They are Alabama, Connecticut, Georgia, Iowa, Louisiana, Nebraska, New Hampshire, Tennessee, Virginia, Vermont, and Massachusetts.

Chairman DEANS. One gentleman asks for the privilege of discussing this without being on record. If nobody objects, I am going to permit it to be done.

[The discussion by Mr. R. M. Crater, of New York, which followed is omitted as requested by him.]

Chairman DEANS. What shall we do with this question which was referred to this group this morning, to be reported on at the full convention? I should like to have a motion from somebody. Would it not be well for someone to move that we endorse the uniform system and that we urge our fellow commissioners to adopt this plan?

Mr. PARKS. I make a motion that this body go on record as favoring the uniform forms and recommend to the general body their general adoption.

Mr. BAKER (Kansas). I second that motion. In doing so I imagine there is some desire to know the willingness of the various States to cooperate in this work. Personally, I have always had the opinion that if there was any creditable work that this organization could do it would be that of bringing about uniformity, as much as possible,

in these reports and forms. Kansas is not listed as among those which have adopted these uniform forms. The only reason for that is that we are having a special session sometime this fall. We thought we would have it earlier than this, and have tarried on the proposition for fear there might be some change in our law that might have some effect upon the proposition we are fighting for.

There are one or two little things that make it impossible for us to use one of those forms in our State. We have discussed that matter, and in order to facilitate the use of the uniform forms in our State, we provide a stamp to go across the bottom of the uniform form to answer a question which is peculiar to our own State's method. It is the only State in the Union with that peculiar proposition, which I will not bother to explain now. I do not think there is anything, outside of our coming together as we do here to educate ourselves and to exchange our views, that will really accomplish something worth while so much as continually to stress uniformity, in our laws as well as in these forms.

On the matter of expense of printing, which has been referred to, I imagine that probably is a small item compared with the facility with which these forms can be handled through the various adjusting offices. Our border States have sets of forms entirely different from ours, and yet they go through the same adjusting offices, which does cause some confusion and no doubt some expense.

Mr. WILLIAMS (Iowa). On behalf of Iowa, which was listed as having adopted the forms (which is perhaps not strictly true), I will say that as secretary of the Iowa Industrial Board I would not have come here except for this very question, for I am deeply interested in it. When our commission was organized some 20 years ago I helped to prepare the forms. All those forms had to be thrown away because of our experience. At the beginning of any State's activity, you want almost everything you can think of. As you go along you find out that the more questions you have the less information you get.

Mr. PARKS. Absolutely.

Mr. WILLIAMS. A simplification of this thing is the best thing that you can possibly get. Six years ago I commenced actively to revise all the old blanks. I have remodeled or thrown away every one in that time, all the while seeking simplicity and getting better results. I should be glad at least for this first accident report, because it is, as adopted, so like the one I have been using for years that you could hardly tell the difference. I prepared it and had our printer line it up for the typewriter, shortening it from a blank that was 37 inches long to one of letter size. That was 4 years ago. While we have not formally adopted it because the commissioner has been ill for some time, I know we are going to use it.

Mrs. TOUSANT (Massachusetts). I want to be recorded as agreeing heartily with what the last speaker has said. Whether it is used by the employer or by the employee, the easier and the quicker you get down to the real meat of the situation the easier it is for the commission to adjust and decide on the real facts. I wish the I.A.I.A.B.C. would go even farther and recommend uniform average weekly wage laws. I do not think there is any part of the report that causes so much trouble and heartache as the average weekly wage question. It is different in every single State. It is not so much the amount of

compensation payable as it is how you are to figure the average wage. Now that so many States and especially Massachusetts have extraterritorial jurisdiction, we find ourselves attempting to figure the average wage in other States. Some neighboring State gives an employee an opportunity to receive compensation in one State and then come back into Massachusetts because he will get a little more, and we have to credit him with the amount he received in the previous State.

With all those complications, I think the quicker we get down to the real meat of these things the better results we will have and the less work we will make for ourselves and for everybody else.

Mr. CRATER (New York). I think uniformity of legislation is probably the most desirable thing that can be worked for at this time. This question of the average weekly wage is one of the most troublesome things the employer has to contend with where he has employees crossing State lines. We have now the N.R.A.

Chairman DEANS. I have those subjects here to be discussed, Mr. Crater.

Mr. CRATER. I am not going to discuss that because that is one subject that I am frank to admit I know nothing about. I have no answer on that. If any of you have an answer on that I should like to hear it. But please remember, the employer is now back of the N.R.A., and he has been for a good many years back of the compensation laws. You have to make those two things check, and you can do it, it seems to me, by uniform legislation or by uniform application of certain rules that may be formulated by this group, and then referred to the various commissions and adopted by those commissions as they are given.

Chairman DEANS. It does my heart good to hear you people discuss the question of uniformity of legislation. Some of you were with me in Richmond when I made my annual address in which I pleaded for uniformity of legislation. Two or three months later I found criticisms in the insurance journals, saying it was an impossible thing to get. I am glad to find that some people here think as I have thought for several years.

If there is no further discussion, I will put the motion of Mr. Parks.

[The motion was carried. Mr. Dorsett asked that the record show that he voted "No," for the reason that North Carolina does not believe that the forms advocated will furnish the information it desires, and with no desire not to cooperate with the leaders of this association.]

Chairman DEANS. I am going to ask Mr. Kjaer to make a report to the general meeting on that subject. The next question we have for discussion is: "What kind of security shall be required of self-insurers?" In other words, the question involved is this: Our self-insurers make application to us to let them carry their own insurance in our State, and they then ask us what kind of bond we are going to require of them. Some of our larger companies feel as if they are larger than surety companies, larger than government, and that it is not necessary to put up those bonds. What is the practice in your particular States?

Mr. STANLEY. So far as we are concerned, it is more important that we all get together on this question than it is on these forms. We have been greatly embarrassed down there. We have one very strong, large manufacturing plant that has branches in five States of the Union. It applied for self-insurance and we said it was all right for the plant to give us a $5,000 bond. It went to Minnesota and applied for self-insurance in that State.

"Why, certainly, that is all right", they said.

"What about the bond?"

"You don't have to put up a bond."

Here we were, requiring a Georgia concern to give a bond with us, while in Minnesota they say that concern is amply able to pay all premiums and no bond is required. I think if we can all get together on some kind of uniform system covering this matter it would save us all time.

Mrs. TOUSANT. In the State of Massachusetts that whole business is controlled by the insurance commissioner, and the industrial accident board has no authority.

Mr. DORSETT. We have no self-insurance, but there is a surety.

Mrs. TOUSANT. There is a surety for so-called self-insurance. The concerns band together for that purpose. Those securities are controlled by the insurance commissioner.

Mr. DORSETT. By vote of the other members of the commission, as a representative of the employers' group on the commission I attend to that end of the business in our commission. We require from every company doing business in our State, regardless of its financial status, a minimum bond of $10,000, and that bond must be secured by United States Government bonds, State of North Carolina bonds, or bonds of a surety company. We have had some 11 insurance companies cease paying compensation claims during this depression we have been going through, and not a single one of our self-insurers has defaulted for one 7-day period. We are proud of our record as compared with the record of the casualty companies doing business in our State.

Mr. PARKS. Do you know how many States have legalized self-insurance?

Chairman DEANS. I was under the impression that practically every State in the Union had it.

Mr. CRATER. I can answer that in a way. For instance, Massachusetts, Connecticut, Washington, and Wyoming have none, also South Dakota and one or two of the southwestern States. Texas, for instance, has no self-insurance. There are very few of the States which now prohibit self-insurance. There are several of the States that do not do a public-insurance business; that is, you either have the option, as for instance in Ohio, of self-insurance or the State fund.

Chairman DEANS. I should like to ask Mr. Dorsett this question: Do you permit any insurance surety companies on these bonds?

Mr. DORSETT. Yes; we take a surety bond. We ask that self-insurers deposit the minimum bond. That is to prevent the little man from saying that we have discriminated against him. We had this up with one of our employers the other day, who did not want to post any bond.

Chairman DEANS. He does it in Virginia, I promise you. Is there any other State?

Mr. SNOUFFER (Indiana). In Indiana there is a statutory provision whereby the chairman of the Indiana Industrial Board may use his judgment in granting permission for self-insurance. He does that, and as the gentleman over there said, many times he finds that he gets better results than he could with the insurance companies. The gentleman said 11 had failed in his State (North Carolina). I believe we could treble that, without exaggeration, in Indiana. We have had but three or four self-carriers in the past 6 months or a year who have failed to pay their compensation when it was due. We have peculiar laws in Indiana, both for insurance companies doing business in the State and for Indiana corporations and foreign corporations. The foreign company that comes into our State may get permission, such as the gentleman said his company was granted in Minnesota, but first it must comply with the laws regarding the admission of foreign corporations to do business in the State of Indiana. Then it must furnish to the industrial commission a certified copy of the certificate that is issued to it by the secretary of state of Indiana. If that is satisfactory, then Indiana will, on the judgment of the chairman of the industrial board, grant any foreign or domestic corporation the privilege of carrying its own compensation insurance in the State of Indiana.

Chairman DEANS. What is required in your States as to a bond to be deposited by insurance companies? Let us have your experience first, Mr. Stanley.

Mr. STANLEY. Georgia now requires a bond of $50,000. Unfortunately, that law does not go into effect until next year. The insurance commissioner, by order, put it into effect immediately, feeling, however, that if the insurance company objected he could not enforce it. One or two of the larger insurance companies put up the $50,000 bond. Then the depression came along and the rest have not done so. Most of them, however, have given the $50,000 bond, and the other companies are putting up cash or rather liquid securities. We have lost a great deal of money by not having a bond. Five or six insurance companies, as you know, failed only recently. There has been quite a loss in one company, which, of course, went back on the employer. We call upon the employers to pay the compensation where insurance companies have failed, but in many instances the employer has also failed, so it is a complete loss to the poor fellows who were hurt.

What we are most proud of down in Georgia is the fact that we got a law through which provides that if an insurance carrier writes a risk on any person, if the employer pays the premium, he must pay the compensation.

Mr. DORSETT. In North Carolina, we formerly permitted insurance carriers to come in and write $6,000,000 worth of insurance and did not require anything from them. Now, by act of the last legislature, we require a minimum bond of $50,000. To date that law has made 23 companies withdraw from the State, which we think was a good riddance.

Mr. STANLEY. This bond is required only of insurance companies, not of self-insurers. With us our very large employers are self-insurers and they have given us absolutely no trouble at all. Of

course we have had the $100 medical limit in the act. One large self-insurer paid out in medical costs more than $20,000, when it was required to pay only $100. I also want to state that Mr. Crater's company paid out $9,000 in one case. Our self-insurers give us no trouble; we move along nicely with them.

Chairman DEANS. Here is another question given to me. "Should insurance carriers be required by law to write any risk making application for compensation insurance?" This is a very important question.

Mr. JONES. That has been quite a problem in Georgia for some time. We have one particular class of risk which is more or less typical in the South, and we have had a good deal of trouble with it. I understand that the coal miners in other States with the same kind of risk give a good deal of trouble. We have a voluntary agreement on the part of these insurance carriers now that where a risk is turned down the company will be assigned to it. It works rather slowly and not particularly satisfactory, but it is better than nothing. I should like to know what some of the other States have done about that.

Chairman DEANS. You work that through your rating bureau, don't you?

Mr. JONES. Yes.

Chairman DEANS. That is the system we work under in Virginia. We will take up the next question: "Should our association take any part in rate making for compensation insurance?"

Mr. DORSETT. That is my question. We are fighting this in North Carolina, and have been for 4 years. The only things that have gone up in price in North Carolina have been insurance rates and postage stamps; everything else has gone down. The insurance carriers have come into our State on three different occasions and said, "We want those rates boosted." The Governor of our State for some reason, and the large employers throughout our State, came to the members of the industrial commission (although we have no jurisdiction over insurance rates at all) and said, "We have confidence in you." They asked us to fight off a 27 percent increase in compensation insurance rates when the record clearly showed that the insurance carriers were not entitled to one nickel. We have the record of one of the witnesses in the public hearing, who was sent down by one of the big mutuals. This man lives in Chicago, and represents all the mutuals. We took a long shot and put him on the witness stand and asked him: "Do the mutuals request an increase in rates in North Carolina?" He was honest enough to say no, and that the carriers were making money. Yet those stock companies (and the mutuals joined them) wanted to tax industry in my State 27 percent in order to make up for losses they had sustained in playing the stock market or buying bonds or doing something that insurance companies should not have been doing.

That is the reason that subject is so close to my heart. These insurance companies wanted to put a tax of more than three quarters of a million dollars on industry in my State when the records showed beyond any dispute that they were not entitled to a nickel. We made it uncomfortable, threatening to go to the highest court, and held off

that increase for more than 12 months. We were suspicious that things were being held in abeyance until our legislature could adjourn, so we had a friend of the commission introduce a resolution to force the issue. Our insurance commissioner, instead of allowing them 27 percent, said, "I will allow you 7.2", and that is all they were entitled to.

I think it is as much the duty of the industrial commission to watch insurance rates as it is to watch the cost of the doctor. Permit them to continue to raise the rates and, as Brother Stewart said many times, the undertow is going to get you, and it ought to get you. I hope I am making myself understood. I have no brief for the insurance companies; I am not fighting them because I have an ax to grind, but because I want them to put their cards on the table face up. If they are entitled to an increase I will be the first man to advocate it, but I want all the cards on the table. We required certain figures. Ours agreed so nearly and so closely with the figures of the rating bureau that they stopped furnishing us with that information. Can you blame us for being suspicious when they said, "We will withhold certain information from you as we don't think you have any business having it."

The workmen's compensation law is a humanitarian piece of legislation; it ought to be encouraged; it should never be allowed to go backward in the least; and we think that the industrial commissioners throughout the country should do what our casualty companies are doing. We ought to organize to prevent increases in rates when they are not justified. I have heard of no insurance companies reducing their rates; they always go up. If we let them continue to go up, industry in my State will rebel, and I think it will be justified in doing so.

Mr. BAKER. I should like to ask a question, and I do so because I do not profess to know anything at all about the insurance proposition. We do not have jurisdiction over insurance companies in our State on matters of rate making, but only in the administration of the compensation law. In the remarks by the gentleman, he has seemingly made a difference between the mutual and the stock companies in the request for an increase in rates. I wondered if there is any fair comparison between the mutuals, generally speaking, and the stock companies.

Mr. DORSETT. In what respect?

Mr. BAKER. In the matter of rates. You stated that the mutual companies' record showed that they were not entitled to an increase in rates. Is it or is it not a fact that the mutuals concentrate on the selected risks?

Mr. DORSETT. Of course, under the law, employers must pay the same rate to either the stock company or the mutual. The mutuals, however, return part of the premium. I do not want to be misunderstood about the mutual and stock company question—I have no choice between those companies. There is no difference in the risk between mutual and stock companies; no comparison or discrimination is shown under our laws. We merely asked this man because we figured he was shooting square with us. We wanted to find out why the mutuals were asking for an increase when the record showed they were really not entitled to it. He said they were making money on it.

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Mr. BAKER. The question is raised as to whether there is a fair comparison between the two types.

Mr. DORSETT. Yes; for this reason. We have some provisions in the law requiring that, if the insurance company says it will not take a certain risk, the employer goes to the insurance commissioner, who assigns some company to write it.

Mr. BAKER. The mutuals cannot discard the lemons?

Mr. DORSETT. They must take the lemons as well as the oranges.

Mr. PARKS. I think the gentleman from North Carolina has the same system that we have in Massachusetts. The industrial accident board does not fix the rate. The rate-making bureau is in the office of the insurance commissioner. It is being agitated now, and is before the commission that is considering the question, that the industrial accident board should fix the rates. I am not sure whether it should or not. I can see a difficulty in doing that. It is the industrial accident board that makes the award and decides the case and then asks our insurance companies to pay out the money. It could be extra liberal in its awards, so much so that either the insurance companies or the employers might criticize it. They could use that as an argument to the industrial accident board if it should have the fixing of rates. They could say, "You have been pretty liberal this past year. Mr. So-and-so was given an award in a case where there shouldn't have been a nickel awarded. Mr. So-and-so did this and that. The awards have generally been pretty liberal. Of course we have no objection to that so long as you fix the rate so that we can pay these liberal claims which you are continually allowing."

I am wondering if that is the best situation to have. Personally I feel that it is nice to be able to say, when the employer kicks about the rates, "Well, we are sorry but we have nothing to do with that; that is done by the rating bureau. All we have to do is to judge the facts in the case and make out our award."

I think that rather keeps one apart from the other, and it cannot be used against us. My mind is open on that; but I think that the other system, while it may be open to criticism, is better than the industrial accident board itself fixing the rates.

Mr. DORSETT. I do not want to be misunderstood. I do not think that the industrial commission in North Carolina should make the rates. I think that we should be able to protect industry in our State against excessive rates; but we have to keep sufficient records to enable us to advise industry in that State, as well as the insurance companies, that we think the rates are unjustified when they are unjustified.

Chairman DEANS. Mr. Dorsett, your answer is on the very thing I am after. Why should you not fix the rates, or why should you not have that authority?

Mr. DORSETT. I agree with Mr. Parks. I think there would be a situation that would not be altogether wholesome if you pass upon the claim and issue judgment, and then make the rate. I would not advocate in our legislature that it give us rate-making authority.

Chairman DEANS. Why should you not have control of compensation insurance in all of its phases?

Mr. DORSETT. The industrial commission should not make the rates. The National Council in New York can make them. I think an independent body, the commission regulating utilities, should make the rates.

Chairman DEANS. You feel that those bodies should use you in an advisory capacity for the purpose of informing them about rates?

Mr. DORSETT. I think we should be ready to furnish industry with information in order to prevent excessive rates. That is the position I take.

Chairman DEANS. Here is another question: "Extent of loss to claimants by failure of stock and mutual companies?"

Miss YERION (New York). I asked that. I wanted information. I represent the Commonwealth Fund of New York City, which has been investigating the workmen's compensation problem for 3 or 4 years and is very much interested in determining the extent of loss to claimants by failure of stock, private, and mutual companies in this country. It seems to me that the last 3 years have furnished the acid test for the insurance system in this country. I am here in the midst of experts. Where stock and mutual companies compete for business, I should like to know how many of them have failed, and I should also like to know if you have any information on the extent of such losses to claimants. I know the gentleman from North Carolina said that 11 insurance companies failed in his jurisdiction. The gentleman from Georgia said there were 5 or 6 in his. If anyone else has such information I should be very happy to get it.

Chairman DEANS. I judge that information is available. You can get it from every State. The place to get it from really is the bureaus in New York City, by making your inquiry there. I thought your question covered the question of what would be the final outcome of the claimant's claim for compensation should one of these companies fail. You didn't intend it to cover that at all?

Miss YERION. No.

Chairman DEANS. Your idea was to find out to what extent the companies have failed?

Miss YERION. Yes.

Chairman DEANS. I think you can get that information.

Miss YERION. We do have some difficulty, in making inquiries, in getting that information from several organizations. Occasionally we find reference to failure of companies in certain States. For instance, in the State of Kansas the last annual report referred to the failure of 3 or 4 companies, but writing to the State of Kansas elicited no information. That is a question I should like to have answered from the States.

Mrs. TOUSANT. In Massachusetts we have had a number of companies, probably 11 or 12, either withdraw from business or fail. According to our laws, the commissioner of insurance requires a deposit to be made at the time they fail, which covers the liability then as well as the potential liability—all liabilities to be incurred. That means that our board, at the time the company either withdraws from business or fails, figures out what the liability already is and what the liability to be incurred is; in other words, we put an estimate

on every case. It has been our practice to assign those cases to a commissioner who takes full charge of all cases where a company has either withdrawn or failed. That commissioner must send out notices on every injury ever reported. A notice is sent to come in and, if the injured man has a claim, to present it. Otherwise, we shall take it to mean an admission that the disability has ended and there is no further disability. The amount of money which we figure is deposited in a trust fund in a bank and is to be withdrawn upon our order. We order the bank each week to pay the open cases. As the cases are heard and disposed of we continue to give such orders until all of the cases are closed. We still have money in the trust fund that has not been returned and we are holding it for a period to decide whether or not there are any more claims which might arise that we knew nothing about. That money eventually will be turned back to the insurer. These claims act as preferred claims over all other claims.

The one situation which we are confronted with now is that of the Union Indemnity Co., which took over the New York Indemnity. The New York Indemnity as well as the Union did business in Massachusetts for a number of years. I personally have had 900 hearings, if you want to call them hearings, on Union Indemnity cases so far. We have deposited in the State treasurer's office $150,000 in Louisiana bonds, and if there is a representative from Louisiana here I can assure him that he can get a good deal if he will confer with Commissioner Parks or myself. We have not as yet sold the Louisiana bonds. There has been no payment under the Union Indemnity policy in the Union Indemnity cases. Just what our situation is I do not know, and I do not believe Mr. Parks or anyone else knows. Possibly the N.R.A. is going to help us out. We hope Louisiana will come back. We are in no position to say that anyone has lost 1 cent yet. In all other cases we have been able to require a deposit sufficient to meet all liabilities.

Mr. Parks suggested I explain the procedure. When the company goes into the receiver's hands or withdraws from business, we figure the estimated liability, as I have said, and make a demand, one fourth of which has to be paid within 5 days and the balance within 30 days. If not, we bring suit. All of the companies, with one or two exceptions, have made the payments. We haven't had much trouble in getting that done. Those companies already have a bond filed with the commissioner of insurance, which is another security. In dealing with the foreign insurance companies we have to make that demand. As I said, the Union Indemnity Co. had a bond deposited with the insurance commission. We have nothing to say about the deposit of a bond at the time the license is given. The Union Indemnity had deposited with the insurance commissioner this $150,000 in Louisiana bonds. When we made our demand upon the Union Indemnity it had no funds. Therefore we took this $150,000 in Louisiana bonds as our next grab, so to speak, the only security we had. In all other cases they have met the demand and deposited their bonds as required.

Mr. HORNER (Pennsylvania). I am the Harrisburg representative of the Pennsylvania Self-Insuring Association, and it may be of interest to the members of this association to know that during the year 1932 there was not a single default in compensation payments on the

part of self-insurers in Pennsylvania. Every employer who cooperated with the Self-Insuring Association during 1932 made application for renewal during the year 1933. There were during the year 1933 a number of insurance companies that failed in Pennsylvania, and of course there was defaulting in compensation. The State of Pennsylvania is trying to work that out now.

Chairman DEANS. Here are two questions: "Should the law be interpreted strictly in industrial diseases as to the date of the injury?" The other one brings up the question of occupational diseases and the date of injury in such cases. Two of you have the same question up. Will anyone claim one of those?

Mrs. TOUSANT. I asked the question. We have in Massachusetts no law allowing compensation for an industrial disease, but as a good many of you know, we get around that by finding, as in pneumoconiosis and silicosis, that the infiltration of stone dust into the lungs causes an injury to the lungs and this injury results in pneumoconiosis. Upon that basis we can give compensation and the supreme court has upheld us. The supreme court has said that we must find that the injury under those circumstances occurred at the time the employee was obliged to give up work. That is all well and good. Last night I think Brother Stewart said that it was practically an industrial disease if they had it and it was fatal. The question that is in my mind is on these cases where an employee has worked for 10 or 15 years in an industrial occupation. He continues to work as best he can. The shop closes down, or the employer might have an examination of all the employees and this man is found to have a certain amount of dust in his lungs and he is laid off, or else he is on a vacation and finds that he is unable to go back to work. As a matter of fact, he has never given up work. He does not pick up his tools and go home and say, "I am unable to work." He is either laid off or is unable to go back when there is work for him. There is no question but that he has dust in his lungs.

We find ourselves with extraterritorial jurisdiction so that a man may claim an injury in our State or in some other State, wherever the accident may have happened. I should like to have an expression of some of the other members, providing they have industrial diseases under the law as we have in Massachusetts.

Mr. STANLEY. Our law does not cover occupational diseases. The insurance carriers, however, recently made an application to the insurance commissioner to permit them to insure employers in Georgia against occupational diseases. He granted the request with the proviso that they should make no possible effort to require the employers to accept that coverage; that the business should be kept separate from their general business and reported separately. They immediately prepared forms for bringing occupational diseases under the Georgia workmen's compensation law in cases where the employers wanted it. Of course, we had to approve the forms, and we saw no possible objection to approving them after the insurance commissioner had permitted them to come under that. They presented another form that included occupational diseases. We took the position that occupational diseases, not coming under the act, should not be included in the form, that their inclusion of them was foolish, and we declined to approve that form. The insurance commissioner said

we were right about it. It looked to us as if it were possibly a little bit in the form of coercion. They might say, "All right, if you won't let us cover your occupational diseases we will get the form to include them and you may have a lawsuit on your hands."

That is the situation with us. I do not know how it is going to work out. We do not have very many such cases. Where a man has an occupational disease and has an injury which aggravates it, we give him compensation on that injury. That is the only time he could get compensation under that situation.

Mrs. TOUSANT. The situation in Massachusetts is really so serious that the legislature appointed a special commission. The chairman of our board is a member of that commission. We had a rather interesting discussion. A stove concern there proceeded to have another coverage. They had an examination and quite a group of men were laid off because they had silicosis. The question is whether or not they have an injury. They have never quit work—they were simply laid off because of that condition. I think Mr. Parks might give us some interesting information on that point.

Mr. PARKS. Occupational disease is a very, very serious problem in Massachusetts. In addition to this foundry situation in Camden, the granite-cutting industry in Massachusetts, with the exception of 1 or 2 employers, is without insurance. It is because Massachusetts is an insurance State. These employers can come under the compensation act only by insuring in a recognized stock or mutual company; there is no legalized self-insurance. The insurance companies have refused to insure the granite cutters on account of the numerous applications for compensation for pneumoconiosis. That is the way it works out. During the depression, which struck Massachusetts as well as every other State in the United States (we are getting along fairly well now, as well as anybody can expect), men were laid off because of lack of work. Immediately they would see the lawyer, who referred them to a doctor, an expert on tuberculosis. He had them X-rayed and found dust in their lungs. The claim was made, and most of the time they received compensation. That became so expensive that the regular insurance companies dropped them, and then another company thought it would take a chance, but it had to get from under because it was pretty near broke as the result of the claims. Now, with the exception of just a few (I do not think there are more than 2 or 3), the granite cutters in Massachusetts are without insurance. Of course, that is serious. We are confronted with the problem of 42 who have made claims for compensation on account of being discharged.

Three representatives of those 42 appeared before the commission that Mrs. Tousant has spoken about. I spoke to one after the other. I personally asked one man, "How tall are you?"

"Six feet one inch."

"How heavy are you?"

"One hundred and eighty-five pounds."

I do not know anyone here who is more healthy looking than that fellow. The particular man I referred to was the chairman of the delegation. He had been told that he had silicosis. He was very emphatic in denying that anything was wrong with him. He wanted to go back to work. Those fellows were discharged; and they cannot get work in that city. That is where their homes are, that is where

their wives and children are, and they are branded. It is a very serious situation. It has been brought about by these avalanches of silicosis claims and the fear of possible silicosis claims. What to do about it is a problem. The legislature thought it should be referred to this special commission. We are having hearings on it now, the next one to be held about October 1.

If there is anyone here who has a situation like that in his State, I wish he would let us know. With all due respect to Mr. Stewart, it is not just as represented or what he thinks it is. Just because a man has dust in his lungs it is not necessarily fatal. It is not. I recall one case in the city of Worcester, a fatal case. The claim made for the man was that he had a fractured skull. He fell down and hurt his head, and was receiving compensation on the allegation that he had a fractured skull. He died while receiving compensation. I heard his widow's case. An autopsy was performed, at which time the examining doctor found pneumoconiosis. His lungs were full of dust. He was a man 66 years of age. Up to the time of his death, outside of the injury to his head, he was in perfect health, and nobody ever heard of his having pneumoconiosis. It was there only incidentally. Nobody claimed that he died of pneumoconiosis. He died from natural causes—his heart, arteriosclerosis, or something. Incidentally, they found out that he had never had a fractured skull.

My own feeling about having dust in the lungs per se is that it does not mean that the man is disabled nor that he received an injury. It has to be an accumulation of dust in the lungs which prevents him from working and which finally causes his death. It may be that you do not have that situation in any other State, but, as Mrs. Tousant well said, it is a live subject in our State, and if we can get help on it we should like to have it.

Chairman DEANS. Are there any States that include occupational diseases and can throw any light on this subject?

Mr. CRATER. I feel that the subject that is now before this group is another example of the reason for uniformity of legislation. I think this group could be a very potent factor in stimulating interest of the legislatures along the lines which would provide compensation to a man who may be injured while in his occupation, in the way Mr. Parks has pointed out. However, this occupational-disease question is much broader than the question of silicosis. I am wondering if that is not just one of the outcomes of the depression. We have had a good many of them.

While I have followed compensation cases for a great many years, it is only recently that silicosis has been at all prominent in our compensation. We have been running through a cycle of occupational diseases. We have all kinds of deformities caused by disease. If industry is to pay compensation for such diseases as that (and I think they are diseases rather than accidental injuries, in the broad general classification), there should be some uniformity in legislation and some policy adopted which will at least require the employer to compensate uniformly. We handle many of those cases as sickness. In our business we are trying to get the employee back to work. That is what we want to do. If a man becomes sick in our employment he is handled as a sickness case, because it makes little difference to us whether the condition is treated as being due to an injury or simply to

the development of a condition which has accumulated over a period of years.

Silicosis is not a chronic disease, as I understand it. In other words, it does not have many progressive conditions as I understand a chronic disease does. Consequently, if you attempt to say that a person who, over a period of years in this employment, has accumulated sufficient dust in his lungs to incapacitate him, is entitled to compensation on the date he leaves the employment, it seems to me that you are stretching the occupational-disease provision or at least the permanent injury by reason of the accident provision of the compensation law to the extreme. I do not know just where you can draw the line. I wonder where we are going to stop with that type of interpretation.

Very frankly, I am not arguing the question as to whether industry should or should not compensate for a particular type of disability or disability due to that particular injury. It is an injury, but whether that is an injury for which the last employer should be required to compensate when, because of the depression, he is required to lay off the employee, is a very serious question in my mind.

Chairman DEANS. There are two more questions. "Should wage basis for compensation benefits be calculated on full time or actual time worked?" The next one merely states, "Average weekly wage." I presume that the one asking the last question is practically asking the same thing the first questioner did. Will somebody tell us what you are doing as to the basis of your compensation in your State under these conditions?

Mr. DORSETT. What we do is base the compensation on actual earnings. That is only fair to the insurance company; we do not see how we can do otherwise. The insurance company collects the premium based upon the earnings that the manufacturer pays the man. Our law says you must go over a period of 12 months, clearing out the lost days—7 consecutive days. If he has not worked that long, if he has worked only 2 months, and the pay roll that goes to the insurance company is based upon $10 a week, we do not believe that under our law we can award compensation except on 60 percent of what he actually earned during that period of time. Certainly it would not be fair for us to ask the insurance company carrying the risk to pay compensation on a larger wage than the man actually received from the employer, or upon which his premium has been based.

Mr. PARKS. Do I understand you to say that you do not count lost time unless he has lost 7 consecutive days?

Mr. DORSETT. That is correct. In other words, if he works a week, then loses a week, and then goes back, he is given credit for the week he lays off or a week of lost time.

Mr. PARKS. Suppose he loses 3 days. That would not be lost, would it?

Mr. DORSETT. No.

Dr. BRICKER (Pennsylvania). I suppose those from Pennsylvania know more about this than I do. At any rate in Pennsylvania it is quite a controversial point, especially in the rapid-transit district. For the last several years the men have been working a little less than 3 days a week. Computing the compensation paid those men, they

were invariably, when injured, receiving more money than they received while at work under those conditions. Recently the Supreme Court of Pennsylvania handed down a decision. We are now working under the system of paying them for the actual time employed. There are many industries in Pennsylvania that are staggering their employment. Instead of a man working a full 6 days a week, he works 3, and some other unfortunate fellow is allowed to work 3 so he can receive some wages. It is decidedly unfair to pay any injured employee on the supposition that if he had not been injured he would have been able to work 6 days a week. They take the 3 days over a period. He may work a full week at any time over the 6-month period, and he gets the advantage of that.

Mr. PARKS. And you do not call that 3 days lost time?

Mr. STEWART (Washington, D.C.). Was it a judge's decision or a supreme court decision?

Dr. BRICKER. I am sorry. I said that was the supreme court. They are supposed to take it there. The lower courts have decided that the man should be paid compensation on his time worked, not on the days that he could have worked if there had been work there.

Mr. STEWART. Is that judge paid for his cases or for his days when the court is not in session?

Dr. BRICKER. I do not know. That has been the decision in Pennsylvania. We are working on that plan at present, awaiting some further decision.

Mr. PARKS. We have that staggered system in Massachusetts. The men work for 3 days and lay off 3 days. They go along for 6 months or perhaps longer than that. If a man is working at $3 a day we call this 3 days' lay-off lost time. If he is working 6 days a week it would be $18, and he would get two thirds of $18, which would be $12. He is getting only $9 for working, so he gets $12 for loafing. That is the way it works out. One of the last decisions rendered was rendered not by a judge but by myself. I had a case the day before I left the statehouse in Boston. A State employee was working just that way, 3 days a week. I calculated his wages at $9 a week. I could quote no law except a rule of the board, which had decided to adopt some sort of rule on staggered employment. We might get some law. We either have to do that or give him $18 a week, which would have entitled him to $12 a week. As a matter of fact, he was getting only $9 a week when he worked. The depression brought about some difficult problems. I think the question of average wage in a time like this has to be decided as a question of expedience rather than law.

Chairman DEANS. We have three more questions here: "Presentation of evidence in contested cases, particularly medical." Wasn't that your question, Mr. Parks?

Mr. PARKS. Yes. On the question of presentation of medical evidence in contested cases, again I find that we may have a little different system in our State from that which you have over here. On contested cases we have a hearing; the witnesses are sworn, and a single commissioner sits on the case. We may have 14 or 15 witnesses. We may have 4 doctors on one side and 4 on the other, all honest men, presumably. They come in and go through for their respective sides.

I say they "go through" advisedly. The attorneys have brought them there for that purpose. The lawyer does not bring a man in unless he knows that he is going to testify for his side. There is a good lawyer generally on the insurance side anyhow. We are finding that there are pretty good lawyers on the employee's side now and then. They proceed to cross-examine and re-cross-examine these various witnesses, and sometimes the case goes on for 4 or 5 days. It takes a tremendous lot of time to hear these witnesses.

I had a case that I should like to talk about. It is the case that I rendered the decision on as to the average weekly wage. That was one of the questions. The parties came in and agreed upon a statement of facts. The assistant attorney general represented the Commonwealth in this case. The employee's attorney presented various letters from doctors—the opinions of doctors in writing—2 or 3. The insurance company and the State also presented 2 or 3. They agreed to do that. They also agreed that I might, if I was puzzled after the presentation of medical evidence in that way, have an impartial examination. They would allow that to go into the evidence without any further hearing. The whole proceeding of that case did not take more than 15 minutes—I do not think it took that long. I had plenty of evidence. I took those records—the medical evidence of those doctors in writing—without being confused with cross-examinations, and it was comparatively easy for me to decide that case on the question of disability because I was not mixed up by the attorneys on both sides arguing. You know how it is. The doctor comes in and testifies. You think, "Well, I know what he is saying anyway." Then another lawyer goes at him and makes him take it all back again. Then the first fellow comes back again. Thus they go back and forth, and when they are all through you have the man saying yes and no. I do not know what they have said. We should have some simplification of that procedure.

I have suggested that plan to our Massachusetts Medical Society and it has agreed to it. Outside of some who have become compensation doctors and who like to come and testify because they get a good fee for it, doctors are unwilling to take up so much of their time. The bigger men in the profession want to help the board decide these cases, but they say, "It takes up such a large amount of our time that we have avoided treating outside cases because we are asked to come in and testify afterward if the case is contested. It takes up too much of our time. All you give us is $10 or $15 for coming in, and it doesn't pay. If you would only let us file a statement of what we consider the case to be, and have it in affidavit form if you wish, and let us present that to you, we would be delighted to treat these cases."

If you could simplify that procedure you could save a lot of work and a lot of time of the commissioners in hearing cases, and you could get doctors to treat the man when he is injured and give him proper medical attention in the first instance. Then they would know that they would not be called upon to come back and spend a whole day in a crowded hearing for a small stipend. I want to pass that suggestion along. Maybe some other States have that system.

Mr. DORSETT. The only thing that impresses me in Mr. Parks' statement was his reference to the doctors waiting a whole day. That used to be the custom in my State under the old common law.

The hearings used to last for days or a week, but today compensation hearings in my State do not last even a day. I leave for the western section of the State, which is a 2-weeks trip, with 90 cases, and I hear them in 12 days. When the man comes in there we do not ask him where he lives, how many babies he has, how many times he has been married, and so on, because we do not think it has anything to do with how he got hurt in the course of his employment. We make him admit all those things and then get down to the meat of the coconut. About the doctors, we do not have any doctors in North Carolina dodging compensation cases. We find that they are glad to get them. The very best in our medical profession are delighted when we refer cases to them. If there is a division of opinion, which we find in almost every case, if the commissioner is at a loss to know just what the truth is we have our medical department go over the evidence with us. Then, if we are not satisfied, we go to some disinterested, able man and talk with him and make our decision. Then if a cross-examination is desired, we give that opportunity.

Mr. PARKS. Do you follow the rules of evidence at all?

Mr. DORSETT. No, sir; we do not. We do not ask a lot of foolish questions. We do not allow a lot of technicalities to prevent us from finding out the truth. We do not follow, strictly speaking, the technical rules of evidence. I do not know that we would ever learn the truth if we did. Our supreme court has supported us in that. It allows us to have competent evidence upon which to base our decision.

Mr. PARKS. Do you allow letters from doctors to be admitted in evidence?

Mr. DORSETT. If counsel on each side are agreed on it, we do.

Mr. PARKS. We allow that.

Mr. DORSETT. The feeling in our State is that the compensation board is representing the injured man too well if he does not have a lawyer. We permit an agreed statement of facts from the doctors, if the statement is clear enough for us to see what they are driving at. If it is not, we issue a subpena and bring the fellow in. Since our able chairman put one in jail we have no trouble in getting them to come in.

Mr. PARKS. We have the same system. I do not think it is any different from yours.

Chairman DEANS. Here is another question: "Should State laws be suspended when in conflict with the N.R.A.?" Who asked that question? Let's have an answer from him first.

Mr. SNOUFFER. I asked that. In Indiana the industrial board has control over hours of service. We are not confined to industrial board hearings alone. Factory inspection, boiler inspection, women's and children's work all come under the industrial board. I happen to be chairman of the industrial board, and I find that in many instances our employers are asking us to suspend our State laws because the N.R.A. has made different provisions. Since I wrote that question, after hearing the discussion, I understand that many States do not have control over the hours of service of the employees. We have a law in our State that prohibits the employment of females after the hour of 10 o'clock at night and before the hour of 6 o'clock in the morning. The N.R.A. comes in and advocates (and the employers

have tried to follow it) putting on 3 and sometimes 4 shifts of employees. The employers write to us and want us to give them permission to work these girls and women from 10 to 12 o'clock. If they are working four shifts, they cannot work the women on the last shift that late, and they want us to give them permission to do so; but we are not strong enough to suspend the laws of the legislature.

My way of doing it is to refer them to the attorney general. If he wants to suspend that law, all well and good. I do not believe that I have the authority to do it myself. I thought that might apply in some other States and I wanted to get an idea about what they are doing on it. I find that very few States have as complicated a system under the industrial board as we have in Indiana.

Mr. STEWART. The problem seems to be confined, from this gentleman's statement, to a question of hours. His problem is presented to other States in a different form. There is the problem of the minimum wage. New York, for instance, has just finished an investigation of the laundry business. It established a minimum wage. No matter what it is—let's say it is $30 a week, the N.R.A. says it should be $31. Or, put it the other way, the State says it is $31 and the N.R.A. says it is $30.

Can the State of New York enforce a law which is in contradiction to a Federal law? That question is going to arise in quite a number of States, and not only on the question of hours. You have presented particularly the question of hours of labor for women. This movement to prevent women from working on a night shift, which has gone over the country and is in effect in a number of States, is going to run up very seriously against the N.R.A. with its 3 and 4 shifts. After all, it is a question of what the specific motive behind the movement against night labor for women was. For instance, in the city of Chicago, women working in such places as way out here on the West Side after 10 o'clock at night, or even earlier than that, come out of those places and go home at all hours of the night. It was not a question so much of the hours of labor as it was the safety of those women and girls on the street.

Chairman DEANS. We might take up that question in line with the second question: "What can be done to harmonize Federal and State laws?" Does anyone wish to discuss those two questions?

Mr. PARKS. I think one of the things that these representatives are looking for is some light from other States that might have the same situation. I think the gentleman from Indiana is seeking that light. I do not believe he is looking for the merits or demerits of the thing. Has any other State done anything about it?

In Massachusetts, something has been done along this line. We had what we called an overtime bill. Women and minors in the textile factories were not permitted to work between the hours of 6 p.m. in the evening and 6 a.m. in the morning. When I was a labor agitator and a member of the legislature I was very strongly in favor of that bill. It was one of the political footballs in our State. Then the N.R.A. came along. It was argued that this law, being already on the books, interfered with the proper application of the N.R.A. So organized labor—a branch of the American Federation of Labor—joined hands with the employers of labor and with the

Governor of the Commonwealth. The Governor sent a special message advocating the suspension of that law. With the approval of all the contending parties, the bill was adopted, and the overtime bill in Massachusetts has been suspended in deference to the N.R.A.

Mr. SNOUFFER. That is what I wanted to get, just an idea as to what others are doing. The question has been decided by our attorney general because we did not want to take the responsibility for it.

Chairman DEANS. One of our members made the suggestion that a resolution should be drawn calling for the appointment of a committee to prepare a uniform average weekly wage law. I would suggest to that member that he take that question up with the committee dealing with the uniformity of laws. of which Mr. Abel Klaw is chairman.

[Meeting adjourned.]

Chairman, Charles A. Nowak, vice president I.A.I.A.B.C.

[Telegrams of greetings and good wishes from R. B. Morley, general manager of the Industrial Accident Prevention Associations in Toronto, and Will J. French, member of the Industrial Accident Commission of California, were read by Secretary-Treasurer Baldwin.]

Chairman NOWAK. This afternoon's discussion appears to me to be of a good deal of moment, particularly since I have talked to Dr. Leland, who is going to talk on the first subject: The Insurance Principle in the Practice of Medicine. The Doctor will discuss this matter from an entirely new angle, and for that reason I think it will be of special interest to all of us. Dr. Leland is the representative of the American Medical Association and its Bureau of Medical Economics.

The Insurance Principle in the Practice of Medicine

By R. G. LELAND, M.D., *Director Bureau of Medical Economics, American Medical Association*

During the past year, in widely separated sections of the United States, more than 40 schemes have been proposed to provide for the periodic prepayment purchase of medical and hospital care. Never before during a similar length of time has there developed such a striking change in the method of offering medical and hospital service. These schemes are largely put forth by commercial propagandists and promoters who see in the sale of medical services an opportunity to make substantial profit. The promoters have given little or no consideration to the relations which should be maintained between patient and physician; they have, in many instances, failed to limit the provisions of their schemes to the low-income group, and for the most part have neglected to safeguard their schemes against an ultimate inclusion of medical services with hospital care. On the contrary, some of the promoters are frank to admit that they intend to add medical care to the hospital service as soon as the schemes become financially secure. The contracts for medical service offered by these promoters are therefore, in most instances, entirely one-sided; and the provisions of the contracts are drawn largely in favor of the promoters.

This type of medical practice is not a new development; it began as an essential feature of many pioneering projects in mining, railroad construction, and lumbering; but even before the steady march of commerce and industry toward the western fields of natural resources many of the large southern plantations were utilizing this principle to provide medical care for agricultural workers.

It is undeniable that in many of these pioneering projects the only practical, available method of providing medical services to the isolated groups of workmen was by means of contract with physicians. Work camps were usually far removed from adequate and competent

medical facilities; the inconstant size of the groups, the shifting bases of operation, and the uncertainty of the permanence of the project did not warrant physicians in assuming the uncertainty of a reasonable income without some guaranty by the promotors of the project. There are at present some communities or projects which must guarantee a minimum income to physicians if medical services are to be easily available. Under such conditions contracts for medical care may be necessary, and these contracts can be made both legitimate and ethical.

The precedent of such plans, developed by the exigency of the situation, the enactment of State workmen's compensation laws, and the popular lay discussion about the costs of medical care are now offered as justification for new systems of contract practice.

Should the present movement continue without check or guidance, it is improbable that the services provided by the schemes for hospital care will be confined to hospital service alone. When medical service is added to hospital care, the medical profession will have become involved in a combination which will influence unfavorably the quality of medical service and may disrupt medical organization. Such a combination of medical and hospital services will constitute a health-insurance evil in many ways similar to the unsatisfactory European systems.

From a study of the contract provisions and the reports of 34 of these schemes, it is possible to draw actual illustrations of excessive commercialization, bitter conflicts between hospitals, and between medical organizations and hospital managements, invasion of private practice by hospitals, impossible financial plans that involve inferior service, and exaggerated promises of services that cannot be fulfilled.

If this same unrestrained and undirected expansion continues, and experience with similar developments in other countries predicts such a course, the results may be expected to be the same as they have been elsewhere—the degredation of the medical profession to the position of employees of commercially minded lay organizations, with hurried mass diagnosis and treatment of patients. So far from being an imaginary prediction, this is a description of the actual outcome of an evolution with similar origins in many foreign nations. Moreover, these developments can be shown to be the direct result of a lack of foresight at the beginning of the process.

This excessive expansion and especially its most harmful forms have been largely due to the entrance of two factors: A "third party" between patient and physician, and the introduction of commercial motives. The two are closely connected. The third party may be a promoter, an insurance organization, or lay management of any sort, governed by customary business, rather than professional, ethics.

The demand for expansion of such schemes seldom comes from the proposed beneficiaries of medical service, or from the physicians who must give it, but from lay third parties who derive personal profit or prestige from such expansion and from the development of impersonal, mass methods of giving and controlling medical service.

If schemes for medical care or hospitalization through periodic payments are established under lay management of any phase of medical practice, all the elements essential to these undesirable developments are present. Not the least significant of these elements is the tendency to follow commercial lines of evolution in which

motives other than those of providing a high grade of medical care are predominant.

For these reasons it is of the greatest importance that the first steps in any changes in the organization of medical practice be surrounded with every possible safeguard against the introduction of forces and tendencies that may appear of little significance at the beginning, but which experience has shown tend to dominate the course of evolution of such institutions, to the great injury of the entire system of medical care.

All the contract plans now operating are essentially forms of sickness insurance. A recent study of health-insurance systems shows how clear is the trend in the field of contract practice toward sickness insurance:

> Workmen's compensation legislation has been an almost invariable forerunner of general sickness insurance. In 1910 no State had such legislation. Today all but four have more or less elaborate systems of protection in this field. There is no agitation for their repeal, and little opposition to their continual extension.
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> That extension has already made "occupational disease" compensable in several States and more are added annually. The tendency is clearly described in a recent report of the Industrial Commission of South Dakota:
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> "The original idea of the workmen's compensation law was that of helping the injured worker to bridge over his troubles until he was again able to resume his ordinary labor. But by actions of legislatures, courts, and commissions it is beginning to approach that of a general plan of health and accident insurance."
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> About 17,000,000 workers are paid more than $150,000,000 annually under these laws at present, an amount fully comparable to that expended by many European countries on complete systems of compulsory health insurance.
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> This legislation gains greatly in significance when it is considered as the foundation and framework of future and vastly more extensive systems of insurance, for it now contains nearly all the features of the more extensive European systems to which physicians and dentists most strenuously object. There is little "free choice of practitioner," professional confidence is not respected, there is a mass of lay interference, the tendency to reduce fees to a minimum is already apparent, and charges of undue influence on professional testimony by employers or insurance companies on one side and by malingering employees upon the other are already common.

It is difficult to advance a convincing argument against the theory of health insurance. It is known that between 2 and 3 percent of the population is sick at any given time. Considerable time, effort, and money have been spent to demonstrate a fact that has always been known, viz, that prolonged illness, either with or without hospitalization, is frequently a crushing financial burden to the low-income groups of the population. Theoretically, this burden might easily be lifted from the individual if, in some way, the costs of medical care might be spread over the entire low-income group by small regular payments. Yet health-insurance systems now in operation in this country and in Europe have provided abundant evidence of the difficulties and undesirable features which accompany the practical application of the insurance principle.

Since the entire argument for and against health insurance cannot be presented briefly, only a few of the features considered essential in any system of medical practice will be discussed.

The argument for health insurance is based, in this country, almost entirely upon the reported results of researches conducted by the Committee on the Costs of Medical Care, and any criticisms of conclusions as to the necessity of such insurance must consider the validity of the reports of these investigations. The basic assumptions of these reports, and especially No. 26, The Incidence of Illness, are

that a large section of the population is suffering from a lack of medical care and that this suffering can best be relieved by a redistribution of the financial burden of medical care through insurance.

If not examined too closely the report seems to prove these assumptions. Examination raises many doubts. The subject matter of the report is "illness" which is defined as follows (p. 8):

> For the purpose of this study an illness is defined as any disorder which wholly or partially disables an individual for one or more days or as any experience for which medical service of any kind is received. Any condition, symptom, or disorder for which drugs costing 50 cents or more are purchased is considered an illness.

Plainly this is a definition of an economic, not a pathologic, phenomenon, and we look in vain for any correlation tables to show a relation between these economic and assumed pathological conditions. On the contrary, this correlation is taken for granted and made the basis of all the succeeding argument that illness and its treatment are almost wholly economic phenomena.

When, therefore, we find (p. 92 of the above-mentioned report), the statement that only 82 percent of those with incomes of less than $1,200 annually received the attention of a physician when suffering this sort of "illness", while 96 percent of those with an income of $10,000 and over annually had such attention, the conclusion which is drawn, and upon which so much subsequent argument is based, that at least 14 percent of the lower-income class were in need of medical care, which was denied them because of inability to pay, is certainly not proven. What is proven is that the rich pay more for medical care than the poor—a fact scarcely requiring so expensive an investigation to demonstrate.

Nowhere in the report is any attempt made to show how many sick persons sought and were denied medical service because of poverty; yet this is the whole question at issue.

From this insecure factual basis the leap is made to the conclusion that insurance is the best method of supplying this medical care to those who the proponents of health insurance claim are now being denied it. Singularly, while almost every possible form of health insurance is now in existence in some country, one looks in vain over the long list of studies made by the committee for one on those systems. Again, workmen's compensation in the United States offers an example of such a system in 44 States, which illustrates the working of almost every phase of health insurance, but the committee did not study this. This careful avoidance of any discussion of the medical care given under existing systems here and abroad is characteristic of nearly all proponents of health insurance.

There is always an indefiniteness among those who urge health insurance as to its objectives. This confusion, carried into the operation of the scheme, is further confounded to the ultimate failure of nearly all the objectives. It is, like all other social insurance, primarily poverty insurance.

The combination of medical and cash benefits under the same system or administrative body has given rise to much confusion and dissatisfaction. The purposes of the two types of relief are very different. Medical benefits are for the prevention and cure of disease; the administration of such benefits is the special province of the medical profession. Cash benefits are for the relief of poverty; this is

the special problem of the economist, sociologist, social-service expert, political scientist, and industrialist. There are many points at which the two groups must cooperate, and coordinate their efforts for the benefit of individuals, families, or society generally. However, it should be clear that there is a fundamental separation of functions of these two groups. The medical profession should determine the amount and character of medical care but not that of cash relief, and those who are responsible for or administer financial relief should not dominate the professional relations between patient and physician.

The question is now being sharply raised whether such deductions from an inadequate income for health insurance may not lead to such deficiencies in food, housing, and other necessities as to be a greater cause of physical deterioration than the calamities against which the worker is insured. In this connection it is worth emphasizing that the absence of these other necessities, due to low income, may be a greater cause of illness than the lack of medical care.

Few of those who are advocating health insurance in the United States are stressing cash benefits, but it is these benefits which are most eagerly desired by the insured under existing systems. It is significant that in no country has there ever been any extensive demand for health insurance on the part of those for whose benefit it is ostensibly designed. The demand has always come from philanthropists and politicians, both of whom discovered in it means of furthering their own objectives.

An essential feature of good medical care, which is often denied the patient under the health-insurance systems, is the freedom of choice of a physician. For centuries the medical profession has held that any enforced choice of physicians by lay interests destroys the very foundation of those relations between patient and practitioner which are essential to the best treatment. This is not simply a tradition but is based on sound reason. Patients, not diseases, are the objects of medical treatment and the patient is a unit continuous through a lifetime. Relations are established between patients and physicians, and not between diseases and institutions.

Each step in these relations depends largely upon mutual confidence. Proper diagnosis is not possible if the patient suspects that the attending physician may be even in the slightest degree under the influence of interests that the patient considers as hostile to his own. Such a patient will consciously or unconsciously describe his symptoms with the view to meeting the suspected antagonism on other points.

Modern psychiatry but confirms traditional knowledge and common sense in the position that the success of healing rests largely upon a similar confidence. Laboratory technique will not replace the necessity of this confidence in diagnosis, and elaborate equipment will not make it unnecessary in treatment.

Anything which influences the choice of the patient for commercial reasons has the same effect as solicitation and advertising by the physician. The evil effects of such solicitation have been abundantly proved. Yet some forms of compulsory selection are accompanied directly or indirectly by some sort of solicitation, thus reversing the tested relations of patients and physicians and making the verdict of the former upon the latter depend upon coercion.

All schemes modifying free choice by the patient substitute compulsory choice for the patient by some agency not itself compelled to

accept the treatment selected. The third party that does the choosing is an impersonal corporation legally required to give first consideration to the profits of its stockholders. This impersonal body, usually controlled primarily by economic and commercial motives, makes the selection for an intensely personal service from which it has always been a first essential that the economic motive should, as far as possible, be excluded.

Again, this choice by a third impersonal party is not made for the individual but for a group. Such a method of group selection and mass treatment is being urged upon the medical profession just at a time when all other fields of analogous social efforts are rejecting mass treatment. A generation ago crime and insanity were treated almost exclusively by mass confinement in prisons and asylums. Mass education was glorified and a mass treatment of poverty by alms and poorhouses was generally approved. In recent years there has come an almost universal recognition of the superiority of individual, personal "case work" over mass action in the fields of criminology, psychiatry, education, and other forms of social work.

Any change in the organization of medical service which destroys the right of the patient to choose his own physician and disturbs the confidential continuous personal relations between patient and physician destroys social values which it has taken ages to establish. Those countries that did disturb these relations in medical service have since been involved in bitter controversies caused by the efforts to restore such relations. Certainly we should not enter upon a road which will inevitably compel us to pass through similar controversies and endure similar evils in order to learn the lessons the experience of these countries could now teach us.

A third objective of health insurance schemes which is also seldom announced in the beginning, but which soon becomes a major purpose, is the subjection of the medical profession to lay control. Sir Henry Maine has told us that one of the principal characteristics of the evolution of industrialism from feudalism was the substitution of "contract" for "status" in human relations. The professions have always resisted this tendency and maintained that such a change destroys the most valuable characteristics of professional services. The administrators of health insurance in European systems make no secret of their determination to force medicine into industrial patterns. They declare that physicians must pass from the stage of "small entrepreneurs," based on a professional status, into the contract relation of employees in great medical organizations. This program is stated in almost these very words in the report on Methods of Controlling the Medical Service in Sickness Insurance of the French General Assembly of National Unions of Mutual Societies and Sickness Insurance Societies, held at Dresden, October 19–22, 1930.

The desirability of any social changes depends upon whether the social values destroyed by the change are greater or less than the new values introduced. It is of special importance to consider whether change demands the destruction of long-established social values.

There should be, at least, the most careful study to determine whether changes in the form of payment for medical service necessarily involves such changes in the methods of giving that service as to reduce its social value. That powerful financial and industrial interests might profit by controlling such a service and altering its

character in the name of efficiency is not sufficient reason for even considering a change. The only object that should influence provisions for medical care is the health of those cared for.

The fourth objective of health insurance is supposed to be an improvement in the health and a reduction in the morbidity of the insured. The failure here is most complete. A study of the morbidity rates under sickness insurance would give the impression that health insurance is some sort of deadly infection, for in every system of insurance there is a steady, rapid increase in the amount of recorded illness. To be sure, the "illness" which is measured is to some extent of the same character as that studied by the Committee on the Costs of Medical Care, and is probably no accurate measure of pathologic conditions. Fifty years of health insurance in Germany have seen the number of days lost from labor through sickness in the insured population increase nearly threefold. Twenty years in England doubled the original rate. This is not due to increasing age, because the rise is equally great among those in the prime of life. It is not wholly due to the anxiety to obtain out-of-work benefits, although this is a major cause, since there has been an almost equal increase in "illness" among dependents when these receive medical benefits, although they are never eligible for cash benefits.

That this is peculiarly an insurance phenomenon is shown by the fact that the insured in Germany show an "illness" rate 10 times that of the uninsured.

This increased "morbidity" is directly caused by insurance. After a few years the insured, who have been making continuous sacrifices from their scanty wages, become filled with a desire to "get something back." They get cash benefits if they can, but failing this, they are determined to receive medical attention and drugs. German physicians estimate that from 50 to 75 percent of all the "illnesses" treated by insurance physicians are either imaginary or of such minor character that medical care is not needed. They are to some extent the sufferers from the "minor respiratory diseases" of the Committee on the Costs of Medical Care study and other equally minor diseases—the "bagatelle cases" that are so much discussed by writers on the German system. The same condition exists in all other systems. English physicians complain that insurance is creating a race of "bottle addicts," because, if the physician does not give them a prescription he loses his patients, who feel that they have not "got their rights" out of the insurance to which they have contributed.

There is not one health insurance, but many. Each type has many features, some good and some bad. Understanding of the multiplicity of problems which health-insurance systems have introduced into the practice of medicine can come only after careful and prolonged study. In many of these systems no convincing proof has been advanced to show that the costs of medical care have been reduced or that the public welfare is thereby more adequately or universally protected. Certainly the history of health-insurance systems abroad may well serve to indicate the dangers which such methods introduce in medical practice. Moreover, most of the insurance systems abroad and by far the greater number of contract practice and pseudo-insurance schemes in the United States have failed to preserve those features of medical practice most conducive

to the best interests of the public welfare and the independence and advancement of the medical profession.

From the foregoing brief discussion of the application of insurance to the practice of medicine it is apparent that in most instances professional relationships between patient and physician are disturbed by denial of free choice of physician; there is an almost universal tendency to impose lay control on the medical profession; the incidence of illness has not only not been reduced, but there has been a steady increase in the morbidity rates among the insured.

The public deserves good medical care. The type of medical practice which best serves the public needs is the type which should be followed, but the medical profession is the best judge of the adequacy and competency of the service. The medical profession has no desire to obstruct reasonable and honest efforts to provide good medical care. While here and there adjustments may be necessary to correct a few obvious inconsistencies in certain phases of present medical practice, thus far no convincing arguments have been advanced to warrant a complete revolution in the methods which have stood the test of centuries. If there are groups of the population unable to meet medical costs, some of the excuses for the lack of purchasing ability are sure to be found outside the realm of the present costs and methods of administering medical service.

Chairman NOWAK. I think, perhaps, the doctor's discussion was a little more general and covered a wider field than any covered by this session, and yet some of the items in his paper cover some of the things we are interested in. If there are no remarks nor any questions to be asked Dr. Leland, we will proceed to the second paper on the afternoon's program, Cooperation Between Workmen's Compensation Commissions and State Vocational Rehabilitation Services. This paper is supposed to cover the report of the committee on rehabilitation, which as you know was passed at the meeting yesterday morning. Mr. Kratz, who was to read this paper and to lead the discussion, is unable to be here, but he has sent a very eminent and well-equipped lieutenant, Miss Tracy Copp, member of the Vocational Rehabilitation Service staff, who will read Mr. Kratz's paper.

Cooperation Between Workmen's Compensation Commissions and State Vocational Rehabilitation Services

By JOHN A. KRATZ, *Chief United States Vocational Rehabilitation Service*

(Read by Miss Tracy Copp)

A few months ago I was in the office of a State supervisor of vocational rehabilitation when a man about 35 years of age came walking in on a pair of crutches. Three months before, this man had been injured in an employment accident and his leg was still in a plaster cast. He presented to the supervisor a letter from the chairman of the State workmen's compensation commission. This letter sets forth so clearly the points I wish to emphasize to you, that I wish to read it to you and take it as my point of departure in this brief discussion of the cooperation which should exist between compensation commissions and State rehabilitation departments.

Re FREEMAN, LOUIS E.
No. 105118.

Mr. ————,
Supervisor of Vocational Rehabilitation,
State Office Building, City.

DEAR MR. ————: I am sending the above-named to you in the hope that you can give his case immediate consideration. A copy of the medical report was forwarded to you yesterday. The examiner who has handled the case advises me that the employer for whom Mr. Freeman was working at the time of his injury will be glad to reemploy him upon his recovery. He will not be able, however, to return to the job he was holding at the time of his injury. In view of his apparent good intelligence, the fact that he has rather heavy family responsibilities, and his expressed desire to enter at once upon a program looking to his return to employment, this appears to be a case in which the commission has an unusual opportunity to cooperate with your office in rendering a constructive service. I am therefore authorized by the commission to offer you every facility at our disposal in working out Mr. Freeman's rehabilitation. For the present, Mr. Freeman will be rated as temporary total disability, but this fact should not prevent his immediate entry upon his preparation for an occupation within the physical limitations and prognosis indicated in the medical report.

After you have worked out his program of rehabilitation, I should appreciate it if you will advise me from time to time on his progress. In the meanwhile, let me assure you of our desire to cooperate with you at all times.

Sincerely yours,

————,
Chairman.

When the supervisor had completed his interview with this man, I secured this information: (1) As a matter of routine in every case of major injury and in every case where the injury is of such a nature as to handicap the injured person in returning to his old job, a carbon copy of the medical report is sent to the rehabilitation office; (2) In every such case it is a part of the job of the investigator to ascertain from the employer whether the injured worker will be reemployed upon recovery; (3) In every such case, where a lump-sum settlement is contemplated by the commission, the recommendations of the rehabilitation department are secured and given full consideration; (4) When the rehabilitation department recommends commutations, extensions, or readjustments of compensation for rehabilitation purposes the commission cooperates to the fullest extent of its authority.

On the part of the supervisor, I learned that he promptly investigates all cases reported by the commission and reports to the commission the action taken on each case. If the case is found to be eligible and feasible of rehabilitation, this report includes a statement of the proposed plan of rehabilitation with recommendations for such aid and assistance as may be needed from the commission in carrying out the plan. The supervisor attends the hearings of the commission when the rehabilitation of an individual case is involved. He supervises the training, places in employment, and follows up every case for a time sufficient to be reasonably sure that the injured worker has been restored to a status that is in keeping with his mental, physical, and vocational capacities.

Now, I wish to read to you the response of the supervisor to the letter from the chairman of the compensation commission:

Re FREEMAN, LOUIS E.
No. 105118.

Hon. ———— ————,
Chairman, Workmen's Compensation Commission,
State Office Building, City.

DEAR SIR: In compliance with your letter referring Mr. Freeman to this office for rehabilitation, I am pleased to advise you that the following has been agreed upon:

1. Mr. Freeman will be enrolled on Monday, May 8, at the ---------- Institute of Business for a 10-month course in elementary accounting.
2. Upon completion of the course, the ———— Co., employer at the time of injury, will take Mr. Freeman into the office as assistant to the cost accountant for a period of 1 month at half pay.
3. At the end of 1 month, he will be employed at full pay as clerk in charge of stock records and accounts.
4. A report of his progress will be sent to your office at the end of each 3-month period.

(Signed) ——— ———,
Supervisor of Rehabilitation.

I have cited this instance because it epitomizes the relationship which should exist between compensation and rehabilitation departments.

There are a number of conceptions one might have of the purpose of workmen's compensation and the functions of a compensation commission: (1) The compensation law might be considered as a kind of blanket insurance policy under which a workman is paid a sum of money in the event of injury. Under that concept the commission would function simply as an agency to determine the extent of disability and to authorize the payment of the money as provided by law. (2) It might be conceived as representing a differential between earning power before and after injury for a given period of time, in which case it would be the function of the commission to establish and maintain the differential over the period specified. These are obviously narrow and socially inefficient conceptions.

The broader, more constructive, socially sound conception is that compensation represents a provision by society for sharing with the worker the consequences of injury or disease and for hastening and assuring his restoration, in every possible case, to active participation in the life of his community. Under such a conception, the function of the commission goes beyond the mere determination of the extent of injury, reduced earning capacity, and the amount of the compensation award. It takes into consideration the future as well as the present of the individual and makes a conscious effort to secure his restoration to his former status of social and economic independence. The vocational rehabilitation act which has now been adopted in 44 of the States of the Union grew out of this conception. Even before the national act providing for the establishment of rehabilitation services in cooperation with the States had been passed, a number of compensation commissions had already established rehabilitation services under their own auspices in order to put this conception of compensation into practice. And, when the national act was written, its proponents saw to it that a special provision was made in the act for cooperation between compensation commissions and the rehabilitation departments in the States which accepted it. Thus, there is indicated a specific intention, an implied obligation, and a legal basis for cooperation between these agencies. This cooperation has been established and is working effectively in a number of the States.

To be effective, cooperation must be definitely organized. Therefore, I wish to point out the principles upon which the plan of cooperation should be based and the methods by which it can be made to work effectively. (1) There must be a clear understanding as to what the commission will do and what the rehabilitation department will do, each for the other, toward the rehabilitation of compensation cases; (2) An individual must be designated, in each organization, who is to be responsible for carrying out the respective tasks agreed upon; (3) There must be established a definite routine by which the tasks are to be accomplished. To illustrate the methods by which these principles can be put into operation, let us suppose that among other things the commission agrees to report all cases of major injuries to the rehabilitation department. Responsibility for doing this may be placed upon the clerk who types the medical reports. This clerk by simply making extra carbon copies of these reports and mailing them daily or weekly to the rehabilitation office carries out this part of the agreement admirably. Or, on the other hand, suppose the rehabilitation department agrees to investigate and make recommendations on all applicants for lump-sum settlements in which a program of rehabilitation for the individual is involved. The supervisor, by assuming the responsibility himself or by assigning an agent to this task, would thus carry out that part of the agreement. If cooperation is organized on the basis of these principles and a definite routine of procedure is established, the cooperative arrangement will work almost automatically.

In preparation for this occasion, I made a study of 12 States in which cooperation between commissions and rehabilitation departments has been a well-established policy over a period of years. I wish to quote some of the facts I found in this study.

In 9 of the 12 States, the commission assumes responsibility for reporting to the rehabilitation office, either daily or weekly, all cases of major injury and all cases where the nature of the disability will probably result in the inability of the worker to return to his old job. In three instances, the rehabilitation office has assigned one of its staff to the task of securing reports of such cases from the records of the commission. In 7 States, a clerk in the commission has been designated as the person to be responsible for selecting and reporting the cases. Examiners make the reports in only one instance. Last year the commissions of these 12 States made a total of 827 commutations, extensions, and readjustments of compensation for rehabilitation purposes. In addition to this splendid cooperation, they provided special medical benefits, artificial appliances, and maintenance for cases undergoing rehabilitation in 201 instances.

On the part of the rehabilitation departments in these 12 States, my study shows that 6 of the departments report the action taken on cases reported to them by the commission, and 4 States make periodic reports on the progress of compensation cases toward rehabilitation. Last year, 842 compensation cases were rehabilitated, this number being almost the same number as that in which the commissions cooperated by making special compensation adjustments for rehabilitation purposes. The 847 cases which were rehabilitated represent an average of 28.8 percent of the number of cases reported by the commissions to the rehabilitation departments, the percentage ranging from less than 2 percent in one State to as high as 52 percent in

another. In the country as a whole, approximately 33⅓ percent of the 5,593 cases rehabilitated last year were accident cases. As you know, the cases eligible for rehabilitation service are not limited to accident cases. Persons disabled by disease and also those suffering from congenital and birth injuries are eligible for rehabilitation service.

I have quoted these figures in order to show you the interdependence of compensation commissions and rehabilitation departments in doing a complete, socially sound job for those whom they serve. They are, in fact, complementary services, each to the other. While their specific functions are somewhat different, their general objective should be the same, viz: To remove the hazard of maladjustment for those who are so unfortunate as to suffer accident or disease in our industrial establishments. They can accomplish this general objective only by working together. Therefore, in conclusion, my plea to you and to the rehabilitation workers of this country is that if you have not already established a functioning working relationship in your respective States that you get together and work out a plan by which you may cooperate in solving the individual problems of those whom it is your mutual responsibility to serve.

Chairman NOWAK. If there are no questions or remarks on this subject, that will terminate the program for this session; but I should like to call your attention to the program for tomorrow. In arranging this program your committee, particularly the medical part of it, felt that perhaps the session might be of greater service to the members of the various commissions if the discussion were limited to one subject.

In Illinois one of the perplexing problems the commission has to deal with is a subject that is very wide, one which takes in probably more complications than any other phase of injuries. That subject is back injuries. We have never known whether we were doing the right thing on certain of those cases. When the program committee met last spring in Chicago, after a discussion as to what subject would be of greatest benefit to this association, it decided that the problem of back injuries was probably the most confusing to all of the commissions. For that reason we have tried to cover every phase of back injuries, as you will note in your program. The men who are to read the papers and lead the discussion are experts in their lines, and you will have the best available information in the country.

Mr. PATTON. I am surprised to see the meeting adjourn without any discussion of Dr. Leland's paper. I think it is a most excellent paper, and I am surprised that it did not evoke some criticism on the part of the members here. For one thing, I was very much impressed with the fact that it was the most intelligent criticism I have heard of the report of the Committee on the Costs of Medical Care, although I am not saying that I agree wholly with the criticism. For the most part, the report of that committee seems to be accepted as gospel faith. I think Mr. Leland has pointed out a number of things in connection with this whole matter of choice of physician that we can very well ponder.

[Mr. Kjaer reported to the session on the deliberations and discussions of section B of the morning session on the report of the committee on forms (see pp. 33 to 39). A motion to refer the report

to the resolutions committee, with the recommendation that it prepare a resolution asking the commissioners of the various States to adopt the forms if convenient, was seconded and carried.]

Chairman NOWAK. Mr. Patton, I think some of those who usually start discussion of these matters are missing here today. If they were here we would probably have a discussion of both these papers. I regret very much that there has been this lack of comment. I agree with Mr. Patton that both of these papers are certainly worthy of comment.

[The report of the committee on safety and safety codes was read at this time.]

REPORT OF COMMITTEE ON SAFETY AND SAFETY CODES

By THOMAS P. KEARNS, *Chairman*

There is not much to report on the activities of your committee on safety codes that is not already briefly covered in Secretary Baldwin's report.

The two codes for which the I.A.I.A.B.C. is sole sponsor, namely, the Code on Exhaust Systems, covering standards for installation and operation of apparatus for removing dust, fumes, and gases by means of blower or suction and properly arranged hoods, and the Code on Work in Compressed Air, covering tunnels, caissons, or wherever workers are subjected to air under pressure greater than atmospheric pressure, have not been completed but, as Mr. Baldwin states, some progress has been made in organizing the American Standards Association sectional committee, and it is hoped that meetings can be held in the near future.

The proposed revisions to the Abrasive Wheel Code, permitting increased speed for coping wheels for grinding brick and stone, has been approved by the sectional committee and is referred to this association for official approval.

In this connection I might say that members of the association have been active and rendered valuable assistance in connection with the code work of the American Standards Association and in the various States, but in view of the fact that at the joint session of the I.A.I.A.B.C. and the Association of Governmental Officials in Industry on Thursday, Mr. Baldwin is scheduled to make a report on the Status of Industrial Safety Codes and Regulations in the various States, and Mr. Agnew, secretary of the American Standards Association, will report on the Progress of National Safety Codes, and since these reports will be made a part of the proceedings of this convention I do not think it either necessary or advisable to burden you at this time with any detailed report on these subjects.

There is a great deal that could be said, however, on the subject of safety. We do not wish to burden you with a long discussion of the subject, but we would like to leave with you one or two thoughts. While the records available show that a much greater interest is being manifested in safety work throughout the country, not only as it pertains to industry but also as it relates to public and home accidents, and while much has been accomplished along this line, the toll of life and limb that is still being taken through accidents is the best indication that there is still a big job ahead before we can lay any claim to having even approached the desired goal in accident-prevention work.

Many of the States and Provinces are carrying on this work through their factory inspection departments or special bureaus set up for the purpose, and some remarkably good work has been done in this way, but we feel that the time has arrived when accident boards and commissions and others charged with the responsibility of administering workmen's compensation laws will have to give a great deal more serious thought to the question of accident prevention, not only

because of the humanitarian aspects but because it is essential, yes necessary, in working out a solution of many of your compensation problems, and particularly your compensation costs, since the best and surest way to reduce these costs and incidentally to keep down premium rates is to prevent the accidents.

This seems to be a most opportune time to give this question serious consideration, as we are at present face to face with one of those infrequent cycles when accident exposure is likely to increase by leaps and bounds and which find many unprepared properly to cope with the additional hazards to workers, and such hazards abound in our industries today. Chief among them are the loss of skill and stamina due to long periods of idleness and the consequent danger which faces the worker until these conditions are readjusted by time and experience. The mental hazards of the average job are greatly accentuated as a result of the worries of idleness, reduced incomes, and pressing financial responsibilities, and the readjustment of these attitudes is dependent upon the possibilities of steady employment.

We think it will be conceded that it is a serious mistake for any industrial establishment to slacken its vigilance against accidents in the haste to bring production back to normal, as such a policy is not only inimical to the welfare of employees but is also economically unsound. This is a fact generally recognized by those who give to safety equal weight with production in plant policy, and should need no sustaining argument. Yet there is the ever-present danger that eagerness to meet and profit by new conditions after a depression without precedent in the history of industry may result in failure of both employer and employee to give safety the place its importance warrants.

Intensive safety effort in industry is imperative, not only because it is the human thing to do but from the standpoint of economy and protection of the workmen's compensation funds, and we would therefore urge every member of the association to give serious thought and consideration to these problems and to go back to their respective jurisdictions with a firm determination to do everything in their power to stimulate a greater interest in industrial safety and to promote organized systematic and cooperative accident-prevention work in the industries of their State.

[A motion that the report of the committee on safety and safety codes be accepted and made a part of the proceedings was seconded and after some discussion amended to refer the report to the resolutions committee. The amended motion was seconded, and Mr. Kjaer made the following remarks:]

Mr. KJAER. In connection with that, I should like to give a few figures which I have compiled to show that safety measures pay. The figures pertain to the industrial accidents of one fairly large firm from 1930. It had a pay roll of a little over $391,000,000. It paid out for accident prevention $1,164,409, and made compensation and medical payments to the extent of $4,561,425. This firm happened to be a self-insurer, as naturally, being that large, it found that cheaper than if it had to pay insurance premiums. If it had paid insurance premiums on its pay roll they would have amounted to $15,641,555. Consequently it saved over $10,000,000 in comparison with what other firms of the same class had to pay in insurance premiums, and it was because this firm had extraordinary safety measures.

[The amended motion was put to a vote and carried.]

[Secretary Baldwin read a telegram from L. W. Hatch, chairman of the committee on statistics and compensation insurance costs, and asked that the telegram be received as the report of that committee.

A motion to accept the telegram as the report of that committee and to make it a part of the record of the convention was made, seconded, and carried. Besides expressing regret because of inability to be present, and best wishes for a successful convention, the telegram which was made the report of the committee was as follows:]

REPORT OF COMMITTEE ON STATISTICS AND COMPENSATION INSURANCE COSTS

By L. W. HATCH, *Chairman*

(Read by Charles E. Baldwin)

There is no report at this time of committee on statistics for past year, as committee has not met nor taken any action. Several members of it have continued, however, on sectional committee on standard accident statistics of American Standards Association, and during past year substantial progress has been made in work of this committee by completion of revised cause code by a subcommittee. A meeting of this sectional committee has been called for September 28 in Chicago to consider cause code and remaining points concerning accident rates on which there are still serious differences of view. Efforts to arrange earlier meeting have failed owing to impossibility of securing adequate attendance because of economies imposed by business conditions. It is hoped at meeting on 28th work of sectional committee may be advanced to final report.

[Meeting adjourned.]

Chairman, Samuel S. Graves, M.D., formerly medical director Industrial Commission of Illinois

Chairman GRAVES. The first speaker on our program this morning is Dr. John D. Ellis, who will tell us about how to estimate disability of the back.

Physical Examination of the Injured Back

By JOHN D. ELLIS, M.D., F.A.C.S., *Department of Surgery, Northwestern University Medical School*

The precise diagnosis of the nature of back disability, the estimation of its actual time of termination, and the decision as to the proper treatment which is indicated, have become some of the most perplexing problems which are presented to the compensation commissioner, as well as the surgeon responsible for the management of the case. The frank fractures or dislocations offer less trying problems than the so-called minor injuries which come to the surgeon of trauma in various stages of development or resolution. It is the latter class of injuries which particularly concern us in this paper.

The development of more adequate roentgenograms, especially clear and diagnostic laterals, has been in some measure a deterrent in actual diagnosis, since even competent radiograms cannot visualize or distinguish a minor joint injury, or indicate whether it is arthritic and whether located in joint cartilage or capsule. Likewise, the X-ray cannot help us in distinguishing between joint lesions and the accompanying protective reaction of the overlying muscles and ligaments which help to immobilize this tender joint. Likewise, myositis and muscle sprains, and strains without underlying joint lesions, cannot be visualized or diagnosed by radiographic examination.

Furthermore, in workingmen of middle age and later, roentgenograms are prone to display varying degrees of calcium salt deposits about joint edges, ligament, tendon, and muscle attachments, but give little information as to the chronicity or recency of such deposits, or the degree in which they are the result of a single mechanical trauma, inflammation, disturbance of calcium metabolism, or long-continued, heavy labor.

The amount of loss of function in the injured back can no more be assayed by X-ray examination than can this type of examination be relied upon to diagnose the commonest type of serious traumatic knee disability, injury of the internal semilunar cartilage, or the frequent cause of intractably painful shoulder which results from rupture of the supraspinatus tendon.

The actual diagnosis in the case of the injured back must, then, be arrived at by history of the occurrence of the trauma, general examination, and specific examination of the back itself, including X-ray examination. The present paper is limited to the criteria for arriving at a diagnosis which may be obtained by a routine and systematic

examination of the back itself. The importance of a carefully arrived at diagnosis is, that upon the diagnosis depends the decision (1) as to whether any actual physical disability exists in objective findings which may, if necessary, be made clear to a board of laymen or a jury; (2) as to what really constitutes the nature of the disability; e.g., a lumbosacral, sacroiliac, or intervertebral strain; a nontraumatic arthritis; merely a muscle or ligamentous injury; or a myositis.

The second consideration is important, because on the actual diagnosis depends the type of management which the case deserves.

I cannot condemn too strongly the unfortunate habit of routine daily application of lights or heat to the injured back, with no further attempt at diagnosis or therapeusis, and calling this "physiotherapy."

The examination of the injured back is made tremendously more difficult by the fact that, with the exception of the objective evidence elicited by expert manipulation (expert passive motion for diagnostic purposes), the data that we find are those produced by spasm, contraction, and rigidity of the muscles moving the joints, rather than signs produced by the painful joints themselves. But it is these problems of differentiation we must attack.

An analysis of the mechanics of spine motion could be divided into: (1) The status of the average normal spine; (2) that with anatomic abnormalities and anomalies of development; (3) the spine presenting nontraumatic pathological changes. The two latter groups may predispose to prolonged disability after trivial mechanical trauma or aggravation of slight disability of function out of all proportion to the severity of the trauma.

Normally, each vertebra bears its superimposed weight on three points of support—one the body and two the articular processes. The vertebral bodies are particularly adapted for weight-bearing by the interposition of the elastic and resilient intervertebral disks. Lordosis of the lumbar spine is a late development in the phylogeny of man. In excessive lordosis of the lumbar spine, that portion of the weight normally borne on the front half of the vertebral body is transferred to the posterior half and its associated articular processes. The more the degree of lordosis, the more weight is borne on the articular facets, and these are not provided with shock-absorbing intervertebral disks, as are the bodies. At its junction with the fifth lumbar segment, the sharp backward deviation of the sacral segment necessitates that the entire weight-bearing rest upon the articular facets. This arrangement is a penalty man pays for his erect posture. Backache is an ailment peculiar to the human animal.

In the "normal average" spine, motion is not uniformly distributed in the different levels. The cervical spine is the most mobile division. As nearly as this can be determined, however, 75 percent of the antero posterior motion of the neck is confined to the articulation between the occiput and the first segment of the spine, and 75 percent of the rotary motion occurs between the first and second segments. The lumbar spine is less mobile than the cervical, and the thoracic spine less mobile than the lumbar. In workingmen, examination often reveals practically no mobility in the upper half of the thoracic region.

When the lumbar muscles—in particular, the erector spinae group, which is one large muscle belly on either side comprised by the spinalis lumborum, longissimus dorsi, and iliocostalis lumborum, named in

order as one travels out from the midline—are examined manually, the three components can rarely be distinguished. In one chronic arthritis, involving most of the spine, I was sure I could palpate separately the stringy, fibrous, and contracted longissimus. Rarely, in these patients, can a contracted or spastic, shelf-like lateral border of the quadratus lumborum be distinguished. The short muscles running vertically between the transverse processes and the obliquely situated rotators cannot be identified.

The criteria which one expects to discover from examination of the loin muscles are the changes of the muscle system moving any joint, which characterize pathology in the joint, whether it be spine, shoulder, hip, or other articulation. These are criteria of:

1. Acuity: (*a*) Spasm of erector spinae muscles causing lateral deviation, lordosis, or immobility at one point; (*b*) Tenderness of a definitive muscle group; (*c*) increased muscle consistency, due to extravasation or infiltration of products of inflammation; (*d*) defense reaction (like Hartman's defense in the abdominal wall).

2. Chronicity: (*a*) Permanent contracture, not spasm; (*b*) tenderness, not acute or sharply defined; (*c*) increased consistency, due to fibrosis; (*d*) no Hartman's defense; (*e*) changes in opposing muscles and synergists.

3. Later chronicity: (*a*) Contracture without spasm; (*b*) tenderness, not great or local; may be absent; (*c*) muscle wasting; (*d*) a definite, limited range of passive motion without actual pain; (*e*) signs of adhesions of old arthritic joints on (1) jarring of spine with heel of hand, or (2) percussion of head.

Technique of Examination

I am indebted for much of the rationale of this routine examination to the inspiration received from Dr. James Mennell, whom I saw perform many similar examinations in St. Thomas Hospital, London, in 1930. This routine is not offered as being superior to any other, but merely as being immensely superior to no routine method at all. As industrial consultant, I have examined many backs of patients who had been treated for weeks or months with no examination except cursory palpation, instruction to try bending forward, and, sometimes, roentgenography.

The patient is first stripped and walks about the room. The shoe heels are examined to ascertain whether there is more wearing of one than the other. A tendency to walk on the ball of one foot, to keep one knee slightly flexed in walking, or to hold one side of pelvis higher, is noted.

General examination in sitting position.—This position is chosen because when sitting there is less limitation of motion in sacroiliac lesions than in standing, whereas in lumbosacral lesions there is no difference in limitation in the two positions. A stool is used high enough to allow the feet to rest on the floor with knees at right-angle flexion and without a back. By inspection, it is noted whether the patient bears weight in equal amount on the two ischial tuberosities. If more weight is borne on one than the other, an investigation by trial postures must be made to ascertain whether this is deliberate, habitual, or accidental. If the choice is found to be deliberate, the chances are that the sacroiliac or lumbosacral joint on the side that is being spared is tender.

Inspection is now made for:

1. Scoliosis, as to whether lateral, the so-called "sciatic", without compensatory curve in dorsal region and, therefore, more likely acute and protective, rather than rotatory, and with compensatory curves probably little likely to be the result of injured or inflamed joints, muscles, or ligaments.

2. Erector spinae muscles, their relative prominence or state of contraction on the two sides. I do not find a contra-lateral scoliosis opposite in direction to the side of the inflammatory or traumatic lesion, such as Putti and others describe, common, nor am I able to find alternating scoliosis occurring after injuries.

3. The degree of loss of the normal lordosis seen on standing; that is, whether the lumbar region flattens out completely on sitting down or retains most of the standing degree of lordosis because of spastic or fibrous erector spinae muscles.

4. The relative height, not only of the posterior iliac spines to each other, but also of each to its anterior superior fellow. A discrepancy on one side indicates a twist in one side of the pelvis on the sacroiliac joint—in my experience always an anomaly, but possibly, as Mennell finds, rarely traumatic. This can be diagnosed before the radiogram is taken. The sacral hair and dimple of the spina bifida occulta may be seen.

On palpation, the spasm, permanently increased tone, or defense reaction in lumbar muscles may be discovered, but palpation yields more definite findings in the prone position. Localized points of tenderness must be marked to see how they correspond to tender points in the prone position. The head and spine must be percussed; complaints of definite pressure pain on percussion is noted.

Active and passive movements in the sitting position.—The patient is asked to bend forward. The normal spine should then show an approximately perfect curve. In men past middle age, varying degrees of loss of flexion, of course, exists in the upper dorsal to lower cervical region. Local deviation to right or left, or tendency to bend the whole spine a little sidewise in flexion, is noted. The latter, of course, corroborates lateral scoliosis caused by a unilaterally contracted or spastic erector spinae group. The actual degree of flexion forward of the whole spine is less important than local and lateral discrepancies of mobility. The change in rhythm of the spine in resuming the upright position often reveals more pathology than flexion. There may be a lagging of one section, a resumption by coming up, at first, slightly sidewise. One part—often the lumbosacral—may show no motion until complete extension has occurred in the rest of the spine, and then quite suddenly jump into extension. This is strongly suggestive of lumbosacral trouble. Finally, uprightness may be attained by a wriggling, snakelike motion, practically characteristic of intervertebral arthritis.

Lateral motion and voluntary rotation should next be performed and noted. Passive rotation, however, produces more reliable data, and passive lateral motion in the supine position is more reliable than in sitting, as the examiner has, in the former, a better control of the patient's torso.

The examiner must rotate the torso on the sitting hips in three positions—hyperextension, erect position, and flexion. If rotation elicits more expression of pain in one lower lumbar region, there may be a

lumbosacral strain, an articulated fifth transverse process, or a unilateral sacralization of the fifth. Whether these latter conditions are actually likely to be more sensitive than the normally arranged fifth is sub judice to my mind. The careful work of Bertolotti and others of the Italian school of orthopedics indicates that an especially painful syndrome results at the sacralized side after slight injury.

There may be little impediment to rotation in a case of lumbosacral strain if the condition be unilateral; however, rotation toward the side of the sprain can be passively performed to a greater degree than away from it, which latter manipulation finally reaches a point where the contracted lumbar muscles are put on a stretch. It should be remembered that comparatively little rotation actually occurs in the normal lumbar spine, except that which takes place between the fifth lumbar and the sacrum. Hence, passive rotation tests are the important criteria for painful motion in these joints particularly.

The amount of freedom of motion between the fifth and the sacrum depends to a large extent upon the direction of the articulations at this level. If these are in the coronal or frontal plane, lateral and rotary motions are much freer, while if, on one side or both they are in the sagittal plane, both rotation and lateral bending are much restricted. Putti estimated that more than 20 percent are sagittally directed, an anomaly responsible for a fair degree of stiffness here without injury or disease at this level. X-ray checks one's suspicion of this anomalous arrangement.

In sacroiliac conditions, the patient is more sensitive to twisting of the trunk on the pelvis while sitting than while standing, because, while standing, if the sacroiliacs are sensitive, the rotation of the body is unavoidably taken up by the hip joints. The actual range of painless passive motion may vary if performed with the patient leaning forward, erect, or leaning backward. If it is found that the range of painless movement is greater when the trunk is flexed, the diagnosis of an abnormally long transverse process impinging against an iliac wing (which may later be found in the X-ray) is strongly suggested.

Examination in standing position.—In this position, every point observed in the sitting position must be checked and compared. Inspection of the degree of lordosis is first made. The normal degree of "hollowness" of the lumbar region varies notably with body type, pendulous abdomen, flat chest, and general posture, which cannot be detailed here. Both unusually flat back and the pronounced "sway back" may be regarded as potential causes of backache, since both represent abnormal adjustments of muscle balance, making the maintenance of the erect position more easily disturbed than in a normally balanced back. The accentuated degree of lordosis limited to the upper lumbar is frequently seen in the arthritic backs of short, stout, flat-backed individuals. Lateral deviation should be compared with the degree of lateral scoliosis in sitting, the length of the two legs being measured if notable discrepancy exists in this deviation. The rhythm of the back in flexion and return is not so notably changed after joint injuries as in the sitting position. Most of the flexion may be performed by the hips with the back held more nearly motionless than during the same movements in sitting. Active hyperextension gives a more notable difference in motion in sacroiliac than in lumbosacral conditions. In the former, the movement can be seen to be

performed in the lower spine, while in the latter, where this movement is from its inception painful, hyperextension is accompanied by immediately beginning to move on the hip joints.

Examination in supine position.—This is principally conducted by passive motion, and the findings are of the greatest value in the diagnosis of the cause and determination of the exact lesion causing lumbar and low back pain.

It is important, first, to notice how the patient climbs onto the examining table. The examiner has an opportunity of observing the foot selected for the first step up, also the movement or lag in the movement which travels up the joints of the back in ascending the table. The patient with an involved hip or sacroiliac joint will never voluntarily use the leg on the affected side to rise up onto the stool in mounting the table. This is true also if the ligaments between the tuberosity or spine of the ischium and the coccyx or sacrum are sore on one side only. The patient with low lumbar intervertebral soreness or lumbosacral soreness will often raise the leg on the painful side with the knee flexed, and may raise this leg with the aid of his hands. General lumbar involvement with bilateral spasm of lumbar muscles may cause the patient to lie face downward on the couch and then roll over, thus avoiding the necessity of flexing the lumbar spine.

The natural position on lying supine must be noted. If the lumbar muscles are actually in spasm, almost the same degree of lordosis will persist as found on standing. If one side is spastic, the iliac crest can be seen to be notably higher. If this condition is due to acute muscle spasm and not to chronic fibrosis, the affected side of the pelvis can generally be brought down to the symmetrical position by a continued gentle traction on the thigh, but will promptly recur when the pull is released. With sacroiliac pain, the patient may keep one knee and hip slightly flexed, often with no lordosis. If a unilateral lumbar muscle spasm is pronounced, the patient may prefer or insist on lying on the sound side and not supine, or, if both sides are spastic, as in general soreness of the lumbar vertebral joints, he may refuse to assume the supine position and lie face down.

Passive motions should begin by the elevation of both thighs with the knees extended. The degree of motion necessary to elicit pain is almost pathognomic of the level of the spine at which the soreness exists. The first 45° of flexion can be taken up by the hip joints; thereafter the pull of the hamstrings puts a torsion strain on the sacroiliacs. At approximately 90° flexion, the torsion is transmitted to the lumbosacral level, and motion further than this flexes the intervertebral joints of the lumbar spine progressively at higher levels as the motion is continued.

An interesting test is the flexion of both thighs with the pelvis held firmly fixed on the table by an assistant, confining all torsion stress to the sacroiliacs until the arc of motion which involves the lumbosacral region is reached, then suddenly releasing the fixed pelvis. The flexion is suddenly transmitted to the junction of the fifth and sacrum, and if the soreness is localized there, a sharp expression of pain is elicited. On raising the legs separately, both sacroiliac and lumbosacral pains are elicited at a smaller arc of motion than when both are raised.

Special tests of importance are:

1. Forcible compression and separation of the iliac crests, response in one or both of which is a distinctive indication of sacroiliac sprain, while these maneuvers have no effect upon the lumbosacral articulation.

2. The Gaenslen's sacroiliac sign puts forward torsion on a suspected sacroiliac by first flexing the thigh of the suspected side, then hyperextending the thigh of the sound side. Pain appears in the suspected side.

Lateral motions of pelvis on spine can be adequately performed if the examiner passes his forearm under the flexed knees and swings the pelvis to either side. This motion can be thought of as "opening up" or pressing together the lumbar articulations as the right or left swing occurs. Unless sacroiliac strain is excessively acute, the strain on this joint is negligible, and the level in the lumbar spine which is painful can easily be determined. It is easy to produce a palpable or audible "snapping", which can often be localized in the affected joint or joints and indicates, to my mind, evidence of a low-grade local arthritis. This maneuver may temporarily relieve painful lumbar joints and relax protective muscle spasm so that the examined patient thinks he has received a beneficial treatment, or, in the terms of the chiropractic, an "adjustment." Rotation can also be studied by a similar manipulation, and its limitations or limits of painless motion can be recorded to compare later with manipulation in the sitting position. A greater range of painless motion can be elicited in the supine position on rotation and side flexion than in the sitting position, which latter position increases the muscle spasm and adds weight-bearing to the painful motions of the affected joints.

Examination in the side-lying position is merely confirmatory of previous findings and adds only one advantage, which is that of making anterior rotatory torsion possible in a questionable sacroiliac joint by hyperextension of the thigh.

Examination in the prone position.—Again anterior rotatory torsion can be applied to the sacroiliac joint, and by holding the pelvis fixed on the table, these motions can be excluded from the lumbosacral and interlumbar joints. The prone position is the ideal position for palpation of the lumbar muscle bellies and quadratus and their attachments to the sacrum and pelvis. Tender points found in the sitting position can be verified and false statements as to their location checked. Local or general muscle spasm and Hartman's defense can be studied. The sacrum and iliac crests must be carefully and systematically palpated for the telltale nodes and sensitive areas of "myofascitis" or chronic myositis. The sciatic nerve, iliolumbar and sacrospinous ligament, lumbosacral and sacroiliac joints, can be palpated directly for tender pressure points.

Exaggeration and malingering.—The data obtained from the above examination furnish comprehensive evidence when associated and tabulated for objective proof of discrepancy between the symptoms complained of and the actual anatomic and clinical findings, to prove or disprove the patient's claim. A careful mechanical and clinical analysis of lumbar and low back pain findings will sufficiently unmask unjustified complaints and aid in the detection of malingerers without special tests for malingering. If necessary, one can point out on the witness stand the discrepancy between subjective symptoms

and actual demonstrable loss of range of motion, failure of definitive tendencies, and pain on motion to correspond with the alleged disability. Certain objective features of low back strain of various types cannot be feigned. Voluntary rigidity from muscle contraction is, for instance, always bilateral. No patient can remember to keep the proper muscles contracted and complain of motion at the proper point in its excursion, which one finds in veritable strain or arthritis.

FIGURE 1.—Showing hand holds of examiner for rotating lumbar spine in erect sitting position. Rotation should also be performed in semiflexion and hyperextension.

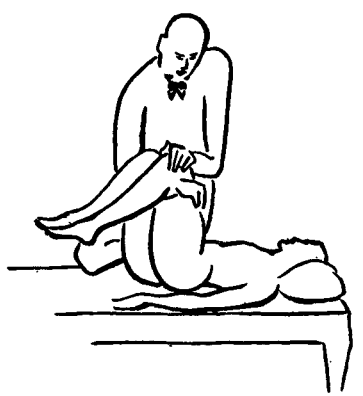

FIGURE 2.—Demonstrating lateral motion of pelvis on lumbar spine by the examiner with patient supine.

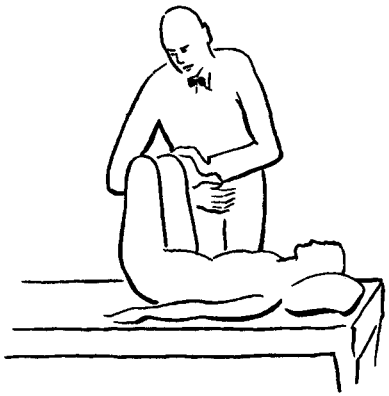

FIGURE 3.—Demonstrating lateral passive motion of pelvis to right to deter ine lumbosacral lesion.

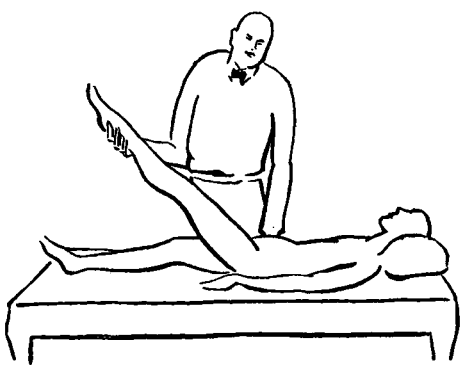

FIGURE 4.—Showing elevation of a single limb putting stress first on hip joint, then on sacroiliac, and finally on lumbosacral as elevation is increased.

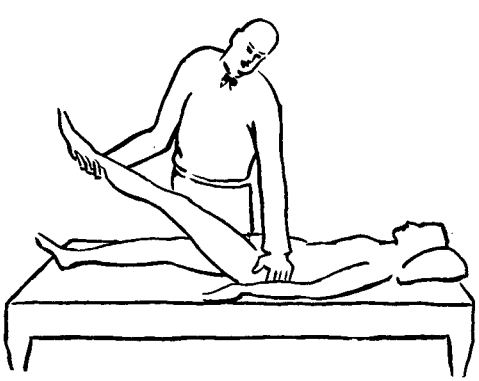

FIGURE 5.—Demonstrating method of confining torsion stress to sacroiliac joint excluding lumbosacral as long as pelvis is pinned to table, to distinguish sacroiliac from lumbosacral lesions.

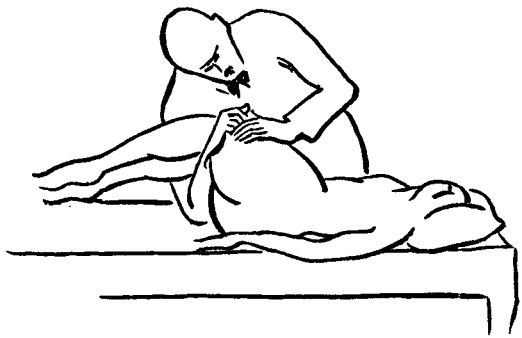

FIGURE 6.—Hand holds to test for pain on passive rotation of pelvis to right on lumbar spine.

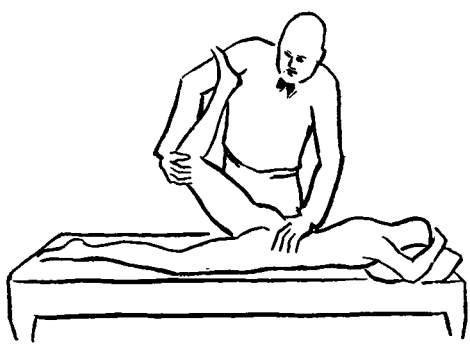

FIGURE 7.—Passive forward torsion of left ilium on sacroiliac joint. The torsion is confined to sacroiliac excluding lumbosacral joint as long as pelvis is fixed on table by examiner's left hand.

Chairman GRAVES. I think Dr. Ellis, in presenting his paper, has tried to bear in mind that all of us who are here are not doctors. It is quite common in the experience of any doctor, when examining a patient, for the patient to think, and sometimes to say, "Well, how do you know this." He has tried to make it clear to you who are not doctors that through careful study and much experience we know a lot of these things, which, of course, cannot be expected from people who are not trained in this line of work. All of the papers for this convention are printed and so far as possible arranged in a way to make the matter as clear as possible to people untrained in our particular profession.

Another thing we encounter a great deal in industrial work is the question of whether a man's complaint is due to an injury or whether it is due to some disease or natural process due to old age. In these cases, those of us who are doctors are confining our work more and more closely within very narrow limits. Some of us are surgeons and some of us are internists or men practicing internal medicine. Oftentimes I have found it very difficult to decide definitely whether the complaint was actually due to an injury or whether it was due to disease or advancing years. In order to bring these things out quite clearly, Dr. N. S. Davis, assistant professor of medicine, Northwestern University, has kindly consented to give us a paper covering those points particularly.

The Difference Between Backache Due to Trauma and That Due to Disease

By NATHAN S. DAVIS III, A.B., M.D., F.A.C.P., *Assistant Professor of Medicine, Northwestern University Medical School*

"It appears to me a most excellent thing for the physician to cultivate prognosis; for by foreseeing and foretelling, the presence of the sick, the present, the past, and the future, and explaining the omissions which patients have been guilty of, he will be more readily believed to be acquainted with the circumstances of the sick; and he will manage the cure best who has foreseen what is to happen from the present state of matters." (Hippocrates, The Book of Prognostics, as translated by F. Adams.)

This quotation from the "father of medicine", Hippocrates, seems to be most apt in opening a symposium on the subject of back pain and its causes before the International Association of Industrial Accident Boards and Commissions.

Backache is a symptom that Lambright (Annals of Internal Medicine, February 1929, p. 807) found in one tenth of the patients studied for chronic disease. It is also a not uncommon symptom of acute infectious diseases. It is a subjective symptom and so cannot be directly measured, as can such symptoms as fever and blood pressure. This multiplicity of causes, this inability to measure accurately its severity and the indefiniteness of its localization make backache a symptom that is most difficult for the internist properly to evaluate even when the complication of trauma does not exist. It is no wonder, then, that it is so commonly the chief complaint of those claiming disability as a result of injury.

Back pain is not a single entity but varies from slight discomfort to the severe stabbing pain of renal colic. In some cases it is more severe in the morning, in others in the evening; in some it is aggravated by exertion, in others improved; its location may vary from the tip of the coccyx to the base of the skull, though the laity more commonly consider backache as some sort of pain in the lumbar or sacral regions.

Sir James Mackenzie attempted to classify symptoms into three groups, namely: (1) A structural group, shown by a physical sign the result of a structural change in the tissues; (2) a functional group, due to disturbances of function; (3) a reflex group, arising from the stimulation of the central nervous system.

He further stated that there were two ways in which symptoms may be produced: (1) When a person falls ill every organ of the body may be disturbed, as from the toxins of an infection; (2) when an organ is diseased, its impaired function reacting on the other organs of the body produces another series of symptoms. He believed that the vast majority of the symptoms of disease were disturbances of the normal reflexes. (Reports of the St. Andrews Institute for Clinical Research, vol. I, Oxford Medical Publications.)

Backache is certainly a symptom arising from disturbances of the normal reflexes which may be on a structural, a functional, or a reflex basis. To make an accurate diagnosis in patients who complain chiefly of backache it is necessary to have (1) a thorough understanding of the reflex mechanisms that may be involved and (2) of the pathological conditions that may cause disturbances in these reflexes.

The anatomical unit of the nervous system is the neurone, a nerve cell with its processes, dendrites, and axis cylinder. Chains of such cells make up the nervous system; these cells do not blend with one another anatomically. At the synapse, where one such unit is in contact with another, there is a limiting membrane endowed with distinct and highly important properties. With few exceptions, at least two neurones, with an intervening synapse, appear to be necessary to make a functional unit. One of these cells must be an afferent one that transmits impulses excited in it by the stimulation of specialized end-organs or "receptors." The other must be an efferent neurone that conducts the impulses to some tissue or organ, which responds by whatever action characterizes it. But in man few reflexes are as simple as this, for most neurones have synapses with more than one other neurone—have synapses with neurones that conduct the impulses to higher and lower segments of the visceral and central nervous systems. The spinal cord, the medulla, pons, and the gray matter of the aqueduct of Sylvius, the lower or first level of Hughlings Jackson are, according to the work of Sherington, capable of reflex action only if cut off from higher levels. These are the "unconditioned" reflexes that take place in a definite predictable form that is dependent only upon the nature and the site of the stimulus applied at the periphery. Conditions that exist when the higher levels are not cut off are much more complex, for then we have to deal not only with reflexes but also with various forms of sensation and with voluntary action, the "conditioned" reflexes of Pavlov.

Furthermore, there are synapses between the neurones of the cerebrospinal nervous system and those of the visceral nervous system, the sympathetic and bulbosacral systems, which may give rise to either "conditioned" or to "unconditioned" reflexes. The visceral nervous system is connected with cerebrospinal systems on a segmental basis to give rise to some of the "unconditioned" reflexes, but also with afferent neurones that carry the impulses to areas of the brain in which they are translated into consciousness and give rise to sensations. These sensations may be referred to the tissue or organ in which the receptor is located or to tissues or organs innervated by neurones arising from corresponding segments of the spinal cord. Thus painful sensations arising from altered visceral reflexes are commonly referred to other tissues. The production of sensation furthermore depends not only on the anatomical pathways the nerve impulse takes and the character of the impulse, but also upon the receptivity of that part of the brain which is concerned in translating them into terms of consciousness. As the afferent paths utilized in the production of sensation are, in part at least, the same as those which are used in the afferent side of the "conditioned reflex", a sensation or a reflex, or both a sensation and a reflex may result from the same afferent impulse. In states of excitement or mental stress such as are seen following trauma, a stimulus, even one arising from the visceral nervous system, may set into activity the reflex mechanisms that are usually activated only by much stronger stimuli; that is, the emotional condition of the patient affects not only the neural activity underlying sensations but also the "conditioned" and even the "unconditioned" reflexes.

The relation of the visceral nervous system to the segments of the cerebrospinal nervous system are shown in figure 1, and the effects

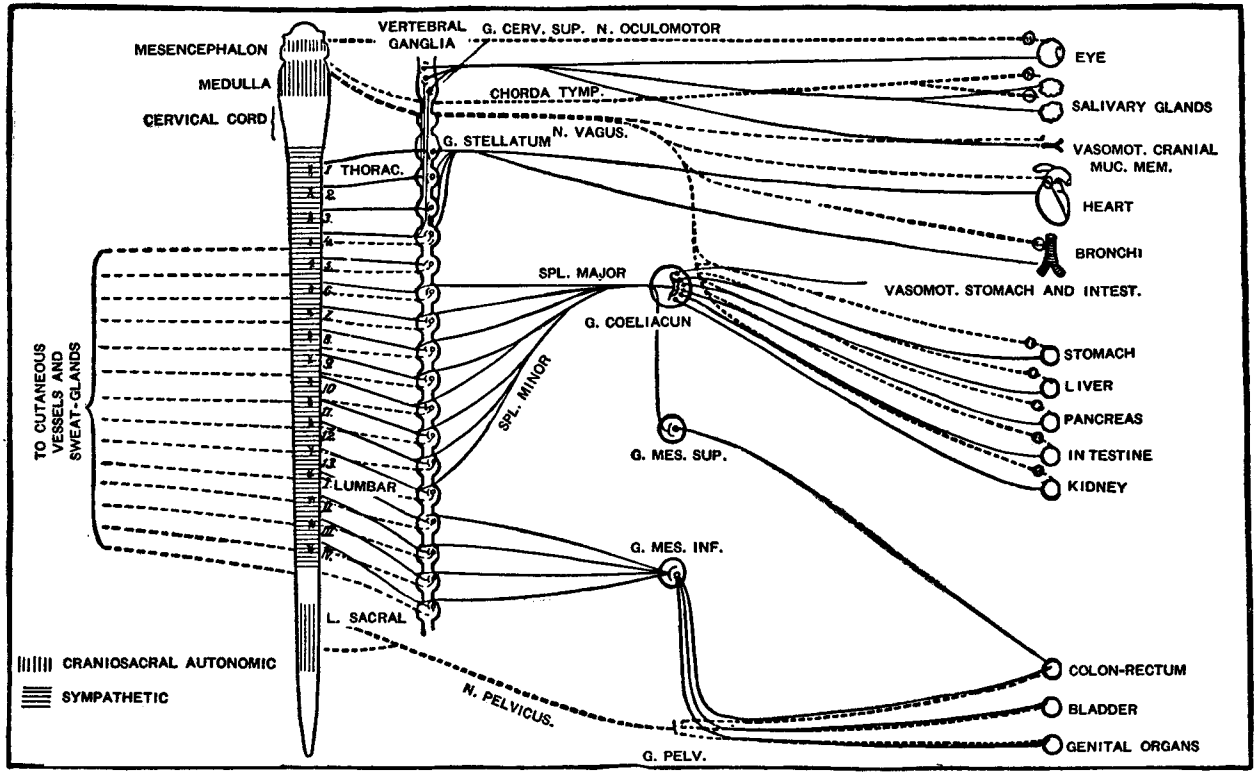

FIGURE 1.—Diagram of the sympathetic and bulbosacral nervous system. (After Meyer and Gottlieb.) The sympathetic innervation is indicated by the continuous black line and the light dotted lines arising from the sympathetic segments (horizontal etching). The bulbosacral autonomic is indicated by the heavy dotted lines arising from bulbosacral segments (verticle etching).

of stimulation of the visceral nervous system are shown in table 1. In figure 1, the efferent pathways are indicated. While the afferent pathways are not identical with the efferent, they parallel them quite closely. In figure 2 is shown the segmental or radicular innervation of the skin. From a study of these figures and tables it appears that afferent impulses arising in the colon, for example, may give rise to sensations and other disturbed reflexes in the areas receiving innervation from the sixth to twelfth thoracic, first to fourth lumbar, and first sacral segments. Usually sensation arising

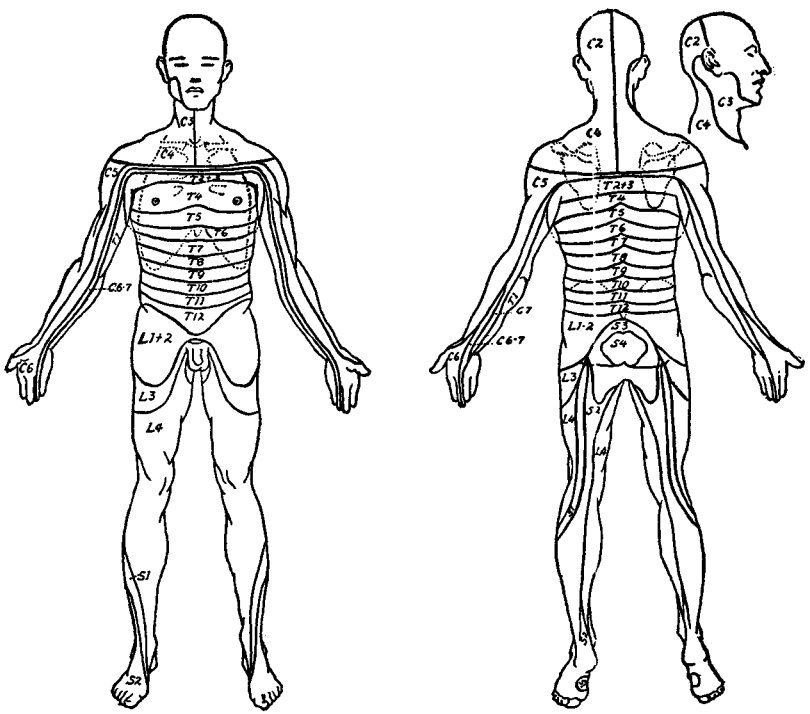

FIGURE 2.—Segmental innervation of the skin. (After Hewlett.)

from impulses set up in the colon is referred to the abdominal wall, but not infrequently it is associated with lumbar pain and may even give rise to some spasm in the lumbar muscles. Similarly, impulses arising in the pericardium, pleura, peritoneum, liver and bile passages, esophagus, stomach, small intestine, pancreas, heart and aorta, kidneys, ureters, bladder, prostate, seminal vesicles, uterus and adnexa, and other organs or tissues of the chest and abdominal cavities, and the diaphragm may give rise to sensations of pain in the back, the location of which is dependent on the level from which the organ in which the "receptor" is located derives its enervation.

TABLE 1.—*The visceral effects of stimulation of the sympathetic and craniosacral systems (after A. W. Hewlett)*

Organ	Effect of sympathetic stimulation	Effect of craniosacral autonomic stimulation
Sphincter Iridis	Stimulates (Th. I and II)	Stimulates (N. III).
Dilator Iridis		
M. ciliaris		
M. orbitalis (Mueller's)	Stimulates (Th. I-III)	Do.
Salivary glands		
Cerebral blood vessels	Constricts (Th. II-IV)	Stimulates chorda tympani.
Oral blood vessels	do	Dilates (N. X).
Cutaneous blood vessels of head	Constricts (Th. II-IV)	Constricts (N. IX).
Coronary blood vessels		
Intestinal blood vessels	Constricts (Th. II-L. IV)	
Genital blood vessels	Constricts (L. I-IV)	
Sweat glands	Stimulates (Th. II-L. IV)	Dilates (N. pelvicus).
Mm. arrectores pilorum (face)	Stimulates (Th. IV-VII)	
Heart muscle	Stimulates (Th. I-V)	
Esophagus	Relaxes (Th. II-IV)	Inhibits (N. X).
Cardia	Paralyzes (Th. II-L. IV)	Excites (N. X).
Tonus of stomach	Diminishes (Th. II-L. IV)	Do.
Peristalsis of stomach	Paralyzes (Th. II-L. IV)	Increases (N. X).
Secretion of stomach	Diminishes (F)	Do.
Motility of intestine	Inhibits (Th. II-L. IV)	Do.
Colon	Relaxes (L. I-IV)	Excites (N. X).
M. sphincter ani	do	Excites (N. pelvicus).
Gall bladder	Relaxes (Th. II-L. IV)	Cramps (N. pelvicus).
Pancreas secretion	Inhibits (?)	Contracts (N. vagus).
Bronchial musculature		Excites (N. X).
M. sphincter vesicae	Contracts (L. I-IV)	Do.
M. detrusor vesicae	Relaxes (L. I-IV)	Inhibits (N. pelvicus).
Uterus (pregnancy)		Contracts (N. pelvicus).
Uterus (gravid)		
M. retractor penis	Contracts (L. I-IV)	
Sugar tonus	Increases (Piqure of Cl. Bernard)	Relaxes (N. pelvicus).
Heat tonus	Increases (Piqure vermis)	
Pigment cells	Contracts	

P. T. Herring (Reports of the St. Andrews Institute, vol. II, Oxford Medical Publication) states that he is of the opinion that pain in muscle, whether voluntary, cardiac, or involuntary, is always associated with contraction of the muscle, but that some other factor or factors are necessary, of which deficient blood supply is one of the most important. Backache as a rule is described as a deep pain rather than a superficial one. If there is tenderness associated with it, it is deep rather than superficial tenderness. This is true whether the backache is a symptom directly ascribable to recent trauma—that is, contusion, strain, sprain, or fracture; to visceral disease; or to toxins of an infection. That is, commonly backache seems to be due to muscular pain. Figure 3 illustrates the somatic connections between the sympathetic ganglia, the arteries, arterioles, and the viscera and the central nervous system. Thus it is possible to have afferent impulses from a viscus reflexly stimulate the involuntary muscles of a viscus, cause vasoconstriction of arteries and arterioles and even voluntary muscles. The diminished blood supply so produced may so affect the viscus as to increase the afferent impulses from it and may also cause a relative ischemia in the voluntary muscles of the back whose arteries and arterioles are innervated through the sympathetic from the same segment of the cord. This ischemia of the voluntary muscles gives rise to another set of afferent impulses which in the central nervous system may be converted into sensations of pain, and since visceral afferent impulses usually do not affect consciousness directly, the backache is frequently the only subjective symptom. Arteriosclerosis and hypertensive vascular disease

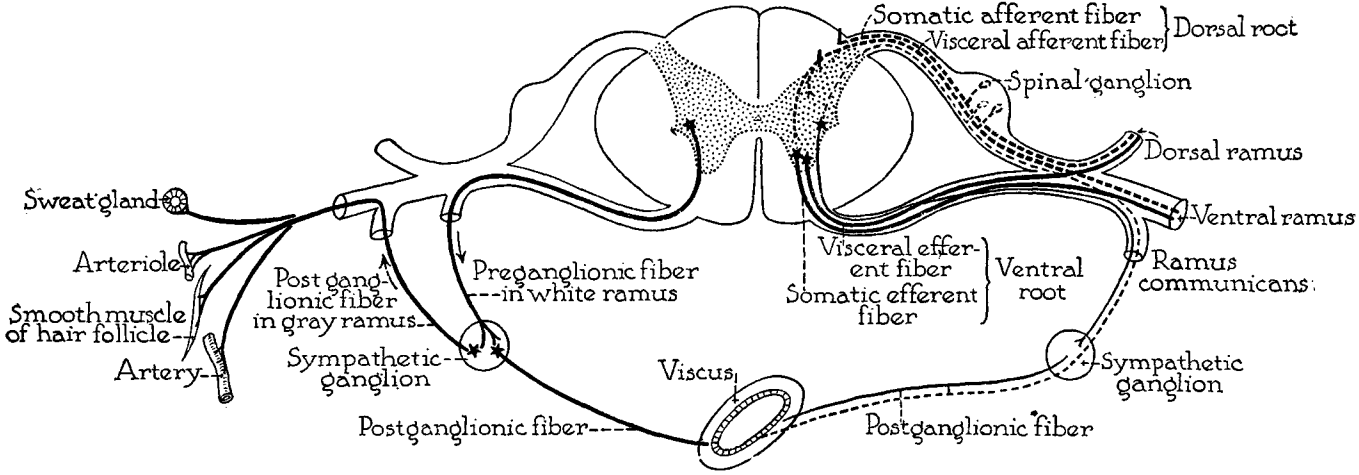

FIGURE 3.—Diagram, right, presenting a section through the spinal cord, a sympathetic ganglion, and a spinal nerve to illustrate the chief functional types of peripheral nerve fibers, and, left, the distribution of postganglionic efferent sympathetic nerve fibers. (After S. W. Ranson.)

may also give rise to an ischemia of the back muscles that may stimulate reflexes that result in backache and muscle spasm. It is evident that disease in a viscus may give rise reflexly to alterations in the physiology of the muscles of the back that are almost identical to those produced by pathological lesions involving those muscles or their attachments or the ligaments associated therewith.

Capps and Coleman have shown that irritation of the parietal pleura and peritoneum causes pain to be referred to areas corresponding to the point irritated. They found the pericardium insensitive to pain. Irritation of the diaphragm on both its peritoneal and pleural surfaces caused referred pain. When the central position of the diaphragm innervated by the phrenic nerve was irritated the pain was referred to the neck to the region supplied by the third and fourth cervical nerves. The peripheral portion of the diaphragm is supplied by the lower six intercostal nerves, and irritation of this portion gives rise to pain referred over the lower thorax, epigastrium, and even down over the whole abdomen. With the pain is associated hyperesthesia and hyperalgesia of the skin and superficial tissues, and somtimes muscular rigidity. (Capps and Coleman. A Clinical Study of Pain. New York, The Macmillan Co., 1932.)

It has been shown by J. E. Goldthwait that visceoptosis, which usually involves both the thoracic and abdominal viscera and is associated with a low diaphragm and incorrect posture, may give rise to afferent impulses that ultimately result in backache. (Journal of Bone and Joint Surgery, April 1933, p. 279.) These impulses can readily produce changes similar to those already described for a viscus and for the pleura and peritoneum.

It is then evident that on an anatomical, physiological, and neurological basis, backache may be a symptom of pathological conditions in the abdominal and thoracic cavities as well as of changes in the spinal column and the voluntary muscles of the back. Pathological changes in the central nervous system, both functional and organic, may also give rise to backache. Steindler includes in this group tabes, meningitis, syringomyelia, lateral sclerosis, tumors of the cord, hemorrhage into the meninges or substance of the cord, and neuritis. Fatigue is a common cause of both headache and backache. In some individuals, the headache is more common and in others backache. This type of backache is purely functional and no anatomical or physiological changes are found associated with it, though it may be accompanied by some hyperesthesia, hyperalgesia, and increased muscle tone if not by actual muscle spasm.

The title of this paper is The Difference Between Backache Due to Trauma and That Due to Disease. So far all that has been said makes it appear that there are no differences. The question of congenital anomalies and of arthritis has not been discussed, as that subject is to be taken up later in the symposium. Toxins from infection have been but briefly mentioned for two reasons—because of the relation of such toxins to arthritis and chronic rheumatic disease, and because in acute infections such as typhoid, paratyphoid, undulant fever, dengue fever, secondary syphilis, malaria, etc., the acute illness of the patient and his other symptoms make it evident, even in the presence of an injury, that the injury has little, if anything, to do with the backache. Lesions of the spine causing backache have also not been mentioned as they are to be considered by others.

What, then, are the differences between backache due to trauma and backache due to disease?

The backache may have the same location, the same intensity, the same character whether due to trauma or to disease. Hyperalgesia, hyperesthesia, increased muscle tone, and muscle spasm may be present in either case. It is therefore necessary to look elsewhere if we are to make such a differentiation. That a differential diagnosis may be made, it is necessary to take a careful history, a history that is not only complete since the time of the injury but also prior thereto. As the history is usually the most important single item in the making of a diagnosis, it should be taken by the attending physician and not by a relatively inexperienced assistant. Then there must be a most careful physical examination including a thorough neurological examination and observation of posture, habitus, etc. During the taking of the history and the making of the physical examination, the physician should endeavor to estimate the intellectual capacity and the emotional condition of the patient. After such an examination, the physician should have a definite idea as to the presence or absence of acute or chronic infections, of the results of malnutrition or disease in childhood or at any time prior to the injury; of defective posture and its results; of disease of the central nervous system, the respiratory system, the cardiovascular system, the gastro-intestinal system, the genito-urinary system, of diseases of metabolism, of diseases of the bones and joints. It is advisable at this stage to record a tentative diagnosis. Then such laboratory tests should be ordered as are needed (1) to confirm the presence of visceral disease, disease due to toxins or preexisting disease of the bones and joints, and (2) to rule out fractures, dislocations, and other lesions that might be the direct results of trauma.

The differences between backache due to trauma and that due to disease consist, then, in the presence, in backache due to disease, of symptoms and findings that are characteristic of disease of the central nervous system, of the viscera of the thorax and abdomen, of acute or chronic infections, of diseases of metabolism, and of changes due to faulty habitus or congenital anomalies and the absence of findings characteristic only of injury.

Trauma may, however, affect backache that is really due to nervous or visceral disease. As stated before, the afferent impulses in their passage upwards may excite reflexes at various levels, and may or may not give rise to sensations. The impulses arising in a diseased viscus may be such that under ordinary circumstances they give rise only to "unconditioned" or at most to "conditioned" reflexes but not to sensations. Trauma, direct or indirect, to the back increases the receptivity of those portions of the brain that are concerned with the translation of afferent impulses into terms of consciousness; as a result the injured individual acquires a new symptom, backache. The backache may be added to the previous symptoms or may be substituted for them. Hyperalgesia, hyperesthesia, and muscle spasm may develop because of similar increases in receptivity in the synapses having to do with "conditioned" and "unconditioned" reflexes.

Under these circumstances is the backache due to disease or to trauma or to both? Has the trauma caused an aggravation of the disease or just an aggravation or alteration of the symptoms?

The patient has a pain where he had none before or a nondisabling distress has become a disabling pain. Without doubt, the backache is in such a case due to the trauma, at least insofar as it is more disabling than it was before the injury. But should a patient with backache due to visceral disease but aggravated or precipitated by trauma be entitled to the same compensation as an individual who is equally incapacitated by backache which is not associated with visceral disease, but is due directly to an injury? It would appear that a less severe trauma would be required to cause disability in the man who had a visceral disease that might at any time have caused the backache even if he had not sustained an injury, than would be required to cause such disability in one not suffering from visceral disease. A slight injury with resulting backache that is really disabling should cause one to suspect preexisting visceral, osseus, or articular disease or malingering. Evidence of the presence of preexisting visceral, neurological, osseus, or articular pathology should make one think a long time before making a diagnosis of malingering. It would be most unfair to make a diagnosis of malingering in an individual who, because of a disturbance of the normal reflexes arising as a result of an injury, really had incurred a subjective aggravation of a preexisting pathological condition. It does seem, however, that one with disability due to a subjective aggravation of a preexisting pathological condition should not receive as much compensation as should the individual with equal disability for which the trauma was the only cause found.

It is evident, then, that insofar as the condition under consideration, backache, is concerned, sensation and reflex action are closely bound up together. Sensation may be induced by visceral reflexes, so backache may be due to pleuritis, meningitis, peritonitis, heart and arterial disease, gastro-intestinal disease, etc. While it is impossible to state definitely what is physical and what is mental insofar as backache is concerned, it does seem that this problem will eventually be solved. As T. W. Salmon has stated: "The discovery of regulating mechanisms—chiefly in the central nervous system—that enable whole systems of organs to act in sympathy with other systems show us that the minute study of a single organ is inadequate to explain even all of its own functions, much less the part it plays in the life of the organism as a whole. Thus the way is rapidly being cleared for the concept of man as an organism acting, even in his most circumscribed mental or physical activities, as a whole."

So in the differential diagnosis of backache, whether it be cervical, dorsal, lumbar or sacral, whether constant or intermittent, severe, or mild, whether associated with hyperesthesia, hyperalgesia or muscle spasm, we must consider these factors for what they are worth, but must not neglect to examine the man as a whole, if a correct diagnosis is to be made and the recovery of the patient hastened.

"Life is short, and the art long; the occasion fleeting; experience fallacious, and judgment difficult. The physician must not only be prepared to do what is right himself, but also to make the patient, the attendants, and the externals cooperate." (The first aphorism of Hippocrates.)

Chairman GRAVES. Our next paper is by Dr. Magnuson, whom a good many of the Chicago men and some of the out-of-town men

will remember as the first medical director of the Industrial Commission of Illinois. Dr. Magnuson established our medical department and largely our medical reputation in the industrial commission; and his work has had a great deal of influence on the formation of medical departments of industrial boards of other States. Dr. Magnuson is to give a paper on Congenital Anomalies and Arthritis as Contributing Causes in Injuries of the Spine.

When a great many of these cases come up for decision and the severity of injury has been taken into consideration, almost invariably the question arises, "What was the condition of this man's back prior to the injury?" In examining a good many thousands of X-ray plates surgeons have found that there are relatively few backs which come before the industrial commissions by reason of accident that have not had something the matter with them prior to the accident. One of the important questions is to separate those two conditions and to decide how much is due to one and how much is due to the other—how much the accident aggravated the injury. I do not know of anyone more competent to enlighten us upon that subject than Dr. Magnuson.

Congenital Anomalies and Arthritis as Contributing Causes in Injuries of the Spine

By Paul B. Magnuson, M.D., F.A.C.S., *Professor of Surgery, Northwestern University Medical School*

The normal spine is a complicated mechanism composed of small segments of bone held together by ligaments of considerable elasticity, and supported by joints which overlap, each vertebra overlapping the one below and allowing a small amount of motion. This mechanism supports the trunk and head and also encloses the central nervous system which controls all motion and sensation below the skull. Over the anterior surface of the spine there is a fine plexus of nerves, which control the autonomic functions, namely, the sympathetic nervous system. So we can see that an injury to the spine and the structures which immediately surround it can affect motor and sensory nerves, and may have an effect on the purely automatic control of the functions of the body. Because of the complicated anatomy and the strains put upon it, and because of the heavy layer of posterior muscles, examination of the spine is difficult, and the highest degree of analytic ability, differentiation, and power of elimination by exclusion is required in making such examination with a view to diagnosis of existing conditions.

Back injuries, therefore, have been looked upon with suspicion for many years. Varying opinions may be obtained as to the degree and character of disability in a given spine, and this has resulted in a feeling that injuries to the spine, and, as a matter of fact, all conditions causing pain in and about the spine, are vague, and are many times claimed by a patient without corroborative evidence. The interpretation of the degree of importance of certain findings in the X-ray of a spine is probably the cause of more dispute among attorneys than any other evidence. This is doubtless due to the fact that the plaintiff's attorney grasps at anything that he feels may be made into objective evidence of what he believes may be the result of an injury. Because

of his insistence, medical men have many times allowed themselves to be involved in argument as to whether a condition was or was not due to bony injury. Injury to the spine is like injury to any other group of structures in the body, and in forming an opinion there should be taken into consideration not only the bones, which show in the X-ray, but all the other tissues that go to make up the support of the trunk, namely, ligaments, tendons, muscles, fascia, the capsules of joints and the joints themselves, and the nervous system which they so closely surround. An injury or an inflammatory condition, as well as growths pressing upon the spine, can all cause symptoms which are referable to interference with the function of the nervous mechanism.

It has been interesting to me for more than 20 years to note that the largest number of back injuries—as a matter of fact in my experience over 80 percent—occur in individuals past 40 years of age. Practically all the cases that came before me while medical director of the Illinois Industrial Commission, in which there was dispute as to occurrence of injury, its seriousness, or its influence upon the alleged disability, were in patients whose tissues showed the results of degeneration caused by the wear and tear of life. If you will think back over cases which you have seen, I am sure that you will be able to recall very few of men in early life where injury to the spine resulted from comparatively slight trauma, who were not restored to perfect health and usefulness; on the other hand, you will be able to recall many cases of older men, who, though only slightly injured, never returned to their former occupation. In many of these cases you have been told that the patient had arthritis, and X-ray evidence was offered in proof thereof. X-ray evidence of arthritis is always ancient evidence, because arthritis is not apparent in the X-ray until the cause of the arthritis has existed for many months and probably years.

Then there arises the question as to whether the arthritis or the injury is causing the disability. The same conditions which produce arthritis produce changes in the ligaments, which cannot be demonstrated by the X-ray. The ligaments, instead of being elastic and strong, become inelastic and more or less brittle, and it is possible to injure them with comparatively slight trauma. One point which has not been impressed sufficiently upon the minds of the medical profession or of those laymen who deal with injuries is that an injury does not change location; the point of pain from an injury does not vary from day to day. If there is tenderness one day, the tenderness is in the same place the next day and the day following, and a patient who cannot locate accurately the point of pain from one day to another should immediately be cataloged as one who does not have an injury. If a ligament is torn or overstretched, the pain remains in the same place constantly from the time the injury occurs until it is well; it does not shift. The same is true of an injury to a bone or joint, or the detachment of a muscle or tendon. On the other hand, pain which is due to a mild inflammatory condition is frequently more generalized, some days worse in one position, some days in another. it varies from day to day in intensity and frequently in location. It is perfectly true that tenderness occurs in constantly the same spot from inflammation due to tumors or abscesses, but these give other symptoms, both on physical examination and in the X-ray. In an injury to the tissues making up the spine, the same motions that cause

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pain one day will be found to cause pain on the next day if the examination is repeated. Therefore, in cases where there is suspicion regarding the probability of injury and the diagnosis, careful record should be made on first examination, and checked within 24 or 48 hours to see whether the symptoms remain the same. If on the second examination they are found to vary, they should be checked a third time, and if they vary again from the first two examinations, there can be grave doubt as to whether there is any real injury. In any injury or disease of the spine the nerve symptoms due to extension of inflammation, and pressure due to swelling, frequently come on some time after the injury or the onset of disease, and develop as a result of the extension of an inflammatory process or pressure, so that these symptoms may increase in severity in the course of days or weeks. But if they are due to local pathology they constantly involve the same group of nerves, and the area can be traced, if one has knowledge of the routes of the nerves, as easily as railroad men trace a certain car on a given area of switch tracks. Sometimes the pressure on nerves will cause pain referred to the terminal of a sensory nerve whose trunk is involved in an inflammatory process. This explains the development of so-called sciatica in low back injuries, so-called neuritis of the arm in neck injuries, and referred pain around the chest and abdomen in injuries along the dorsal and lumbar spine.

The first examination of a patient who complains of injury to the back should be most thorough and complete. As a matter of fact, this holds true in every case of injury or disease. A patient may have a pain in his back due to something entirely foreign to injury, but if it is not so diagnosed early in the case, and if the doctor has not come to a definite conclusion as to its cause, the patient may be perfectly honest in his conviction that he has injured his back, and may have this conviction firmly fixed in his mind at a later date if the cause for the pain has not been found. There is little logic in coming before an industrial commission or a court and testifying that a man is a malingerer, or that his pain and disability are due to some disease, after he has been treated for months by heat, diathermy, massage, and other therapeutic agents before the doctor reached this conclusion. In my opinion, most of the cases of malingering and neurosis seen in industrial practice are the direct result of improper diagnosis and poor treatment, and it is the responsibility of the medical profession to detect the malingerer at once and to prevent the development of neurosis by finding the cause of pain, whether it be due to injury or to disease.

A careful examination means not only keen analysis on the part of the examiner, but also the expenditure of much time; and the doctor who is pressed for time constantly, and usually underpaid for his services, is always handicapped. He has a one-man job, with only one head and one pair of hands to do his work; there are a limited number of hours in the day in which to work, usually none to play, and sometimes few to sleep. Without a clear head and time to use it, many cases of so-called injury to the spine may be allowed to slip by without diagnosis of the cause of the pain in the back. My own feeling in the matter is that most patients who complain of pain in the back have pain in the back, but it is also my opinion that at least 50 percent of them have pain in the back due to something besides injury, or the pain is only precipitated by some happening at the time

the patient is working. A thorough examination at the first complaint of injury, with the privilege of spending a little money for blood chemistry, blood counts, X-rays of teeth, examination of the throat and sinuses, would result in a large saving in money and time and would eliminate the necessity for many aggravating adjustments. If there is any doubt in my mind upon first examination as to whether a man has or has not been injured, he is sent to a hospital where he can be kept at rest and under observation and where a diagnosis can be made. If the ligaments of the spine are injured and there is evidence of arthritis in the X-ray, it can be fairly assumed that this patient is going to make a comparatively slow recovery. It is impossible to give complete rest to the spine and its supporting ligaments except by putting the patient to bed. Braces help, heat helps, but the factor that caused the arthritis must be eliminated before the condition can be completely remedied, and until that factor is eliminated in all probability the patient will continue to have pain in the back.

Two of the greatest causes of arthritis are low-grade infections and toxemia. By toxemia is meant poor intestinal elimination, putrefaction of various kinds in the intestinal tract, or an incompetency on the part of the general organism to handle certain kinds of food or a considerable quantity of one kind of food. The average workman has a comparatively limited diet, and he may have an intolerance or partial intolerance for certain foods which he had been taking month after month. These foods leave a residue, because they are not handled as they should be, and this residue is in the form of an irritating poison. The poisons are deposited in the ligaments, in the attachments of muscles around the edges of joints, and at the attachment of joint capsules, because these tissues are low in blood supply and consequently low in resistance. When these chemicals are deposited they act as irritants to the covering of the bone at the attachment of the tendons and ligaments, and roughenings develop which are apparent in the X-ray. We all carry large factors of immunity in our various organs which prevent their breakdown for a long time, but finally these factors are overcome by the constant feeding in of small amounts of poison, and it is during the last 20 years of life that they begin to show the effects most positively. If a man is injured, if he continues to carry these toxins in his blood, with the constant deposition in the attachments of muscles and throughout the ligaments, we cannot expect to have the already damaged ligaments heal and again support the weight to which they have been accustomed. Low-grade infections cause the same sort of damage, but are usually much more apparent in the physical examination.

For these reasons it seems to me that medical men and laymen interested in industrial practice should insist on the thorough examination of a patient from every standpoint at the time he first comes under observation; that no stone should be left unturned to find out the cause of the pain and disability, not with the idea of proving that it is not due to an injury, but with the idea that should always be uppermost in the minds of those who handle such cases, of ascertaining the cause of disability and then instituting proper procedures to relieve it.

Anomalies of the bones of the spine are frequent, especially in the lower lumbar and upper sacral regions. The objective evidence here

is plain, inasmuch as the spine is not normal, or rather, is not within normal limits as shown by the X-ray. Dr. Potter will tell you about wedged-shaped vertebrae, and I am sorry that he will not have time to tell you about many other anomalies, the interpretation of which leads to much diversity of opinion. There are certain anomalies of the spine which weaken its mechanical structure, probably the most frequent being those which occur between the fifth lumbar vertebra and the sacral articulation. As mentioned at the beginning of this paper, each vertebra has a bony process which fits over a bony process extending upward from the next below it. If it were not for these processes in the normal spine, all the strain of holding the vertebrae together would come directly upon the ligaments. At the junction of the lumbar spine with the sacrum, the fifth lumbar vertebra fits on top of the first sacral at an angle of about 45° to 60°, depending upon the amount of curve that an individual has in the spine. This, from a mechanical standpoint, is a weak arrangement, because the fifth lumbar vertebra has a constant tendency, due to the weight of the body above, to slip forward and downward, being prevented from doing so by the bony projection of the articular processes of the vertebra which fit over the first sacral, locking it in place, plus the ligaments and muscles which support the back. There are many variations at this particular point in the spine, consisting of changes in the angle of articulation, so that the fifth lumbar is sometimes not firmly locked over the first sacral vertebra. These processes vary so much in their ability to support the spine that it frequently becomes confusing to say what is normal and what is an anatomical anomaly. We have seen the joints vary in their angle on the two sides, one side being perpendicular and the other side approaching the horizontal. Sometimes both sides approach the horizontal, and in some cases there is a complete failure to unite between the anterior and posterior part of the fifth lumbar vertebra. Not infrequently we find six lumbar vertebrae instead of five. In some cases the wings of the hip bones, called the ilia, come up high on each side of the fourth and fifth lumbar vertebrae, and at other times we find the fifth lumbar vertebra set high on top of the sacrum, with the wings of the ilia barely level with the top of the first sacral vertebra.

It becomes necessary, therefore, to define what is a strong back and what is a weak back. In general, we may say that the short, heavy, thickset back, with properly overlapping processes, is the strong back. The long thin back, with considerable space between the lower ribs and the top of the hip bones or pelvis, is the weak back, and to put a man with a long thin back to doing heavy lifting is to court disaster. If it were possible to X-ray the lower back of each man who applies for work at heavy labor, and to eliminate the structurally weak backs from that type of work, there would be fewer back injuries, because the leverage on a long back is much greater, while the muscles which control the motions of that back are no stronger and frequently not so strong as those which control the shorter back, which has less leverage from the weight.

There are also anomalies in the lateral processes in this region, which have caused much discussion. The lower back is still going through a period of evolution, and Dr. Theodore Willis of Cleveland has shown that in more than 700 anatomical specimens which passed through the laboratory at Western Reserve University, 3.5 percent

had anomalies of the lower spine. We do not know, of course, how many of these people had suffered from pain in the lower back, but when X-rays of patients who did complain of pain in the lower back were examined, it was found that the percentage of anatomical anomalies shown in the X-rays was much higher than in the supposedly normal individuals. This would indicate that anatomical anomalies of the lower spine do cause weakness in a certain percentage of cases, and yet quite frequently such anomalies are found when the spine is X-rayed for other causes than pain in the lower back, and when such patients are questioned as to whether they have had any trouble in the back many of them reply that they have never known they had a back. There is one anomaly, however, of which we have spoken, which undoubtedly is responsible for slipping of the fifth lumbar vertebra on the sacrum, and that is a lack of bony support between the fifth lumbar and the sacrum, caused by a failure of the vertebra to unite properly in all its parts, or by serious changes in the angle of this articulation so that the fifth lumbar does not properly lock over the sacrum.

We fit animals into their proper niches in life; we breed bird dogs for finding game because a good nose is required; we do not hitch them to carts, because they are not built for it. We breed heavy horses for hauling heavy loads, horses that have thick stocky backs and large muscles; we breed other horses for speed, long-legged animals with agile muscles. But with men we do not differentiate between the man who is fitted for labor and the man who is fitted for speed. Various efforts along this line on the part of large corporations in the last few years have been considerably hampered by the rules of the unions, and in these socialistic days, when it seems that a great many people feel that they are entitled to a living whether they work or not, even when there is plenty of work, it is increasingly difficult to fit a man into his right niche. But from the standpoint of anatomy this should be done, and when it is done there will be fewer back injuries.

It must be emphasized in conclusion that X-ray evidence in the case of arthritis or mildly traumatic injuries to the spine is worth very little, because it shows only the bones, and the bones are a comparatively small part of the mechanism which goes to make up the back and its support. Careful examination, with a thoughtful analysis of the findings, will show that the large majority of injuries to the back are due to other causes primarily and that the trauma is the thing that precipitates the pain. The pain would not be caused were it not for the underlying degeneration of the tissues. Therefore let us give thought and attention to the diagnosis of the cause of pain in the back, rather than to the pain itself. The pain is only the red flag which calls attention to the fact that there is something wrong.

Chairman GRAVES. Dr. Magnuson has made it plain how it is that sometimes when we have complaints as to backs we are at a loss to attribute the complaint the man makes to the particular accident that he had. While of course, as doctors, we all know that the X-ray does not show everything, I think it is reasonable to say that it is probably the most important single factor that we have in determining actual injuries to bone, to say nothing of some of the other uses to which X-rays are put. In Chicago we are fortunate in

having one of the most experienced X-ray artists in this country, Dr. Hollis E. Potter, and he has kindly consented to give us a paper this morning on certain conditions in the spine which we will all find very interesting. We are looking forward to a rather general discussion of all of these papers by everyone—not the doctors alone—because, so far as possible, the papers have been arranged so that they will be easily understood by people who do not have medical training. They are the ones who we particularly hope will discuss liberally what the doctors have told us.

(1) The Wedge-Shaped Vertebra; (2) Some Distinctions Between Healed Fracture And Healed Vertebral Disease

By Hollis E. Potter, M.D., *President, Chicago Roentgen Society*

The Wedge-Shaped Vertebra

Although every man connected with the health of industrial workers is constantly brought into touch with injuries and disabilities referable to the spine, and although most of us are in some way or another led to look at and judge from the appearances shown on X-ray films made from these painful backs, it is probably true that the X-ray method, and particularly the finer technic which brings out details in the spine, is not so old but that there are points of confusion still remaining in the minds of many. It may not be amiss, then, to call attention to two or three general rules regarding the interpretation of changes in the spine, for if we have in mind a few good general rules the number of cases in which there might still be confusion will become less.

It is well known to all of us that in sections of the spine below the neck the most common type of fracture is that produced by bending of the spine forward. A person is doubled up like a jackknife, and at the point of greatest pressure certain vertebral bodies may become compressed or impacted so that when X-rays are obtained they show a narrowing at the anterior edge, with perhaps no narrowing posterior. In other words, the bone substance in the forward part of the vertebra has been squeezed down so as to produce a more or less wedge-shaped vertebra. While this can usually be suspected on the anterior views, it can be very much more surely made out and measured on the lateral views of the spine. Often, indeed, the same mechanism produces the same type of fracture in the neck, but inasmuch as this region is very much more movable and the injury may take place when the neck is twisted at one angle or another, fractures in the neck may be quite variable.

The wedge-shaped vertebra is such a common consequence, therefore, in fractures of the middle and lower spine that doctors and arbitrators alike have too often jumped at the conclusion that whenever a wedge-shaped vertebra is demonstrated this constitutes a sufficient proof of a fracture in connection with any given injury. I would like to bring out certain X-ray features which are almost constantly present when the wedge-shaped vertebra means compression fracture, and certain features in those cases where the wedge-shaped vertebra did not result from fracture but is merely found incidentally.

In the first place, it is not generally known among doctors and arbitrators that when a compression fracture occurs in the middle or lower spine the compression almost invariably takes place at the upper and anterior portion of the body and hardly ever at the lower anterior aspect. For some reason we have seen this occur time and again but have not come to appreciate the constancy of the defect at the upper side. A short time ago I took the trouble to count more than a hundred fractures at the dorsolumbar spine and found that the lateral views showed uniform evidence of compression in the upper part of the vertebra rather than in the lower part. I took the matter up with roentgenologists in three other cities and through their courtesy 500 compression fractures in all were reviewed, and in only one case below the upper dorsal region did the lateral X-ray films appear to show that the compression was in the lower part of the vertebral body. When the compression is relatively slight and recent this point is easy to recognize. When the compression has been carried farther so that the front of the vertebra is not more than half as wide as the back, then, particularly in the old healed cases, it may be necessary to judge from the outlines of the whole vertebra as to where the breakdown occurred. I will show on lantern slides that in these cases the inferior line of the vertebral body lies at a right angle to the posterior line, whereas the superior line is at acute angles to the posterior line. This in itself demonstrates that the deformity was produced by a condensation or impaction of the upper anterior portion without affecting the lower part. Now this general rule can be used to distinguish compression fractures from deformities of vertebrae produced by causes other than fracture. It so happens that in these other conditions the changes are quite as frequently at the lower anterior part or involve both upper and lower portions alike. We will later emphasize one or two common causes of wedge-shaped vertebrae that were produced by influences other than fracture.

It is also true that in the fractured wedge-shaped vertebra one is usually able to make out not only the impaction at the upper part of the vertebra but also some outline changes at the anterior profile such as are produced by comminution of fragments. Also one may see changes of internal structure in the vertebral body even though no distinct lines of fracture are evident after recent injury. In a fracture which has become largely healed the irregularities at the anterior profile tend to smooth off a good deal but still may show a slight overhang or projection at the impacted area just below the articular edge. Internal structures show a new network of bone which somewhat approaches the normal, but the condensation of bony impaction may persist for a very long time. When, therefore, the lateral view of the vertebral body shows it to be narrow in front by reason of impaction or condensation of the upper anterior portion, and when in addition some local outline irregularity or change in internal structure is present a diagnosis of compression fracture is fairly certain.

Now it is a fact which has been too much overlooked that wedge-shaped vertebrae are not very uncommon as a result of some changes peculiar to the growing age between 13 and 16 years. Much has been learned in recent years concerning a condition called osteochondritis, which by many has been viewed as a noninfective inflammation of

the incompletely ossified components of the vertebra probably brought on by some violent movements or actual slight injuries. It has been explained by many as an injury mainly to the blood supply affecting the centers of ossification in the forward part of the vertebra. It does not usually produce a very sore back but is usually the cause of some pain and spasm. It is often incorrectly diagnosed as tuberculosis.

The old-fashioned expression "growing pains" is probably explained by some measure of osteochondritis of this sort. The facts are, however, that a single one or several adjacent vertebrae show at this stage on lateral films an irregularity in the small bony centers which are incompletely developed at the upper and lower anterior part of each vertebral body. The condition runs along until the bones have obtained their final ossification, after which an observation shows that they are more or less wedge-shaped. In these cases the narrowing at the forward margin of the body is not caused by any apparent condensation or impaction of bone, and the narrowing is as much from faulty development on lower side as on upper.

In later life such wedge-shaped vertebrae, if multiple and extreme, may cause a slight stoop or kyphosis. They also show greater tendency to develop osteoarthritis than other portions of the spine. So now with its arthritis this spine is more vulnerable to injury than the normal spine, and if the X-ray findings are not properly interpreted a diagnosis of compression fracture is wrongly made. If seen long after injury and accompanied by the spurs of arthritis how easy it is to interpret wrongly the arthritic spurs as callus.

Wedge-shaped vertebrae may also be present as a congenital variation in architecture and thus accidentally found in X-rays following spinal injury. Another type of wedge-shaped vertebra may also be seen as the result of infective disease, which often destroys more of the front than the back of the vertebral body. Such infective disease in active stages may be distinguished from fracture by the signs of spongy bone dissolution and by the fact that the disease tends to invade the adjacent intervertebral joint rather early in the disease. This presents on lateral X-ray films a picture of decreased joint space and ragged joint margins, especially on the side first affected. An abscess may be recognized in outline or may be assumed to exist when small irregular bony fragments are cast off, and lie at the side or in front of the vertebrae.

Such infective breakdown may or may not result in a vertebral body of wedge form in tuberculosis and less frequently in typhoid, pneumonia, and simple pus infections.

Some Distinctions Between Healed Fracture and Healed Vertebral Disease

The X-ray is sometimes called upon to distinguish between a very old fracture and old healed disease such as tuberculosis of the spine. In certain cases this may be difficult, but there are some fundamental differences in the X-ray appearances which may be most valuable in reading a short series of spine films made at various angles.

In the first place, it is a well-known fact that in vertebral fractures the intervertebral cartilage is more resistant to injury than the bone composing vertebral bodies. Even in severe impactions the

cartilaginous interspace tends to retain its normal width as the bone is crunched down. Usually the lower margin of the vertebra above retains its normal crisp uninterrupted line. The impacted vertebra may show some irregularity at its upper margin because of the irregular collapse of fragments.

In vertebral disease the contrary is most often true. There is a strong tendency for disease to invade the joint at an early period, and this disease rapidly destroys the fibrocartilage and by extension invades the vertebral body adjacent. This gives a collapse in which the interspace is reduced in size and the joint margins are ragged and irregular. While the disease is active there is not likely to be real confusion in diagnosis.

When, however, the disease becomes healed, the bone regains its density and much new bone may be formed between the bodies and surrounding the interspace in such a manner that it might be confused with the callous formation about a severe fracture. Neither the disease nor the fracture may call forth a great amount of new bone, or either may do so. When the new bone formation is exuberant, then must one apply his rules regarding preservation of interspace. At some angle or other the X-rays in fracture will show the original crisp articular margin of the vertebra above and more or less completely the intact margin of vertebra below an interspace. In healed disease no angle can be found where this is true. The vertebrae may be partly or completely fused together, with permanent reduction or entire loss of cartilaginous space. The new bone surrounding the outside may be quite similar in healed fracture and disease. The key finding is the preservation of the cartilaginous space after fracture, and this may only be visible in an oblique or lateral view.

I will now try to show by a series of lantern slides a number of illustrations as to the character of the deformity in the wedge-shaped vertebra produced by fracture and in further lantern slides the distinction between old fracture and old vertebral disease.

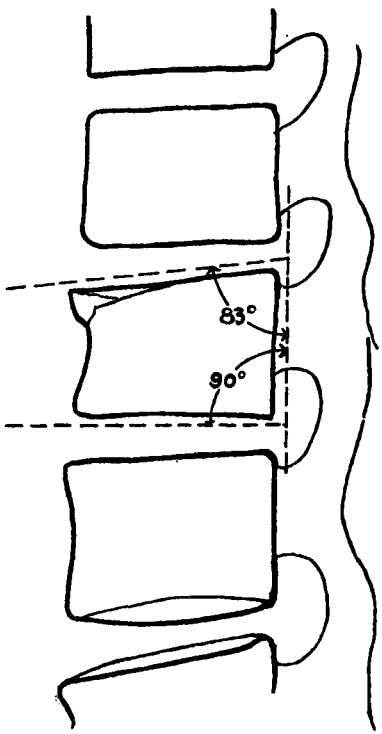


FIGURE 1.—Slight compression fracture in body of an upper lumbar vertebra. The compression is entirely at upper anterior portion. Using the posterior margin as a base line the degree of compression is about 7 percent.

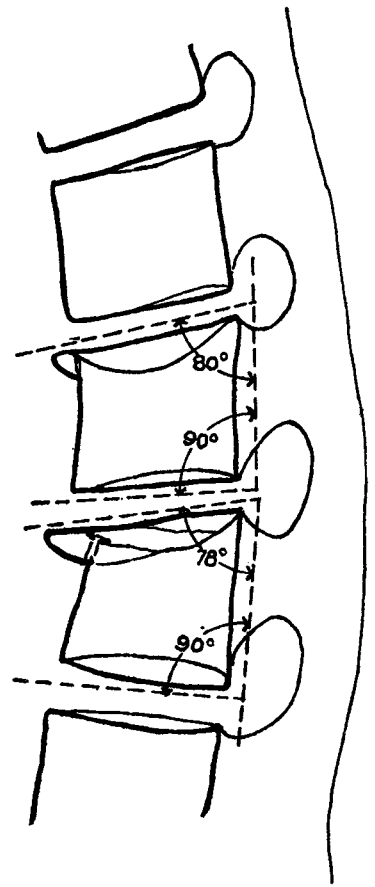


FIGURE 2.—Compression fracture of two vertebral bodies at dorsolumbar region. Both occurred at upper anterior portion, not the lower. The angle of upper surface to posterior margin has been dropped from 90 degrees to 80 degrees and 78 degrees.

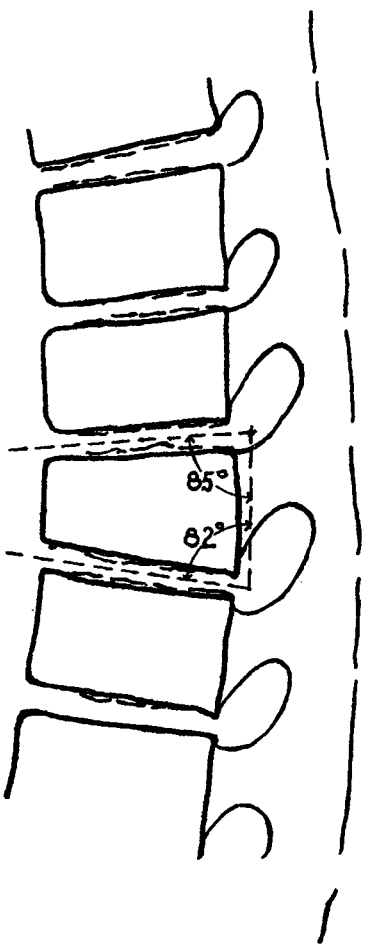


FIGURE 3.—Tracing from lateral view through midthoracic region. Here in a case of osteochondritis a wedge-shaped vertebra shows lowered angle of 8 degrees at its inferior surface and 5 degrees at its superior surface with respect to its posterior base line.

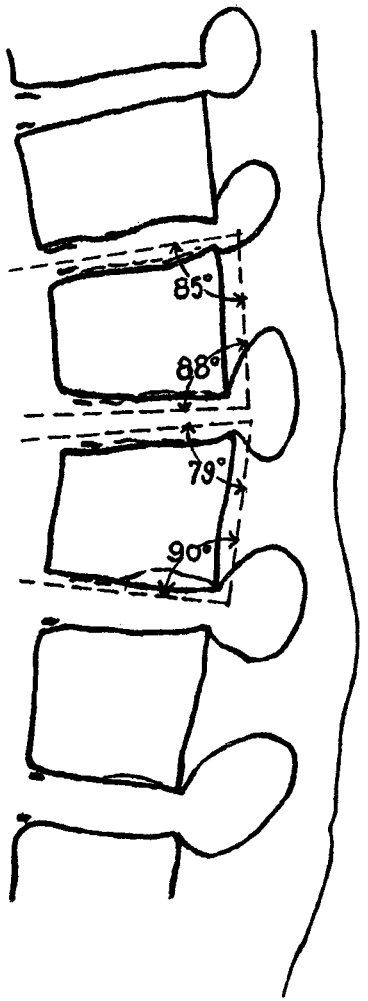


FIGURE 4.—Another osteochondritis in lower dorsal region showing tendency of wedge form to be caused by deficiency at lower anterior as well as at upper anterior surface. The outline form aids in differentiating from fracture in later life.

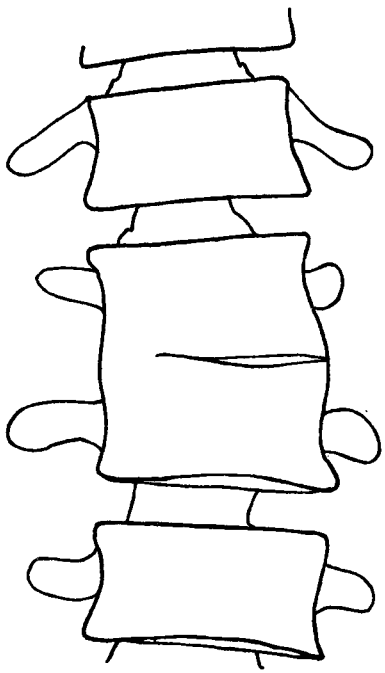


FIGURE 5.—Tracing from healed disease in lumbar region. Here the cartilaginous interspace is nearly gone and a firm bony fusion has taken place at right side. In healed fracture the interspace is preserved. The disease was typhoid infection.

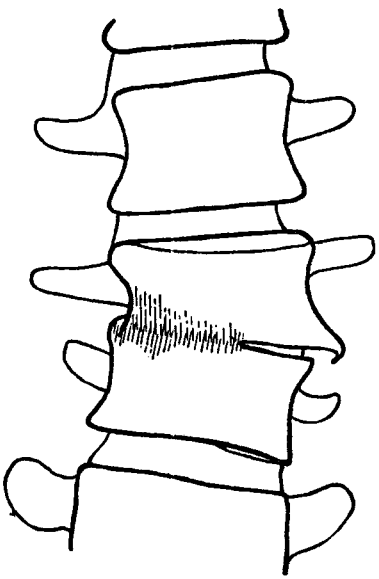


FIGURE 6.—Healed tuberculous disease in midlumbar region. The cartilaginous space again is nearly gone. Bony union is taking place.

DISCUSSION

Mr. HALFORD (Ontario). I should like to ask the doctor who was showing the vertebrae a question or two in regard to some of the things he said. Like everyone else who is administering compensation on boards, I was quite interested in some of those things. A great many of those fractures have come to our notice. The first question is this:

After the intervertebral space is cleared away and there is no obstruction whatever and no ragged edges, should there be much, if any, disability?

Dr. POTTER. That is not an X-ray question but a question on disability. It is not actually an X-ray question whether a person is disabled or not, clinically. However, the question might be put this way: In the average case, if the clearing that you speak of does occur, is it favorable to lessened disability? Is that more like it?

Mr. HALFORD. Yes.

Dr. POTTER. The clearing you mention is what? I suppose you mean if the spaces between the fracture are preserved. That is a difficult thing unless you differentiate them from disease which destroys the inner space.

Mr. HALFORD. Another question: When a fracture is healed perfectly, as you outlined there, and there was just a slight fracture and no spinal-cord injury, should there be any disability? I am speaking of the slight fracture that is perfectly healed.

Dr. POTTER. That is another question of disability. Year after year we find people who have had a slight injury and a slight fracture and did not know it, because it was not disabling at the time. They go along through life, and it may be discovered accidentally some 15 or 20 years afterward. In my opinion, fractures are not as disabling, many times, as are strains and sprains without fracture.

Mr. HALFORD. We have had a number of cases where the workman has had a spine fracture and really did not know it. He was never told about it and he went on with his work. There is one more question, Doctor. I have never heard of a spine being affected through typhoid. That is new to me. We have the tuberculous spine, and I was wondering if there would be very much disability after that condition has been cured by bone graft or anything else. Should there be very much disability in a case of that kind, particularly in tuberculosis?

Dr. POTTER. That is a very broad question and it is again a question of disability. Many cases of tuberculosis and typhoid go through a course and heal up so that they are fused. You have done practically what you wished to do by operation, which is to fuse them.

Mr. HALFORD. I have one more question. One thing we are all interested in is osteoarthritis. Does a fracture naturally increase the osteoarthritis in a spine, particularly where the fracture is, and in the spine in general?

Dr. POTTER. Yes, I think it does in the course of months, many months. When a fresh fracture occurs in the vertebral body, you see some measure of osteoarthritis in the immediate neighborhood. After 6 or 9 months the picture shows that the osteoarthritis im-

mediately around the region of the fracture has increased; the amount of bone laid down has increased. You see some laying down in 3 to 6 months, but you see it more matured in 9 or 12 months.

Mr. HALFORD. Does it tend to initiate osteoarthritis other than where the fracture is or in the vicinity of the fracture?

Dr. POTTER. You are practically asking whether trauma has an influence in the formation of osteoarthritis. There are two aspects to that. One is a severe injury like that which produces a fracture, and the other is a large number of small repeated traumas. The influence of trauma, broadly speaking, in the formation of osteoarthritis is admitted by all writers. There was a very good article in a recent journal. A man who has examined 2 or 3 thousand cases said, "I can tell whether the man was right-handed or left-handed by seeing the evidence of his spine."

So small traumas have an influence in the formation of osteoarthritis as we see it in life, but osteoarthritis as we see it in the X-rays is the effect of influences that have gone on through the man's life and have left their hyperthrophic marks, and there is no measure of good support for it.

Dr. MAGNUSON. I should like to say, in answer to the question as to how much disability a fracture may give, that there is no reason why a fracture of the spine should occasion a permanent disability.

What occasions a permanent disability in fracture of the spine, in my opinion, depends upon two things. Of course, in a fracture dislocation where there is injury to the nerve supply, that more or less results in a permanent disability, providing the nerves have been pressed upon or injured sufficiently to put them out of business to a greater or lesser extent. I think what we are talking about more particularly is compression fractures; that is, where the bodies of vertebrae are compressed anteriorly, as Dr. Potter has shown. He has shown the differentiation between those things and the other things that may be confused with them.

The disability in a compression fracture of the spine depends upon this, as I see it. If you will notice the X-rays Dr. Potter showed us, some of those spines have an acute angle in them; and if you draw a line from the neck down to the top of the fractured vertebra and then meet it with a line coming up through the middle of the lower vertebrae, you will see that they vary in angles.

No man can stand with his back permanently bent over in this position [demonstrating] for any great length of time without having pain, but many times that pain is not in the fracture, because those fractured bones heal. That pain is caused by the constant cross-strain and overstrain put on the muscles and ligaments of that man's spine because he has a permanent angle in his spine and cannot take it out. If you want to find out how that feels, just put the front of your leg up against a fender of an automobile and stoop over and look at the engine for 20 minutes without straightening up. Then you will know just what happens in a compression fracture of the spine where there is a permanent deformity which throws a man over the line.

There are ways of correcting that. One is hyperextension at the time of injury sufficient to reduce that disability and put the man in an upright position again. If that is impossible, and in some

cases it is, another way is by means of a compensatory curve above and below. By compensatory curve I mean this: If we have an angle in the spine like that [indicating on blackboard], by tilting this part of the spine forward you partly straighten it, and if you put another curve in front of that, so far as the upright position is concerned, you have restored it.

If that bone heals and there are compensatory curves developed above and below, then that patient is reestablished in the upright position and strain is taken off the ligaments and muscles. There are two things to do:

Reestablish the normal outline of the bone by actually breaking up that impaction that has resulted from the fracture. Nature will fill in that bone so that a year later Dr. Potter cannot tell that there is a fracture there. Nature has filled in that bone and the edges are square.

Or else develop a compensatory curve above and below that fracture to compensate for the angulation that is put in that spine. Relieve the muscles of the leg and back. Many of these cases of fracture of the spine which have that angle do not have pain at the point of fracture but have pain in the lower lumbar and sacroiliac region, where the great muscles which are responsible for the upright position of the back are attached.

Those are the things that govern the amount of disability as the result of fracture, not the fracture itself. The bone heals just as true as any other bone heals.

Mr. PARKS (Massachusetts). As good as it was before?

Dr. MAGNUSON. The bone is as good as ever. When you maintain a man in that stooped position his muscles cannot stand the strain; when you relieve the strain he is as good as ever.

Mr. PARKS. Does the fracture have anything to do with that?

Dr. MAGNUSON. It has, because that is the cause of throwing him out of plumb. The end result is the same, but the fracture itself heals.

Mr. PARKS. You have to treat the stooping?

Dr. MAGNUSON. You have to reestablish the upright position of that individual so that he can stand without a constant overstrain on his muscles and ligaments.

Mr. HALFORD. In cases where there is a fracture, do you think it is wise to bone graft or heal or reestablish, as you call it, soon after the accident or later on? . What period do you think is advisable? I have heard doctors say that the reestablishing of the spine should be undertaken quite early instead of waiting for 5 or 6 months or a year, for the simple reason that it is more easily reestablished then, and should be done so as to prevent further disability.

Dr. MAGNUSON. A fracture of the spine which causes injury to the nerves should always be operated on as soon as it is seen and can be taken to a hospital where it can be done properly, because any pressure on the nerves or nerve cells for any great length of time produces a degeneration in those cells, even if it has not killed them or compressed them very badly right at the time of injury. The thickening and induration helps the pressure and there is serious disability. That does not mean that all cases of injury of the spine and cord are

relieved by operation, because they are not, but every fracture of the spine with injury to the cord where there is a block—where there is sufficient pressure on the cord so that the spinal fluid cannot circulate freely—should be operated on immediately.

In compression fracture the thing to do is to reduce the deformity. Here we have a wedge-shaped vertebra. This is at one angle to the spine and that is at another. The thing to do immediately is to try to reduce that compression; that is, the jamming in and the crushing in of the bone cells. The spine is made of what we call cancellous bone. It is a honeycomb sort of bone. It is like the shaft of your long bones. By hyperextending that patient properly we can pull that fractured space apart so that the vertebrae will stand this way, this space being empty, and then nature will fill in that space and in that way the spine can be reestablished. If this is not done right away, you cannot do it at all.

If the thing has already healed sufficiently so that when you see it you cannot do that, then the next best thing to do is to bend the patient's spine that way there [indicating] and that way there [indicating] so that the weight-bearing line is reestablished. You can do that sometimes by hyperextension and exercising.

There is no trouble about the bone healing. It is the position in which it heals. Suppose you have a spine like that [indicating]. The man's head is here, his arm is here, and he is standing in a stooped position. Suppose the fracture healed with good solid bony callus. He comes before you and the doctor says, "This fracture is healed. Here is the callus. Look at it. That bone is all healed."

He is perfectly right, but what is this man doing? He is holding himself up with big guy ropes of ligament which run from the spine down here to the hips. He is holding himself at an angle and frequently he has no pain there at all. He has pain down here [indicating].

Mr. PARKS. After listening for 21 years to doctors giving testimony before me in contested cases, and then meeting such doctors as we have here this morning (and we have the same type in Massachusetts and all over the United States), I sometimes wonder if some of the men I have to listen to belong to the same profession.

You gentlemen here today have made it so clear. In a case of a wedge-shaped fracture, if these doctors who tell us the unvarnished truth about such a thing were the only ones permitted to come before us, we would have no difficulty at all. It is the other fellow, who comes forward. Of course he is supposed to have the requisite qualifications, but after the insurance lawyer asks him for his qualifications we find out sometimes that this man is still an interne. He takes a chance, however, on asking and answering all kinds of expert hypothetical questions and enunciating medical doctrines that no one ever heard of before. We are all at sea then and do not know just what to do about it.

You say, "Why are you telling us about it?" I presume there are a number of doctors here. I was impressed with this statement by Dr. Magnuson: "It is the responsibility of the medical profession to detect the malingerer at once and to prevent the development of neurosis by finding the cause of pain, whether it be due to injury or to disease."

That is the whole thing—whether the man is a faker, or not. Only a few months ago I had a man before me who was claiming for disability. His compensation had been discontinued. When the attorney called on the doctor to testify, he testified that the man's back injury was no better, that he was still suffering from a fracture, and that he would continue to suffer. I looked up the record and found that his injury was a wrist injury.

I said, "Well, Doctor, did you know that this man never hurt his back, that all he had was a wrist injury? Did he tell you that?"

"No. I didn't know that. He didn't tell me that. He told me he had hurt his back."

"So you believed him? You have actually found that he did have an injury to his back?"

"Yes."

Well, of course when the doctor finds an injury to his back when the man never had such an injury, when he tells you that the man is unable to work and will never go back to work, what are you going to do with the doctor? That is an actual case and I can tell you about many more like that.

It is the responsibility of the medical profession to clean up this thing. The Massachusetts Medical Society is taking steps to do so. The matter has gotten so bad (I know it has in my State and I presume it has in other States) that clean, honest, respectable, God-fearing doctors who know their business will not come before the industrial accident board and be bullyragged by these lawyers who are making a racket out of compensation. They will not come, but we can always find unreliable doctors who will come in and say anything for a fee. Whose responsibility is it? In the compensation work in the United States we want the assistance of doctors of the type we have heard here this morning. We want them in this work. We want them because the workmen's compensation act is an honest act, the most humane piece of legislation that has been enacted in the United States. It is intended to take care of honest injured workmen and the dependents of those who are killed. What has happened? The law in practice has become burdensome on industry, it is true. In payments we have gone from $1,000,000 to $12,000,000 a year in our Commonwealth. A good many of those millions are being paid to people who should not receive them. If it were not for that, we could increase the benefits to those who are honestly entitled to them.

The medical profession has the key to the whole situation. If we could only get the medical profession interested, through its medical societies, in coming to the hearings to testify, that would solve the problem. For instance, Dr. George, who is one of our impartial expert X-ray men and has been for about 21 years, comes before our board time and time again. When he is testifying I know I am getting 100 percent truth. I know his testimony can be relied on, and there are a good many others like him I could mention.

In a case where a doctor had treated a man for 5 years for backache, I asked the man, "How are you feeling?"

"Badly."

"Are you any better after this treatment?"

"No."

"Do you feel any worse?"

"Yes, I feel worse than I did in the beginning."

The doctor testified that he was treating this man every week, three times a week, with massage and diathermy. While diathermy is a good thing, I think it is the most abused service in existence. This doctor was running a sanitarium in that city and people were led to believe that he was an expert.

This fellow had been on compensation for 5 years. I said to the doctor, "This man said he had a pain in the back and you put him on diathermy." He did not have a fracture, just an ordinary sprain from bending down and lifting an object; he felt a pain in the back or something like that. I asked the doctor if he had cured him. He said, "No."

"Are you going to continue to treat him?"

"Yes, as long as he comes to me."

I could have added, "As long as he has the money to pay." I cannot believe that the medical profession is so backward that it cannot cure a man of a plain, ordinary sprain in 5 years. I think it reflects on the medical profession to have that put on the record.

I am talking about this situation because it must exist in every State in the Union. We are going to clean it up in Massachusetts; those fellows are not going to continue to get away with that stuff. As the doctor well said in his paper, instead of making the correct diagnosis in the beginning, looking to see if there is an infection, looking for the foci of infection and giving a thorough examination, such a doctor says, "Come in tomorrow and we will start you on diathermy." He starts on diathermy and sends the bill to the insurance company. It gets report after report and the doctor starts collecting his money.

The workmen's compensation act is not a doctor's act nor a lawyer's act. If we knew what the lawyers are getting, perhaps we would find that the lawyers are getting more than the doctors. We would not mind so much if they would give good service.

If the doctors would just tell us the truth. That is what we want. You may disagree with each other. You may have honest differences of opinion. I have had a dozen X-ray men all see a picture in a different way. Perhaps that is an honest difference of opinion. Sometimes it is and sometimes it is not.

You members of the great and honorable profession of medicine have the key to the welfare and the future progress of the workmen's compensation act. We want it administered honestly, that is all. Come in and tell us the truth. I do not care if you do get big fees; I want you to be paid for your work. You have to live; you have to support your offices, and you have to support your families. You are entitled to decent fees. We will see that you get them, but we want you to do something for them.

We want the big men in the profession in this work. That is my appeal to you this morning. Come into it and do not be afraid of the shysters that are in it. If you do that, you will be a great help to this work, and incidentally to the great profession that is yours. We have many problems. We want to make these injured fellows well and strong.

Mr. STEWART (Washington, D.C.). The workmen's compensation commissions of the United States pay to injured workmen over $119,000,000 a year. They pay for physicians and hospitalization

$112,000,000 a year. When we started out medical cost was about 5 percent of operating expense; now it is about 35 percent.

The workmen's compensation commissioners of this country (and I was secretary of this association for over 12 years) are a lot of buck passers. There is no reason why they should be so terribly at the mercy of the physicians who treat corns and consumption in the same way. We have unfortunately written into our compensation laws and into our compensation practice the doctrine that the worker may choose his own physician. The trade unions were largely responsible for that, for the reason that company physicians and insurance company physicians were the first to be witnesses against the injured worker. You could nearly always depend on their being for no disability or for a minimum disability. They were employed by the wrong side and they were not fair.

Very often the workers do insist on selecting their own physicians. In a concern in Philadelphia that has a welfare department, if a man or woman is away from work more than 1 day somebody goes to see what is the trouble. In one case a fellow had been away for 3 days as I remember it. The concern sent a welfare worker to see why he had not come to work. The welfare worker came back and reported to the establishment's physician that the man had just been taken to the hospital for an operation for appendicitis. Knowing where the man worked and the conditions of the work, the physician was suspicious. He hurried out there and found the man all tied up with painter's colic, and the white-clad doctors were just going to operate for appendicitis. There is no question but that that is the penalty the workmen pay very often for choosing their own physicians.

You can get at that in a different way, but there is no excuse for compensation commissioners permitting the kind of physicians that Joe Parks is talking about to practice or even to appear before them. Very often these physicians are organized gangs of humbugs. I know what I am talking about. New York had an epidemic of lead poisoning. A gang of so-called physicians would inject lead into these poor devils of workers. The workers were in the game too. I am not saying that it was done without the consent of the fellow who was getting enough lead shot into his system to produce an urinalysis that would show lead.

Not only do you not have to consent to the practice of that sort of medicine before you, but it is your duty to see that those fellows go to the penitentiary.

In Toronto they fired 11 doctors last year because they caught them in rather questionable practices in the matter of their reports—nothing like what they practice here in this country. While I do think, as Parks said, it is up to the American Medical Association to clean it up, it is also up to the American Medical Association to form such a contact with the members of this association as will enable them to clean out this racket, for that is what it is. It is a racketeer movement on the workmen's compensation fund. It is paying out $112,000,000 a year to doctors and hospitals. It is up to you doctors, but it is not primarily up to you; it is up to the lazy workmen's compensation commissioners.

Mr. HALFORD. We have our troubles just as you do, but we have some wonderfully good doctors. I do not by any means condemn

them all. There are a few who are not good, and we deal with those few in accordance with the merits of the case. It is unfortunate that you people do not have such a law as we have in Canada. We have a right to say whether or not we shall receive their reports. When we find that a doctor is not acting in accordance with the principles he should abide by, we simply notify him and call it to his attention. If the doctor does not violate the principle again, all well and good. If he does, he knows the consequences. We tell him that if he does not want to practice under the rules and regulations of the board, he does not have to. That settles it.

Mr. Stewart said that we put off 11 a short while back. That is actually true. We are putting doctors off all the time, for various reasons. The medical fraternity is in accord with our practice and is delighted to see them go because they are not very much good to anybody in the profession. The doctors cooperate with us. If there is trouble we are very glad to see their representatives and we deal with them. The representatives learn the true facts of the case. I have not seen one case where they disagreed with us. They knew we were absolutely right in taking such action.

Of course, there is this about some of your commissioners over here. You do not get the experience to deal with these fellows because they are not left on the board long enough, but that is another question. How do you know these things? You have to have experience. In Canada they let us alone; we are put on the board for a long period and, as a rule, we stay there. I have been on the board for 12 years and I am learning things all the time.

Mr. BAKER (Kansas). You have to become bad for them to put you off.

Mr. HALFORD. Perhaps. If they had a bad one, there would be little difficulty about that. However, they let us stay there as long as we are right.

I really believe that if you could get an act something like ours it would be beneficial not only to the workmen but to the community at large. Of course, some think the act was made for them and nobody else. Their bills are sometimes indicative of what their souls are, but they have to take the consequences. You can generally tell what a doctor is when he sends in his bill. We have a staff of 7 or 8 who have nothing to do but look after bills and keep track of these fellows. When we find them deserving censure, they get it. I think Mr. Stewart struck the nail on the head when he said the commissioners are (I will not say lazy) dilatory. I think you should take the bull by the horns and try to rectify the situation.

[Meeting adjourned.]

Chairman, Samuel S. Graves, M.D., formerly medical director Industrial Commission of Illinois

Chairman GRAVES. The first paper that we have this afternoon is entitled, "Reduction of Disability by Fusion of Vertebrae after Back Injuries", by Dr. C. R. G. Forrester, of Chicago, who has had a matter of 30-odd years of experience with broken backs.

Reduction of Disability by Fusion of Vertebrae After Back Injuries

By C. R. G. FORRESTER, M.D., F.A.C.S., *Professor of Traumatic Surgery, Loyola University Medical School*

I have been asked by your committee and particularly by your chairman, Dr. S. S. Graves, to give a paper on this subject. In doing so, I wish all the readers to keep in mind that the opinions expressed are based solely upon my own experience over a period of 32 years, during which time I have devoted my entire practice to industrial surgery, read many papers before industrial societies, and have written a book on the subject. To state how many cases of back injuries I have handled, ranging from fractures to concussions and simple sprains, would be impossible as it goes up into many thousands.

There is, of course, among the medical men, a marked diversity of opinion as to the best procedure to follow. I am beginning to think, however, after a careful observation that opinion is divided and a rather sharply outlined difference will be found between the orthopedic surgeon and the traumatic surgeon, in that there is more of a tendency on the part of the orthopedic surgeon than the traumatic surgeon to fuse spines—a matter of opinion based on the observation of both parties.

There is no doubt but all of us will accept certain conditions as calling for fusion:

1. For instance, a spondylolisthesis (which is a slipping of the fifth lumbar) of congenital origin which has become aggravated by trauma which after conservative methods does not clear up.

2. Occasionally, an injury sufficient to produce a fracture through the fifth lumbar vertebra, involving the pedicles and lamina, and the fracture causing the same symptoms as that of a spondylolisthesis and which can only be proven by X-ray in the event good lateral views are taken from more than one angle.

3. An old tubercular spine, which has become healed, but in which a severe trauma has definitely lighted up the old process; in other words, produced a definite aggravation.

One of the most important factors in the handling of all back injuries is the immediate examination, with sufficient X-rays at hand to make an accurate, scientific diagnosis. I do not hesitate to say that in some instances there is the occasional physician seeing these cases who is not

sufficiently trained to conduct that examination or interpret the X-rays. That is not a criticism of the physician, because in many instances the accident occurs in an out-of-the-way place where proper facilities cannot be obtained. The responsibility then rests with the chief or consulting surgeon, who should have full authority to act. In such instances, where the condition is not immediately recognized, a chronic condition may occur which in the opinion of some surgeons calls for fusion.

As yet I have not found one that could not be cured if properly treated by conservative methods. I have not seen a case in my own practice, with the exception of the three conditions above mentioned, in which it was necessary to perform a fusion operation.

I have seen some cases where a fusion operation had been performed in which the disability was doubled, the medical costs doubled, and the man still disabled. The operating surgeon in that instance will say, "Well, if this was a private case in which litigation did not enter the field, he would be all right in the usual time."

If that is the case the same features enter into the picture in plain fracture of the spine not in litigation, which is very true. For instance, in the last year I have handled three private cases of severe fracture of the cervical vertebra. All these wore my collar brace—one for 4 months, one for 7 months, and one for 6 months. None of these cases lost any time away from their occupation, and continued on with their work after removal of the brace without any complaint. On a check up, all three at this time admit complete cure and none of them were fused.

I am not surprised that, after hearing such cases, there may be a terrific amount of confusion in the mind of an arbitrator or commissioner as to how to decide them, particularly when, in hearings before you, one group of doctors testify to a cure and the other group testify to a permanent total disability for life. About the only solution, as I can see it, is that you organize a statistical board in which the ultimate analysis of these cases could be made. You could then determine very quickly which side was correct; in fact, your final results would probably amaze you, particularly in regard to how soon that man returned to work after his case was settled. Again, it is probably very hard for the layman to understand why I am not in favor of a fusion operation to reduce disability except as stated above, and I will try to explain my reason in your own language.

First, in fractures of the spine the process of bone repair, which is the throwing out of a supporting and healing callus, performs the same function of fusion as an open operation. It does it in the same period of time with much less risk, cost, pain, or suffering.

Some may say, "Well, why does the pain persist and the man complain that he is unable to work?" There are two possible and probable answers: (1) He was not given sufficient immobilization by the surgeon, or (2) his case is not settled yet.

In occasional instances some surgeons say fusion is indicated in back pain where there is not even any evidence of fracture; for instance, when the pain is low down in the sacroiliac region. I have proved conclusively that attention must first be paid to a careful examination generally for focal infections. If present, clear them up, and then if the condition does not repair, a simple wrenching of the back will do wonders. This was a method taught me by Sir

Robert Jones, of Liverpool, England. I have used it time and again with remarkable results and I have never had to fuse a case. Some of my associates have accused me of practicing osteopathy, which, of course, does not interest me. It is results for the man we are after.

Chronic rheumatic backs aggravated by trauma do not call for fusion. Fusion will not cure them if you do not remove the focal cause. To my mind even the suggestion of a fusion operation to a patient only tends to exaggerate to him the extreme severity of his condition. There are many instances in my practice where the patient had a chronic back pain in which I made the suggestion to him that he take an anesthetic and let me manipulate his back, resulting in a very rapid cure without the anesthetic and manipulation.

Again, the layman hearing a case in which a fusion has been performed feels he must, in view of his lack of personal knowledge and the apparent severity of such an operation, give the man a large award as a matter of precaution and protection; so the company interested, I might say, has gained nothing by this additional problematical expenditure.

In some instances cases are settled as based on the cost of the operation plus temporary and total disability after the patient has refused operation. The practice is vicious as it develops two factors—the man gets his money and disappears, or the occasional case becomes a neurotic and a dependent upon society.

In closing, I wish again to emphasize my position; this paper is written and based upon the observation of a great number of cases in which the end results have been carefully observed and checked.

Chairman GRAVES. I am sure we have all enjoyed Dr. Forrester's paper very much indeed and we will enjoy the next paper, entitled "Shortening the Period of Disability after Fracture of the Spine", by Dr. Philip H. Kreuscher, medical director of the Industrial Commission of Illinois, and president of the Illinois State Medical Society.

Shortening the Period of Disability After Fracture of the Spine

By PHILIP H. KREUSCHER, M.D., F.A.C.S., *Medical Director, Industrial Commission of Illinois; Associate Professor of Surgery, Northwestern University Medical School; Attending Surgeon, Passavant Memorial and Wesley Memorial Hospitals; Attending Orthopedic Surgeon, Cook County Hospital, Chicago*

The period of disability following fractures of the spine varies with the following conditions:

1. Type of fractures—with or without dislocation, simple, comminuted or compressed, fracture of the spinous process, laminae, transverse process, single or combined with fracture of the body of the vertebra.
2. Location of the fracture.
3. Presence or absence of nerve and spinal-cord injury.
4. The conditions under which the fracture is managed.
5. The lapse of time between fracture and beginning of treatment.
6. Age and general condition of the patient.
7. Injury to the blood supply of the vertebrae.
8. Methods of treatment.

The vertebrae most commonly fractured are the fourth, fifth, and sixth cervical, the twelfth dorsal, and the first lumbar. The injury is usually caused in one of three ways: By direct blow fracturing the lamina; by fall upon the head or the buttocks, compressing the bodies of the vertebræ, or by forced flexion or extension of the spine causing dislocation with or without fracture of the bodies of the articular processes. More than one half of the fractures of the cervical vertebrae are fractures of the spinous processes. More than two thirds of the fractures of the dorsolumbar vertebrae are fractures of the bodies of those vertebrae. (Treatment of Fractures, Scudder.)

Type of fracture.—Simple fracture of the laminæ, spinous or transverse processes, when there is no displacement of fragments, should heal very promptly and without incapacity. Where the fracture is comminuted and there is considerable compression of the vertebral body, the length of time for restoration of function immediately becomes very much increased. This is especially true when the compression is in the anterior as well as lateral portion of the body. In the straightaway anterior compression, especially when treated early with hyperextension of the spine, early healing may be expected. If, however, you have a combination of compression and comminution there is delay in the healing of the fracture.

Although the spinal cord is very well protected from injury, the incidence of impingement, laceration, and even complete transverse section of the cord is far greater than one would expect. Injuries to the spinal cord in the cervical region cause the greatest disability. In the lower lumbar region above the second lumbar vertebra the lower extremity usually suffers, as well as the sphincters. Extensive fracture and dislocation of the third, fourth, and fifth lumbar vertebræ impinging the cauda, but with early restoration of function, are on record.

In those cases where early treatment of spinal fracture is instituted the disability is very greatly lessened. Delayed treatment of compression fractures or comminuted fractures of the vertebræ gives us the greatest amount of disability and the maximum period of incapacity. Fractured spines treated in a well-equipped hospital by a surgeon who is accustomed to the treatment of fractures often heal very promptly and without deformity of the laminæ or vertebral bodies. Hemorrhage into the spinal canal, incident to fracture, may give temporary nerve inhibition, the extent and duration of this inhibition depending upon the amount of hemorrhage into the spinal canal and the complete immobilization of the fracture. In patients of advanced age the increase of lime salts in the bone permits of extensive comminution and compression which would not obtain in younger individuals sustaining the same injury. Regeneration and bone healing in patients of advanced age is delayed as it is in fractures of any other bone.

The amount of injury to the blood supply of the vertebra is a definite index of the bone healing. The nutrient artery of the vertebral body passes into this body from behind and laterally and is very well protected, and should not, as a rule, be injured unless there is definite dislocation, fracture of the laminæ near the body, or extensive compression of the vertebra.

I stated in the beginning that the period of disability varied with the methods of treatment instituted. The management of any frac-

ture, whether in the long bone or in the spine, demands immediate immobilization. This immobilization must be in a position which will best restore the fragments to their normal relationship. We have no control over the position of fragments in the fracture of the transverse processes, but we have definite control of the position of fracture in the laminæ, in the spinous processes and especially in the vertebral bodies. Early immobilization has these very definite advantages: (1) It relieves pain; (2) it prevents further displacement of the fragments; (3) it stops hemorrhage into the spinal canal and the surrounding structures; (4) the earlier this immobilization is brought about the less of "pressure absorption" and the sooner the bones begin to regenerate.

As in the extremity, the position of the patient's body must be varied in the cervical fractures to bring about the best apposition of fragments. Not all compression fractures should be treated with plain hyperextension by the Rogers frame, since in some of these fractures the compression is not only in the anterior portion of the body but may extend to the posterior portion of the body or laterally into the body of the vertebra. The determination of these facts can be made only by anteroposterior and lateral X-ray films and possibly best by stereoscopic films of the vertebra. In compression of the posterior portion of the body flexion of the spine is indicated for reduction. In those of the lateral aspect of the body flexion to the side opposite the compression is indicated. In those instances where compression is entirely anterior some method of hyperextension must be instituted at once.

Regeneration of a fractured spinal body depends not only upon immobilization and proper coaptation of the fragments but also upon the blood supply of that body. Where one has reason to believe that the nutrient arteries have not been injured, the bone may be expected to heal in the usual 6 to 8 weeks under proper conditions. If the injury has been extensive a much longer period of time is necessary. There can be no fast rule as to the length of time a spinal-fracture case will be disabled. Fracture dislocation of the upper cervical vertebra would require a very much longer time for healing, since injury to the spinal cord is much more prevalent and serious in that portion and since the immobilization is much more difficult. Therefore the period of disability which might apply to fracture of the cervical vertebra would not apply at all in the mid-dorsal, upper lumbar, or lower lumbar areas. Prior to the last decade we taught our students that following fractures of the vertebral body the patient's spine must be immobilized over a period from 10 to 12 months. The rationale for this teaching has never been entirely explained. Since the war and since our experience with fractures of the spine has increased, we realize that healing takes place quite as early as it would in the shaft of the femur or the humerus, provided, of course, that immobilization and reduction are complete and that there has been no injury to the spinal cord nor to the spinal nerves. This immobilization must be maintained until such a time when a firm bony callus has formed. If a patient with compression fracture of the lower dorsal or thoracic region is permitted to assume the upright position and is permitted to flex forward before the callus formation is complete, a compression must of necessity again take place. If we have reason to assume that 8 weeks is the average time for a healing of the fracture of the body

of the vertebra, then immobilization beyond that time is entirely unnecessary. It must be remembered that in compression fractures there is a compression of spongy bone substance, and that when that compression is corrected there is still a loss of bony substance which must be filled in. When once there has been complete bony healing there is no reason why the patient should not assume the upright position. There is no reason why lateral and anteroposterior motion should not be instituted, since motion of this type improves circulation and prevents the inevitable osteoporosis or atrophy of disuse which is seen in these cases of over-immobilization.

The plaster of paris jacket has been the favorite method of treatment because it can be made by the average surgeon with a considerable degree of accuracy to fit the patient's body. Here again we must remember that a plaster jacket which was put on with the patient lying down is not a suitable one in which the patient might best assume an erect position. I have made it a rule to make a new plaster mold when the patient is able to assume an upright position. Such a cast will offer better protection against undue and unwarranted movements.

It is the purpose of this paper, I believe, to attempt to outline the period of disability following a fracture of the spine. I realize that in so doing we will be contradicted by those who have in their practice immobilized their spine cases from 10 to 16 months. On the other hand, I doubt whether early mobilization of the spine case 6 to 8 weeks after the fracture is the safe rule to follow. I believe that a compromise should be reached in which the patient is permitted after 6 or 8 weeks to get up and about, with either plaster molded jacket or a brace, and as he finds that this immobilization is no longer necessary, he may be permitted to go about without any immobilization, at least for the ordinary activities, being instructed, however, to wear his appliance when he attempts unusual activity or such movements as may embarrass the integrity of the union. I can think of no greater calamity than a refracture of a lamina or a recurrence of compression of a spinal vertebra. It is, therefore, my opinion that a reasonable length of time should elapse from the time the X-ray shows good healing until the patient is permitted to go about without support. This length of time may be 8 weeks or 8 months, depending upon the conditions set forth in the beginning of this paper.

How, then, can we shorten the period of disability following fracture of the spine?

First, give an early accurate diagnosis. What type of fracture have you? What portion of the body, what portion of the spinal column, has been fractured or injured?

Second, by early institution of efficient treatment. We so often become creatures of habit and because a man has a fracture of the spine we put on a certain splint or cast without using our cortical cells at all.

Third, in certain cases operating on and fixation of the spine, spinous processes, or the lamina will greatly shorten the period of disability.

Fourth, rehabilitation methods. Physical therapy methods will aid greatly in bringing about a more efficient circulation, and we might as well, as physicians, give these patients the benefit of that

treatment. If we do not, the chiropractor will surely do it. We must remember that every case is a case by itself, a rule to itself, and that no two cases can be managed according to a set, given rule. There again is where the use of good common sense comes in.

As in any other disease or condition, treatment of the patient must not be forgotten in these fractures of the spine. If the patient's mind can be kept straight and he can be made to realize that his spine will heal if he cooperates, that when it is completely healed he will no longer have pain, and that when he no longer has pain he can go back to work, you will have gone a great way toward making a producer of a man who otherwise would be a burden to society.

Chairman GRAVES. The next paper will, I am sure, be of much interest to all of the commissioners and to all of the doctors. It is a remarkable paper in that it covers a review of 1,000 cases of back injury. I do not remember any other paper which has covered so broad a scope. I know that Dr. Kuhn has spent a great deal of time on this paper and has some very exhaustive information to give us.

Final Disposition of Back-Injury Cases, with a Summary of 1,000 Compensation Accidents

By LEROY PHILIP KUHN, M.D., F.A.C.S., *Chief Surgeon, Lumbermen's Mutual Casualty Co., President Institute of Traumatic Surgery, surgical staffs Augustana and Columbus Hospitals, Chicago*

Compensation laws are "buffers" or regulators to safeguard the workman, the employer, and in fact everyone having to do with their administration. It is quite evident from the results that the administration of compensation accidents depends more for its success upon the skill and honesty of physicians and surgeons. The prevention of accidents, it is now gradually being recognized, is dependent more on mental and physical examination, treatment, and placement of employees than upon mechanical safeguards, shop discipline, or "safety-first crusades." From the moment the accident occurs, medical care is all decisive. Medical judgment decides the extent of the injury and therefore the amount. The character of medical administration determines to a large extent the period of temporary and permanent disability and, finally, the method and time for rehabilitation. Regardless of these facts, there is only one State (Connecticut) in which the law provides for a physician in any official administrative capacity concerned with determining the policy of compensation administration. The evaluation of disabilities, not only of back injuries, but of all others as well, therefore, depends upon an honest, painstaking examination by a well-trained doctor who is more or less familiar with compensation laws in general.

Anomalies

Around 10 percent of all back-injury cases have some form of abnormality or anomaly. The administrator should have full knowledge of the normal back else he cannot differentiate abnormal or congenital deformities. Occasionally we have 6 lumbar vertebrae instead of 5, or the last dorsal vertebra may not have its twelfth-rib attachment.

Anomalies of the spinal column throughout the growing period of life and at time of birth are subject to many influences of illness which affect the growth of bone or the growth of muscular and tendon material. The life and growth of the spinal column may be likened to the growth of trees in a forest. Seldom do we go through a forest and find all straight trees. Throughout the forest you will see knotted, twisted, or deformed trees—queer-looking sights; likewise, the human. Our spinal vertebrae are subjected during the growing period, for example, to the sitting position we are allowed to assume while in public schools. Much has to do with how parents and teachers control the movements and growth of the child. Multiple factors may cause spinal curvature by upsetting equilibrium or the motor system of the back, just the same as severe infections in childhood may affect any of the vertebrae, thereby changing the position of the spine or producing some rotary lateral curvature. Malnutrition is very common among children, even with those under relatively normal conditions. Often the results of underfeeding or malnutrition affect the skeletal growth as well as the loss of muscle weight and tonicity. This muscle degeneration attached to the spinal column during the growing period of life brings about a muscle imbalance. You can readily see from the accompanying charts[1] how different muscles pulling on portions of the vertebrae upset the position of the vertebral bodies so that they are pulled one way or the other, bringing about unequal muscular action resulting in idiopathic scoliosis which has a great deal to do with irregular posture of the individual, thereby producing muscular pain wherever imbalance occurs.

Confusion of Opinion

Confusion of medical opinion on the witness stand is the root of all evil for the industrial commissioner in back cases. The great list of back strains or minor injuries are the disabilities where so much confusion exists in determining what percentage of permanent disability the patient should have.

Too much stress among medical men is placed upon strains, pulls and tears of muscles or ligaments. A doctor once said to me, "How can you tear or strain one of the large muscles of the thigh? Whoever heard of a thigh muscle being pulled loose from its attachments?" The muscles of the back are broad, thick, and long. The muscles of the thigh may be longer, but they are similar to the muscles of the back, subject to just as much pull, strain, or tearing. None of these employees come to us for strains of muscles of the thigh or chronic disturbances such as lameness.

Unless X-rays reveal lipping, or chronic hypertrophic arthritic changes, there is just as much exaggeration and overdiagnosing as muscle pull or strain. Sacroiliac joints have been on 24-hour duty in the medical profession for a long time. If all child-bearing women had complaints for 3 to 5 months after birth of a baby, when these sacroiliacs certainly have some strain, we would have back cases to keep doctors busy indefinitely. But quite the contrary, these mothers, rich and poor, are up and about in a week or 10 days without any sacroiliac joint pain.

[1] Charts prepared by Dr. Eben J. Carey in the department of anatomy, Marquette University School of Medicine, Milwaukee, Wis.

Compensation laws make no reservation for the employee who should go back to work gradually, allowing the patient to become hardened by slowly returning their muscles to usual duties. If there were some provision made for the employee to return slowly, it would do more to reduce malingering, restore confidence, and cut down the percentage of permanent disability than many days of massage with further medical attention.

With simple back strains there may be injury to soft tissue which could be overlooked by a hurried examination. It is bad practice to apply adhesive and return some of these patients to work. Usually they work a few hours or a day, then stop. These cases should have rest in bed, and then some support to the back. When they are directed to resume work, it should be light employment.

Injury to the lumbosacral joint is not so common except in spondylolisthesis cases. I am fully of the opinion that back anomaly cases should not be in heavy-labor employment unless an agreement is entered into by the patient and the employer.

Operations

Many operations are attempted on these back cases by surgeons of national reputation. Few, if any, operated upon will ever return to employment, once they have a fusion of the vertebrae or any type of major operation on the back. Industrial commissions have been known to recommend some type of fusion operation, when it has been demonstrated many times that it means a permanent total disability and the patient taken out of employment. A medical authority has statistics in 1,000 cases, of which only 5 were patients thought advisable for fusion. The operation is almost always done for the subjective symptom of pain. It requires 6 months or a year for the patient to recover. Usually, by this time he is a chronic invalid, mentally, physically, and morally.

Aggravation

The question under our workmen's compensation laws, as to aggravation of a preexisting disease has been worked overtime. It is claimed old chronic hypertrophic arthritic backs are the cases usually aggravated by some form of strain, slip, or lift. When the settlement days are over these patients always return to work. If they have hypertrophic arthritis up and down the spine they also have it elsewhere. You never hear them complain about other joints.

The doctor cannot determine in these cases what disability is due to strain or trauma and what is due to disease or malingering. Arthritis has been there many years. The trauma to his back is minor. Why should this type of patient have 6 months' temporary and a "horse-trader's" deal of lump-sum settlement before the employer is released? The patient may have many other strains about his body and return to work in a few days with no thought of permanency. I maintain the employee should have a liberal estimate in a case of this kind, but no permanent should be allowed, because if arthritis existed before the accident so did the pain.

If these back cases are informed by the doctor, upon first examination, that the injury is slight, they will be back to work in a day, a week, or 10 days. Many of these patients will return to work even

before the expiration of the period. Frequent examinations and changing periods of disability only make a compensation neurosis which finally ends with the gold cure. These are malignant diseases from a mental standpoint. Excision of a part of the growth at one time only forces us to return many times later. Set a period of disability and hold to it. Sell the patient on the diagnosis.

In my opinion there is only one real back condition, and that is lumbago. I mean, of course, taking into consideration fractures that exist and other conditions that are diagnosed by the X-ray examination. A prominent doctor, in a town of 40,000 population, answering my question of how he managed back cases in a plant employing 5 to 700 people, said: "I usually give them 200 grains of salicylates the first day, have them rest in bed 1 or 2 days—then, I tell them to go back to work and forget their troubles." This physician does not have more than two or three back cases a year. He has really solved the problem completely in this location.

Economics

The economic situation of all these back cases concerns largely the employer or the insurance company. Many times claims adjusters find it necessary to interview doctors and hospitals in reference to their fees. Frequently these cases require a great deal of patience on the part of physicians as well as time and attention in the physical therapy department, until the doctor has finally convinced the man that he can go back into employment with safety. Naturally, this medical attention is expensive, and the doctor is of the opinion he should submit a bill according to the financial standing of the insurance company rather than the man's ability to pay.

When it is explained to the doctor that insurance companies collect premiums on workmen's wages, that it is unfair to charge on the basis of the financial standing of the insurance company, but it should be rather on the financial standing of the employee, most physicians will readily arrange the bill to suit the type of case treated. There is no question but that the excessive losses by insurance companies on compensation claims undoubtedly can be traced to a great extent to exorbitant doctor and hospital bills, as much as to the delay of the workman to return to employment if he has the slightest pain in his back. It would be too bad if through indifference or lack of proper understanding by the medical profession, eventually insurance companies would have to stop writing compensation insurance for employees. Then all of this business would go over to State funds. Naturally, the medical profession would suffer; the favored political few would get all the medical fees, as is so common in administration of State laws.

Many doctors believe they have a goose that lays golden eggs. The goose may be killed and no more golden eggs will be forthcoming. Quite frequently we find a reputable doctor charging more than the occasion demands and this same physician frequently will show indifference when asked about his fee. A doctor in general practice might send out $5,000 worth of bills at the end of the year, from which he might obtain around $3,000 in return. He should realize that all bills rendered insurance companies are usually paid in full and promptly.

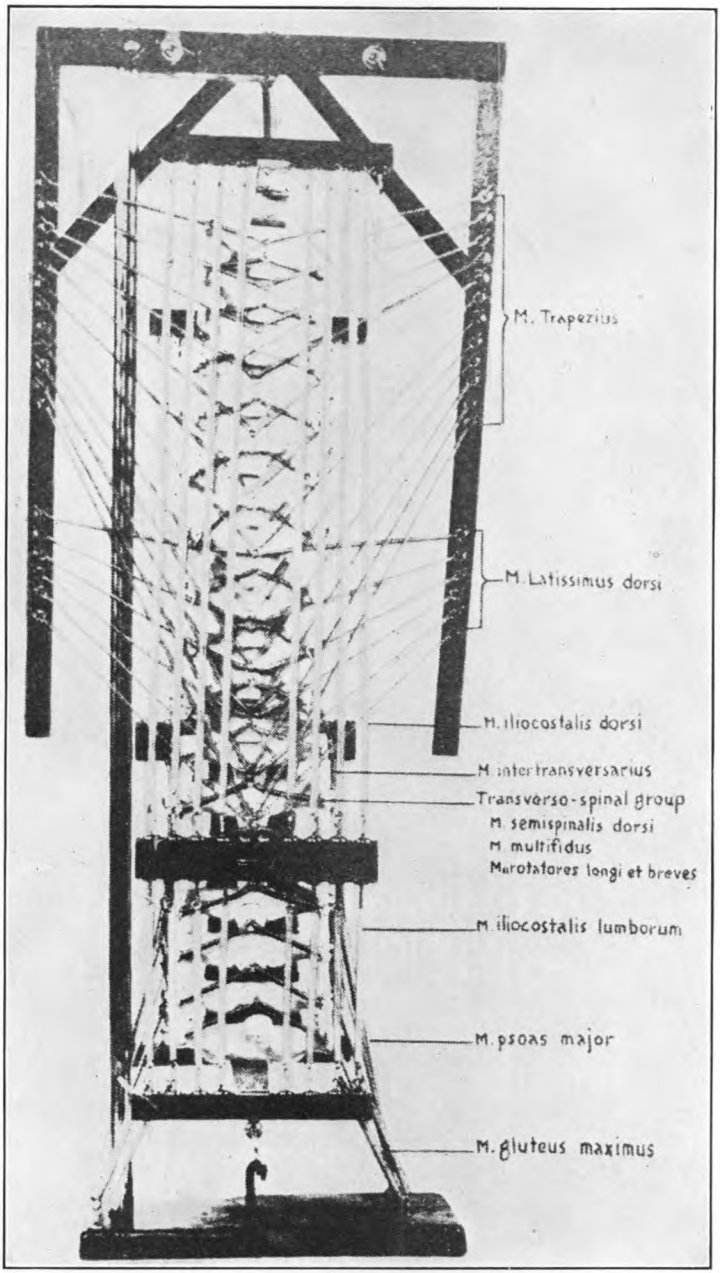


FIGURE 1.—DORSAL ASPECT OF THE DYNAMIC MUSCLE-BONE BALANCE MODEL OF THE HUMAN SPINE.

The spine has no direct solid support but is suspended in a field of bilaterally balanced tensions of steel wire springs. The 12 dorsal and 5 lumbar vertebrae are composed of oak wood and between the vertebrae are placed disks of felt which represent the intervertebral disks. Dorsad to the center of the vertebral bodies is a hole through which is threaded a wire spring one fourth inch in diameter. This axial spring is attached above and below to the stand and permits mobilization of the vertebral bodies in relation to one another. (About one fifth natural size.)

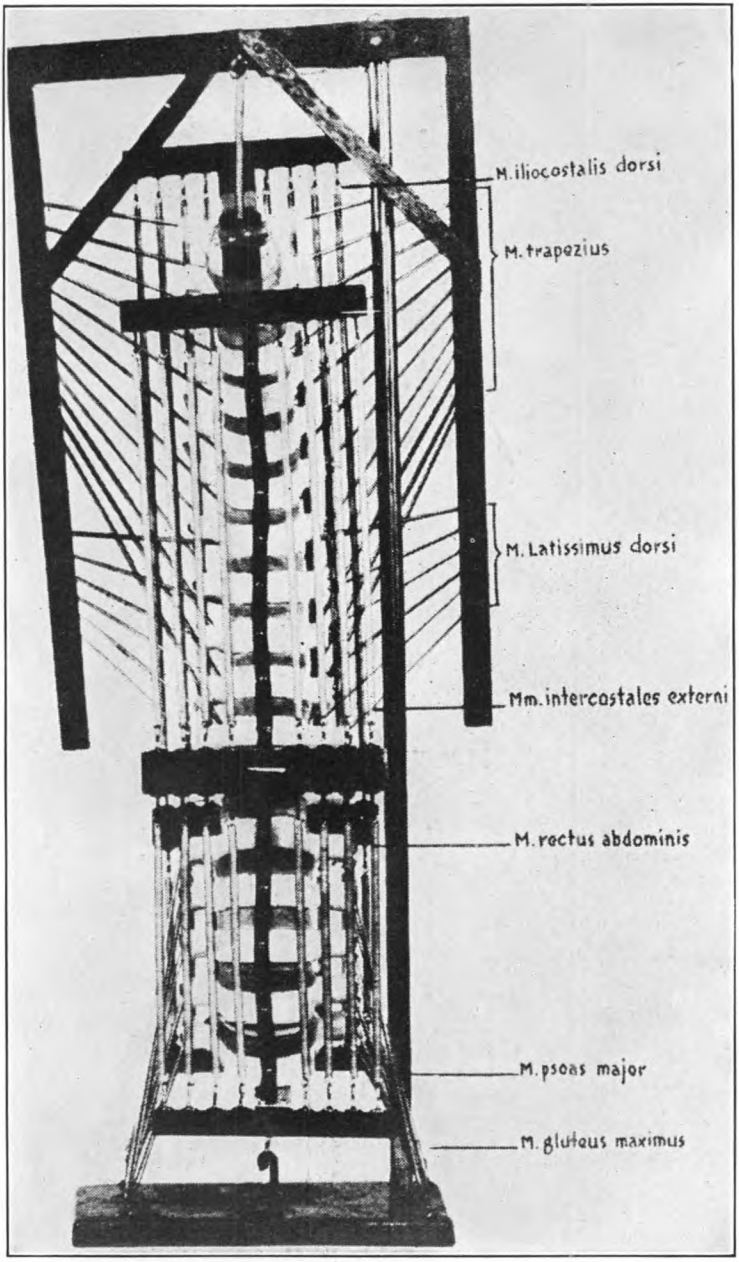


FIGURE 2.—VENTRAL ASPECT OF THE DYNAMIC MUSCLE-BONE BALANCE MODEL OF THE HUMAN SPINE.

The spine has no direct solid support but is suspended in a back-pressure field which is a resultant of the bilaterally balanced spring tensions. The black elastic band extending vertically over the midventral aspect of the bodies of the vertebrae represents the middle longitudinal ligament. (About one fifth natural size.)

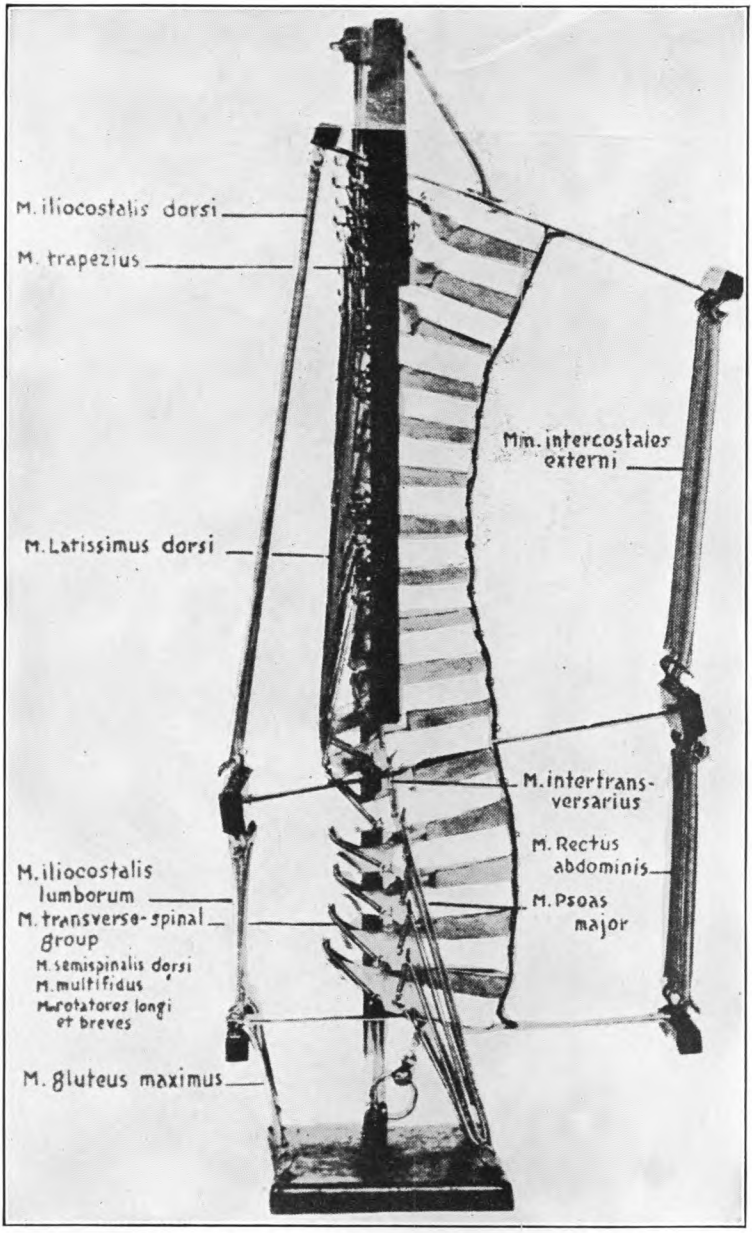


FIGURE 3.—LATERAL ASPECT OF THE DYNAMIC MUSCLE-BONE BALANCE MODEL OF THE HUMAN SPINE.

The spine has no direct solid support but is suspended in a back-pressure field produced by the bilaterally balanced tensions of steel wire springs. The ventral concavity in the thoracic and the ventral convexity in the lumbar regions are produced by differential tensions of the steel wire springs. The transverse wooden bars represent the upper and lower limits of the thoracic cage and the pelvis, the pubis ventrad, and the sacrum, ilium, and ischium dorsad. The ventral convexity of the lumbar region of the spine is the result of the two muscular forces, (1) the bowstring effect of two powerful muscles, the sacrospinales and their synergists, and (2) the ventral traction of the psoas majores. The ventral convexity of the cervical vertebrae is likewise a result of the bowstring muscles of the back of the neck. The lumbar and cervical compensatory curves are developed with the increase of power of the dorsal spinal extensor musculature in maintaining the spine erect. The cervical convexity develops from 3 to 6 months after birth when the head is flexed and maintained in the upright extended position when the child begins to sit unaided. The lumbar curve develops from 9 to 12 months after birth with the ability of the growing child to sit, stand, and walk with the spine vertically placed. (About one fifth natural size.)

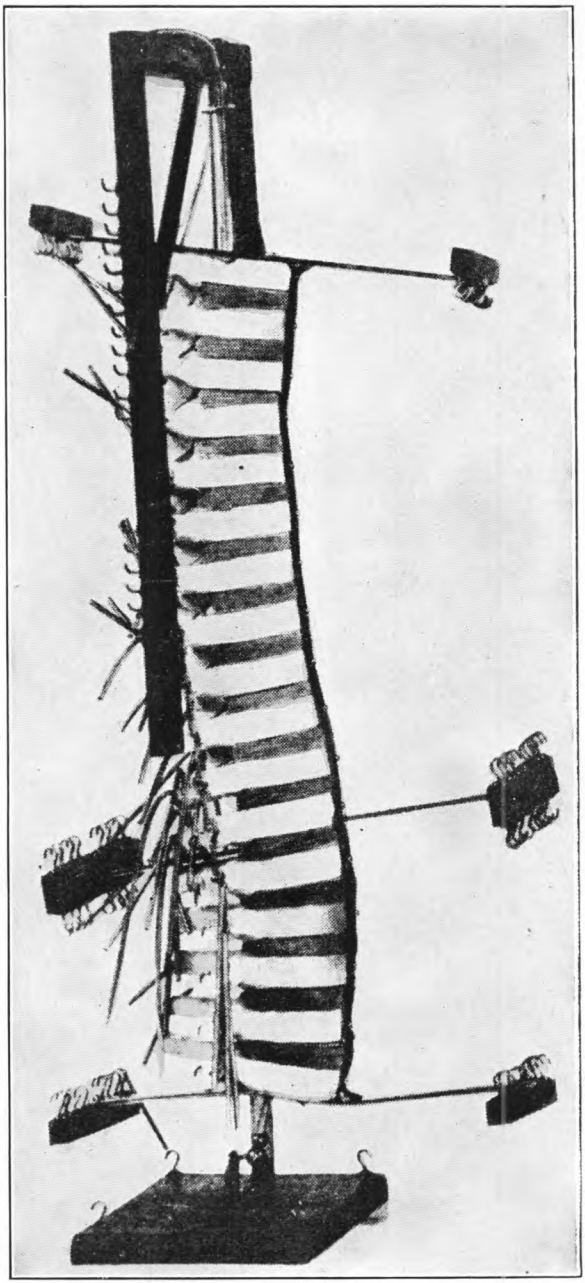
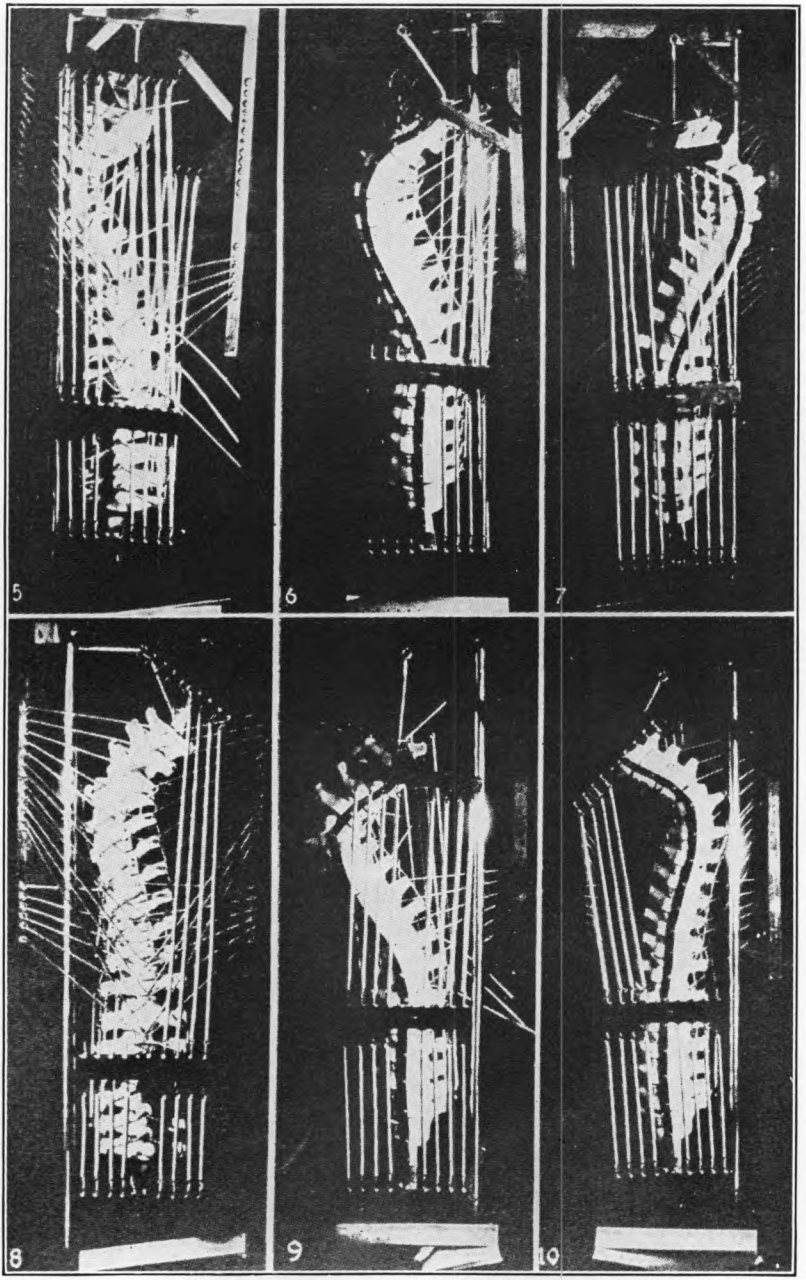


FIGURE 4.—VENTROLATERAL ASPECT OF THE DYNAMIC MUSCLE-BONE BALANCE MODEL OF THE HUMAN SPINE.

The spine is stripped of all tensions of the steel springs and the mechanical resultant of the back pressure of spring pull. When the superficial parallel bowstring muscles of the body were weakened or paralyzed, the convexity of the spine was directed toward the weakened side (figs. 6, 8, and 10). If the right external intercostal muscles or the rectus abdominis muscle was weakened or paralyzed, those on the left side acted as a bowstring and forced the convexity of the spine to the opposite or right side (figs. 6 and 10). The convexity of the spine was directed to the left side when the left iliocostalis dorsi muscle was paralyzed. (About one fifth natural size.)



FIGURES 5 TO 10.—DORSAL AND VENTRAL ASPECTS OF THE DYNAMIC MUSCLE-BONE BALANCE MODEL OF THE HUMAN SPINE.

The left lateral scoliosis is produced by the release of the springs on the right side which represent the trapezius muscle (fig. 5). The right lateral scoliosis in the dorsal region is produced by the release of the springs on the right side, which represent the right external intercostal muscles (fig. 6). The left lateral scoliosis in the dorsal region is produced by the release of the springs, which represent the right trapezius muscle (fig. 7). The left lateral scoliosis in the dorsal region is produced by the release of the springs on the left side which represent the left iliocostalix dorsi muscle (fig. 8). The right lateral scoliosis in the dorsal region is produced by the release of the springs on the left side which represent the left trapezius muscle (fig. 9). The left lateral scoliosis in the dorsal region is produced by the release of the springs on the left side which represent the left external intercostal muscles (fig. 10). (About one twelfth natural size.)

Analysis of 1,000 nonfatal back-injury cases

Item	Number of cases	Indemnity paid			Medical expense			Total paid		
		Amount	Percent of total	Average cost	Amount	Percent of total	Average cost	Amount	Percent of total	Average cost
LOCATION AND NATURE OF INJURY										
Vertebrae:										
Fractures	43	$57,260	15.5	$1,332	$18,036	20.6	$419	$75,296	16.4	$1,751
Bruises, contusions, and abrasions	20	9,144	2.5	457	2,633	3.0	132	11,777	2.6	589
Stiffness and other loss of function	6	19,753	5.4	3,292	2,263	2.6	377	22,016	4.8	3,669
Dislocations	4	613	.1	153	85	.1	21	698	.2	175
All other	3	3,805	1.0	1,268	1,066	1.2	355	4,871	1.1	1,624
Total	76	90,575	24.5	1,208	24,083	27.5	321	114,658	25.1	1,529
Sacrum and coccyx:										
Sprains and strains	177	52,850	14.3	294	13,881	15.9	78	66,731	14.6	377
Bruises and contusions	11	891	.2	81	666	.8	61	1,557	.3	142
Fractures	7	19,462	5.3	2,780	2,569	2.9	367	22,031	4.8	3,147
Stiffness and other loss of function	5	6,794	1.9	1,359	1,220	1.4	244	8,014	1.8	1,603
Dislocations	3	318	.1	106	212	.2	71	530	.1	177
Cuts, lacerations, and punctures	1	9	------	9	41	.1	41	50	------	50
All other	1	2,029	.5	2,029	289	.3	289	2,318	.6	2,318
Total	205	82,353	22.3	402	18,878	21.6	92	101,231	22.2	494
Muscles, ligaments, and bones (other than vertebrae, sacrum, and coccyx):										
Sprains and strains	584	114,297	31.0	196	28,367	32.5	49	142,664	31.2	372
Bruises, contusions, and abrasions	85	17,418	4.7	205	6,209	7.1	73	23,627	5.2	278
Stiffness and other loss of function	13	20,887	5.7	1,607	3,582	4.1	276	24,469	5.3	1,882
Fractures	7	15,174	4.1	2,168	2,155	2.5	308	17,329	3.8	2,476
Dislocations	2	749	.2	375	109	.1	55	858	.2	429
Cuts, lacerations, and punctures	4	4,450	1.2	1,113	115	.1	29	4,565	1.0	1,141
All other	5	7,695	2.1	1,539	1,342	1.5	268	9,037	2.0	1,807
Total	700	180,670	49.0	258	41,879	47.9	59	222,549	48.7	318
All other:										
Cord impingement	9	6,485	1.8	1,081	610	.7	102	7,095	1.6	1,183
Bruises, contusions, and abrasions	4	306	.1	1	118	.1	30	424	.1	106
Fractures	3	3,010	.8	1,003	865	1.0	288	3,875	.8	1,292
Sprains and strains	2	5,473	1.5	2,737	502	.6	251	5,975	1.3	2,988
Cuts, lacerations, and punctures	1	200	------	200	500	.6	500	700	.2	700
Total	19	15,474	4.2	967	2,595	3.0	162	18,069	4.0	1,129
Grand total	1,000	369,072	100.0	369	87,435	100.0	87	456,507	100.0	457
CAUSE OF ACCIDENT										
Falls:										
On level	97	42,549	11.6	439	7,472	8.6	77	50,021	11.0	516
From elevation	147	85,817	23.2	584	19,155	21.9	130	104,972	23.0	714
Total	244	128,366	34.8	526	26,627	30.5	109	154,993	34.0	635
Lifting and handling of objects	515	118,850	32.2	231	30,082	34.4	58	148,932	32.6	289
Struck by falling objects	29	9,602	2.6	331	2,039	2.3	70	11,641	2.5	401
All other	212	112,254	30.4	530	28,687	32.8	135	140,941	30.9	665
Total	1,000	369,072	100.0	369	87,435	100.0	87	456,507	100.0	457

Analysis of 1,000 nonfatal back-injury cases—Continued

Item	Number of cases	Indemnity paid			Medical expense			Total paid		
		Amount	Percent of total	Average cost	Amount	Percent of total	Average cost	Amount	Percent of total	Average cost
DURATION OF DISABILITY										
Less than 1 week	176	$1,051	0.3	$6	$2,821	3.2	$16	$3,872	0.8	$22
1 week to 5 weeks	438	16,851	4.5	38	11,338	13.0	26	28,189	6.2	64
6 to 10 weeks	109	13,202	3.6	121	6,415	7.3	59	19,617	4.3	180
11 to 25 weeks	100	30,567	8.3	306	11,046	12.6	110	41,613	9.1	416
26 to 50 weeks	59	38,297	10.3	649	11,877	13.6	205	50,174	11.0	850
51 to 75 weeks	30	30,183	8.2	1,006	6,078	7.0	203	36,261	7.9	1,209
76 to 100 weeks	19	26,961	7.3	1,419	5,510	6.3	290	32,471	7.1	1,709
101 to 150 weeks	25	48,571	13.2	1,943	10,314	11.8	413	58,885	12.9	2,355
151 to 200 weeks	20	63,155	17.1	3,158	9,288	10.6	464	72,443	15.9	3,622
Over 200 weeks	24	100,234	27.2	4,145	12,748	14.6	531	112,982	24.8	4,708
Total	1,000	369,072	100.0	369	87,435	100.0	87	456,507	100.0	457
DEGREE OF PERMANENCY										
0 percent	801	60,887	16.5	76	32,495	37.2	41	93,382	20.5	117
1 to 5 percent	50	16,229	4.4	324	5,752	6.6	115	21,981	4.8	440
6 to 10 percent	32	24,181	6.6	756	5,955	6.8	186	30,136	6.6	942
11 to 15 percent	22	21,515	5.8	943	5,353	6.1	243	26,868	5.9	1,221
16 to 20 percent	16	17,912	4.9	112	2,734	3.1	171	20,646	4.5	1,290
21 to 25 percent	15	20,054	5.4	1,337	4,990	5.7	333	25,044	5.5	1,670
26 to 30 percent	12	25,001	6.8	2,083	3,441	3.9	287	28,442	6.2	2,370
36 to 40 percent	6	16,245	4.4	2,708	3,591	4.1	599	19,836	4.3	3,306
41 to 45 percent	5	10,629	2.9	2,126	1,253	1.4	251	11,882	2.6	2,376
46 to 50 percent	10	18,498	5.0	1,850	4,462	5.1	446	22,960	5.0	2,296
51 to 55 percent	3	9,004	2.4	3,001	1,578	1.8	526	10,582	2.3	3,527
56 to 60 percent	1	3,565	1.0	3,565	222	.3	222	3,787	.8	3,787
61 to 65 percent	8	33,315	9.0	4,164	5,993	6.9	749	39,308	8.6	4,914
66 to 70 percent	5	20,133	5.4	4,027	1,530	1.7	306	21,663	4.7	4,333
71 to 75 percent	2	8,313	2.3	4,157	188	.2	94	8,501	1.9	4,251
76 to 80 percent	4	17,292	4.7	4,323	3,361	3.9	840	20,653	4.5	5,163
81 to 85 percent	5	26,519	7.2	5,304	1,920	2.2	384	28,439	6.2	5,688
86 to 90 percent	1	5,000	1.3	5,000	425	.5	425	5,425	1.3	5,425
91 to 95 percent	1	8,145	2.2	8,145	1,292	1.5	1,292	9,437	2.1	9,437
96 to 100 percent	1	6,635	1.8	6,635	900	1.0	900	7,535	1.7	7,535
Total	1,000	369,072	100.0	369	87,435	100.0	87	456,507	100.0	457

Fixed Standards for Disability

It is not possible in back-injury cases to classify them, nor to apply to them definite percentages of loss as we do with fingers, feet, or upper and lower limbs. I like very much the plan given to this association a year ago by Dr. C. W. Roberts, medical adviser Department of Industrial Relations of Georgia. In his paper,[2] he states: "A member is composed of a supporting bony framework, broken by joints; of surrounding muscular tissue, by the exercise of which power is applied; of a system of nerves, both motor and sensory, through which the energizing force flows; of a vascular system to supply nourishment and remove waste; and of a protective covering, the skin. The brunt of injury may occasionally fall heaviest upon one of the aforementioned systems, but is rarely confined to it alone."

As a working basis, we might proceed by attaching to each of these systems some fraction, as: For bone and joints, 25 percent; muscles, 25 percent; nerves, 25 percent; vascular tissues, 10 percent; and skin, 15 percent—to compose perfect function. We must not attempt to

[2] U.S. Bureau of Labor Statistics Bul. No. 577, p. 163.

arrive at the percentage of handicap by deducting only the calculated loss suffered in the single system.

To apply this system to back cases we would have to assign a fraction to each of the back's main functions—for instance, bones, 25 percent; muscles, 25 percent; nerves, 25 percent; vascular tissues and skin, 20 percent; mental and emotional standing, or inclination of the individual to work, 5 percent.

Of course, every case estimation should be considered from the standpoint of the individual. They are all back cases, but each is quite different from the other. For a commissioner to base an opinion on purely scientific facts as set forth by the doctor, without giving full appraisal to the human element attached to the case, would be measuring the mechanical functions of man as a robot, which is not practical and let us hope will never be done. I am heartily in favor of adopting a method of estimation of disability on back cases such as Wisconsin has so nicely done by comparing the percentage of loss of use with amputations. Wisconsin has settled its problem of disability with reference to shoulder, elbow, wrist, fingers, hip, knee, ankle, and shortening of leg as follows:

Percentage of loss of use as compared with amputations at involved joints

	Percent
Shoulder: Limitation of action, elevation in all directions to 90°, but otherwise normal	20
Elbow:	
Ankylosis of elbow joint at 45° less than full extension (radioulnar motion destroyed, hand 45° less than fully pronated)	60
Limitation of motion of elbow joint (radioulnar motion unaffected):	
Remaining range, 90–135°	20
Remaining range, 135–180°	35
Ankylosis of radius and ulna estimated at elbow joint (hand 45° less than fully pronated)	20
Wrist: Ankylosis, straight position	25
Fingers: Complete ankylosis—	
Midposition:	
Thumb:	
Distal joint only	25
Proximal joint only	15
Distal and proximal joints	45
Distal, proximal, and carpometacarpal joints	85
Fingers:	
Distal joint only	25
Middle joint only	75
Proximal joint only	40
Distal and middle joints	85
Distal, middle, and proximal joints	100
Complete extension and abduction:	
Thumb:	
Distal joint only	35
Proximal joint only	20
Distal and proximal joints	65
Distal, proximal, and carpometacarpal	100
Fingers:	
Distal joint only	35
Middle joint only	85
Proximal joint only	50
Distal and middle joints	100
Distal, middle, and proximal joints	100

Percentage of loss of use as compared with amputations at involved joints—Con.

	Percent
Hip: Ankylosis in alinement for normal standing position	50
Knee:	
Ankylosis at 170°	40
Limitation of motion: Remaining range 135–180°	20
Ankle: Ankylosis at right angle	30
Shortening of leg (no posterior or lateral angulation, age 50 or less):	
1 inch	7
1½ inches	14
2 inches	22

Mayos' report of 1,100 patients over 50 years of age revealed 58 percent suffering from some form of rather silent hypertrophic arthritis of the spine. Granting that none of us are more than 85 percent normal, I do not think industry should be called upon to carry the 15 percent sickness load of the individual.

Summary

(1) Careful consideration of the human element.

(2) Interpretation of medical findings, i.e., X-ray and arthritic changes, by expert roentgenologist.

(3) No back or head case should ever be decided by a commissioner or a board of arbitration without an impartial experienced traumatic surgeon sitting in the conference.

(4) All back cases should be returned to employment slowly, i.e., light work for a few days or a week; not to be given heavy lifting work immediately, as this will discourage the employee.

(5) When fusion operations are done and the surgeon maintains a cure has occurred, the settlement contract should not carry a percentage of permanent disability.

(6) The time has come in compensation cases when honest doctors should have something to say about the final rating that these back cases should have.

(7) Weak-back individuals should never be placed by employers in work where they will be required to carry on the duties of a "truck horse", when they are by birth, education, and physical development fitted for the duties of a "track team." Their muscles and ligaments cannot stand the strain of heavy lifting without years of physical development for this kind of employment.

DISCUSSION

Mr. STEWART (Washington, D.C.). Do you mean to say there was but one permanent total disability case?

Dr. KUHN. No. You notice that is based only on nonfatal back injury cases.

Mr. STEWART. Even so, from 96 to 100 percent you have only one case. That means that there was only one permanent total disability case.

Dr. KUHN. There have been a number of death cases, which, of course, would be permanent.

Mr. STEWART. I mean exclusive of death.

Dr. KUHN. Only one. You will notice that the one disability amounted to only $6,635, while eight cases from 61 to 65 percent permanent total disability cost $33,315.

Mr. STEWART. I am thinking of the number.

Dr. KUHN. That is according to our list.

Mr. STEWART. You say less than 1 week. A great many States do not pay anything for that time; there would be no compensation for an injury lasting less than 1 week, so except in a very few States that would not include any indemnities paid.

Dr. KUHN. There was a cost attached. There would be medical and sometimes hospital expense, and X-ray, which brought this figure on the 176 cases.

Mr. PARKS (Massachusetts). That must be all medical, then.

Dr. KUHN. I should think so.

Mr. STEWART. That does not say 1 day. It says it is less than 1 week. There are a number of States that pay after the third day.

MEMBER. The amount paid was $1,051.

Dr. KUHN. That was $1,051 on 176 cases, which averaged $22 for each case.

MEMBER. Is that compensation?

Dr. KUHN. The gentleman just stated that many States do not have any compensation payments for less than 1 week, so it must be all medical.

Mr. STEWART. Your own figures show it is mostly medical.

Mr. PARKS. These figures are for Illinois alone?

Dr. KUHN. No, these figures were taken from Maine to California. About half of them were from the Central States, the other half from the New England States, and a large number from California and the Southeastern States.

Mr. PARKS. Dr. Kuhn said that he wished all the States had a system like the one in Wisconsin, which puts everything on a percentage basis. We do not have that in Massachusetts. I do not know whether the Wisconsin system is better than ours. For instance, ankylosis of the shoulder is given a certain percentage of disability. When the doctor says the injured man has that percentage, he is unable to move his shoulder due to ankylosis, and he is given so much money for that. I am wondering if that does not put a premium on the man's trying to establish that he has that percentage of disability due to ankylosis. In Massachusetts we have no schedule system except for specific injuries. It is all based on disability—a man's ability to work. That is the principle on which our workmen's compensation was founded. It took the place of the damages system of the employer's liability law and the common law.

The compensation law was based on whether the injury prevented the man from working, and was to pay for his inability to work, not the injury per se. For instance, an employee who worked on one of the big newspapers a good many years ago lost a hand. Strange as it may seem, the loss of the hand did not constitute disability for his job, for not many weeks after the healing of the stump he was ready to go back to work in the composing room and did, and he is doing that

work today. When he got all his compensation he went back to work. We did not say to him when he lost that hand, "We will give you $4,000 or $5,000." That is paying damages for his hand, which is getting away from the first principles of the act. Compensation was intended to bridge him over his period of disability, not to give him a lot of money.

This Wisconsin schedule is getting back to that. At a hearing to decide on how much restriction a man has, you decide on the medical evidence you receive today. In the trial of a case we often have an attorney say to the employee, "Show the commissioner how well you can walk." Of course, the man does not show the commissioner how well he can walk; he shows the commissioner how poorly he can walk. The attorney says, "Take a look at him. He is demonstrating how he can walk." Many times, when we meet the man on the street the next day, he can demonstrate a different kind of walk.

If at a hearing, with the assistance of physicians, he demonstrates to the satisfaction of the commissioner that he has a 60 percent restriction in his shoulders, he is handed the money on the assumption that he has a permanent 60 percent of whatever it is in his shoulder. He gets the money and he puts it away somewhere or blows it in. Two or three weeks later you may find no restriction or very little. Even if he shows that he really is not 100 percent cured, that he has a restriction, he may have a job in a factory or workshop where it does not constitute a disability. You are giving him money on the basis of damages. I wonder whether our system is better than that. I should like to have some opinion on that.

Mr. ANGSTEN (Illinois). I too am curious about the Wisconsin tables. I should like to see the experience of Wisconsin with that system. We are wondering if a lot of men who have gone back to work with a slight ankylosis of some kind do not come back and put in their claim for so much disability. I am likewise interested in the final statement of Dr. Kuhn's. He said he hoped the day would come when the honest doctors would be given an opportunity to be heard on back cases. I too hope that day is not far distant. So far as the Illinois commission is concerned, the honest doctors on either side will be the ones who will command the attention of the commission, if I have anything to say about it.

My friend Joe Parks says he does not pay any attention to the walk of the individual when he comes in to show how he can function. I have in mind a certain case that I did look at. The insurance adjuster and the family doctor and the jurymen had agreed on a settlement—I think it was about $800 for the percentage of loss of use of the arm. They asked for verification and approval by the court or by the board. A lot of questions were asked and something told me intuitively that there was something wrong about the case. The family doctor said, "Commissioner, I have had the case for 2 or 3 months. Subjectively I cannot find anything wrong with that man's shoulder. Objectively, he complains of inability to raise it over a certain point."

I said to the man, an Italian, "Tony, are you a married man?"

"Oh, yes, I am married."

"Any children?"

"I have six or seven."

I got the name of the youngest child. We went along, talking about the children. Suddenly I came back and said to Tony, "What is the matter with your arm?"

"Oh, Judge, my arm is sick."

"What is the matter with it?"

"I can't get 'im up."

"How far can you get that arm up?"

"Oh, like this."

He got his arm up to the point where the doctor said it was as far as he could go with it.

Then I said, "Tony, how far could you raise that hand before you hurt it?"

"Oh, hell, just like that."

He shot the arm straight up like this [indicating]. That is one case where it paid to go through those motions. I want to say that I look at them once in a while.

Mr. HIGGIN (Saskatchewan). I want to ask Dr. Kuhn a question. He made a comment after he was through the pictures that attracted my attention. If I gathered what he said correctly, it was that the commissioners of compensation boards should not attempt to adjudicate on the cause of permanent disability in such cases without medical advice. I should like to ask the doctor this question: Assume that you have 12 experts in a particular case where their advice is sought. Six experts say "This is the result of what has happened", and six say that it is not. The doctor said that the commissioner should not attempt to set that permanent disability without medical advice. All right. When the medical fraternity is split wide open, I say that the commissioner must set the permanent disability on that case. I should like to ask the doctor what he would do where 12 experts were split evenly on the amount of permanent disability. If it should not be set by the commissioner when the medical profession is split wide open, who is going to set it?

President WENZEL. I do not happen to be a doctor. I am a lawyer, as most of you know. It seems to me that the question has been answered by the gentleman who asked it. It is just the medical advice and those differing opinions that enable the commissioner to formulate an opinion. You weigh the evidence presented by the expert. I have been a commissioner for 10 years but I am not an expert in the direct sense. I am an expert in a lay sense, yes, but I look to the physician for expert opinion concerning the percentage of disability.

I believe the method adopted by Wisconsin is the best method that can be adopted. I differ from my friend Joe Parks in that regard. I will give you a specific illustration. An engineer met with an accident at a time when he was drawing $225 per month salary. He had an accident to his arm which disabled that arm, according to the best expert medical testimony we could obtain, 30 percent. There was a permanent disability to that arm—a loss of use—of 30 percent, anatomically or whatever it may be. After the injury and within a period of 3 months of completion of the healing period, that man got a job in Sioux City at $275 per month, but we entered an award for a 30 percent loss of the use of that arm. He was entitled to it under any compensation law in the land. No one can say whether or not with a 100 percent arm he might not have been

drawing $350 or $400 a month. He suffered that loss of use, and the compensation law says, "When you suffer loss of use which is of a permanent nature, we, under this law, will attempt, in part at least, to compensate you for that loss of use."

Nobody could pay me or you for the loss of two eyes—no compensation law ever enacted could—but there is an attempt, at least, to do that very thing. In order to arrive at a proper percentage you must have expert medical testimony, and if they differ, you do just as a jury does. You weigh the value of each bit of evidence that comes to you. You recognize the experience and the ranking of the man who gives the testimony as to the percentage of disability. You weigh one against the other, and from that evidence you arrive at a conclusion. I think it is the only way to handle permanent disability cases.

Mr. HIGGIN. I still maintain that the question I asked has not been answered. I am quite capable as a commissioner of making my own decisions. They are not always right nor are they always wrong. I simply asked the question of the doctor because of his statement. Canada is operating under entirely different workmen's compensation laws from those of the United States. I refuse to be ashamed of the act because a commissioner of workmen's compensation does not do his duty in his position. There is a duty to perform and the commissioner knows it. After he has made a decision he should stand by it regardless of who says yes or no. That is the way I make mine. The doctor having made the point that no commissioner should settle disability questions, particularly permanent disability cases, unless he has medical advice, I still ask the question. I ask the doctor, when the best he can get in medical evidence is split wide open on the disability, who is to decide. He said you should never decide the matter of permanent disability unless you have medical advice. If he cannot get that, who is going to do it?

Dr. KUHN. I shall be delighted to attempt to answer the gentleman's question. I think it is a fair one for a meeting of this kind to decide. Later on this afternoon I hope some resolution will be introduced pertaining to the very question he has asked. The State of Connecticut, I believe, answers his question 100 percent. If a commissioner has heard 6 doctors testifying on one side and 6 doctors testifying on the other side (and I conclude he has a different opinion from all of them), medical assistance on the case at the time that testimony was introduced would clarify the whole thing. I do feel that the time has come when this whole question of deciding on matters of permanent disability is one that is up to the medical profession, and unless we get into these commissions competent medical men we are going to have commissioners in the same position the gentleman from Canada is in at the present time.

Mr. HIGGIN. I want to say I am in no peculiar position. I think I know my duty. I can listen to lawyers and doctors, but I still have a duty to perform. If I do not do that, then the quicker the workmen's compensation laws are wiped off the map the better for all concerned.

Mr. GREGORY (Ohio). There has been some comment attacking the medical profession. There has been some comment from our very distinguished associates here in reference to the commissioners

and their duties, their lacking that intestinal fortitude which was spoken of in respect to medical questions. In Ohio we have a multitude of good doctors; we have a few quacks, like every other place. In Ohio and I suppose every other State, we have to rely largely upon doctors for advice and guidance in compensation matters. I have been admitted to the bar, and I know many of the weaknesses of the legal profession, but I never realized so much that the medical profession had such a tremendous advantage over the legal profession. I find in many instances that doctors, when they are mystified, simply go off into the realm of possibility and probability, which leaves the commissioner in the bewildered state that my friend over here referred to.

Realizing the weakness of humanity, it is difficult to appraise all the physical infirmities. It is more or less a guessing contest, at best, after we have assembled all the best medical opinions and advice that we can receive. It is only on occasions like this that I think commissioners can get an opportunity to acquire knowledge as to how to appraise medical opinion.

In Ohio we maintain a medical staff to advise us. After we have obtained the best medical opinion available, we endeavor to have our medical staff sift the various opinions and give us their advice before we finally determine the matter.

The question has been raised in reference to the policy of Wisconsin. While it might not be approved altogether, I feel that it has some virtue, in that compensation cases could be appraised early and the extent of actual disability determined and the matter adjudicated. I feel that in many cases it would have a great tendency to dissipate the compensation mind that arises in many cases. The past 3 or 4 years have brought about some realities that we did not recognize theretofore. We are recognizing the fact that most of us are becoming what we might term claim-wise. We are making claims for everything. We make claims for money, which is one of the prime objectives, of course. We make claims for medical attention. We make claims for charity. We are all more or less getting into that state of mind. I feel that workmen's compensation has to be administered in the future so as to minimize that state of mind among injured workmen.

It is only through conferences like this that we get inspiration and guidance. It is impossible for the various States and Provinces to discuss the matter as a broad proposition, because they are governed in each instance by a different set of laws. I know that under our law in Ohio we cannot work as you work in other States. You possibly are extremely liberal in most instances. I noticed that when Dr. Kuhn gave the cost in 1,000 cases, the average cost, as compared to the average cost in many cases of similar character which we have, was quite low.

The medical question is one not to be dealt with harshly. In Ohio we have to rely so tremendously upon the physician that we naturally have to separate the good from the bad. Every physician is entitled to compensation for services justly rendered. Many times I feel that if we could pay for results rather than for treatment, from an economic standpoint and for the good of the patient, we might make greater progress. The quarrel between the profession and the board is primarily on the amount that should be paid for treatment. You rarely hear any question about what the results are. However,

I realize that it is impossible to measure legal service and especially medical service on that basis.

In regard to doctors, I am going to relate a case which happened. Mr. Carlin, a lawyer in Ohio, happened to appear before the commission on one occasion in a death case. It looked like a rather involved matter, one which might take very extended investigation and inquiry. It happened to go through much more rapidly than anticipated. After the award was made he went to an uncle or some other relative of the minor children in behalf of the widow and children, and said, "I will give half of my fee and have it set aside in a bank or trust fund, so that it may be preserved as a contribution toward the education of the minors." I offer that only to show that a professional man who recognizes the ethics of his profession sizes up the particular case and is not concerned in the award alone. I am satisfied that the medical profession largely has that spirit, and if we can cooperate to bridle and harness those who become obstreperous we can make progress.

Mr. WRABETZ (Wisconsin). I suppose that the schedule which we have adopted in Wisconsin for compensating relative injuries would not apply in States where compensation is paid purely on the basis of wages lost. We take the law as it is, however, and because compensation for certain things is paid on the basis of a schedule, we are bound by the law. In cases other than amputations compensation will be paid on the basis of relative degree. I am principally responsible for the schedule which was finally adopted. That was based on 7 years' experience as an examiner, when I found myself in the same position as the gentleman from Canada. When we had a case of injury to an arm or hand, which was in the schedule, we would find doctors who testified that it was all the way from 10 to 90 percent disability on exactly the same sort of conditions. That, of course, could not be. A fact is a fact, no matter where you find it. Therefore we thought that, as a matter of efficient administration of the compensation law and also, Dr. Kuhn, as a matter of education to the doctors, we would adopt the schedule for guidance in cases of that kind. Therefore in a dozen places in the State we gathered the doctors who had experience in industrial work, and after numerous public hearings adopted this schedule.

It has practically eliminated from the field of argument all questions of disability with respect to the injuries included in the schedule. We very seldom have them. As to just how much motion a man has left to fit into the schedule, that after all is a matter of proof. You have a man walk in front of you and you believe him or disbelieve him, as you please. It is only after long experience, as Mr. Parks well understands, that you can determine whether or not the man is faking. You have to arrive at the facts—as to whether or not he does have an ankylosis or certain motions, or just what ails him.

In answer to the gentleman from Canada, I might say that when such a case arises in Wisconsin this is the way we handle it. If it is a case we are not particularly familiar with or if the medical statements are not clear, we appoint somebody else as an adviser. We follow his advice absolutely, and we know on which side to join in the argument.

On the matter of what you might call shyster doctors who come in to testify, that again is a matter of belief. You can believe them or

not. If after a few cases lawyers (and they are partly responsible for it too) find that certain doctors are not believed, or that their testimony does not bear much weight, those doctors are usually and gradually but finally eliminated from the picture.

Mr. HALFORD (Ontario). Speaking of disability, and how you are to judge the ankylosis, whether it is a low or high degree of motion that the patient has left, that is a very difficult question to decide sometimes. To take an instance, a doctor will, as our friend from Wisconsin says, give all the way from 10 percent up to 90 percent. You do not know whether he is right or wrong, but you have to decide the question. From the accident, you would think, perhaps, that there should be no disability at all, and wonder why that amount of disability should exist. We have had all these problems and they are very difficult to handle.

We decided that we would put in a therapeutic clinic and give these cases physiotherapy. We have all the machines for testing these fellows. We have a clinic under the supervision of a very eminent physician who is educated in that line of work. We bring these fellows in to him. A man may come in like this [indicating] and we send him out like that [indicating] sometimes. Sometimes he can get his arm up half way and sometimes all the way. We bring men in with stiff ankles, absolutely ankylosed. With the machines we have, we give them a great many degrees of movement of the ankle. We have electrical attachments that we put on their feet, and on their knees, and on their arms, and so on. We have finger-movement machines, and machines for the wrist and back. We bring these cases to the clinic from the outside districts, and give them that treatment as long as it is necessary. That has been of great assistance to us. We use electrical treatment and the whirlpool bath, the walking machine, the rowing machine, and the bicycle. We give them treatment as long as we are getting any movements from them. We test them out pretty well to find out whether or not they are malingerers.

Mr. PARKS. Do you do that yourself?

Mr. HALFORD (Ontario). When I say "we" I mean the board. I do not mean the doctors outside.

Mr. PARKS. The commissioners do it? You do not mean the commissioners, do you?

Mr. HALFORD. The board does it. I told you that we have carried this treatment out under the supervision of a very eminent physician, skilled in that line of work. The same man does not do it all; he has his assistants down there. The cost of the machines was not very much, perhaps a matter of $4,000 or $5,000. Since last May we have treated some 3,000 or 4,000 cases. We have had splendid results from that treatment. In one case we had in three of the most eminent physicians in Toronto. They wanted to operate on this fellow's back. He had all the symptoms calling for an operation. I do not remember whether it was spondylolisthesis or something else, but they wanted to procure fixation with a bone graft. Our chief medical adviser said, "I don't think we should operate on that fellow." That fellow came in all stooped over. We gave him 25 treatments of physiotherapy and he went home cured. That is an actual fact. I do not say we cure them all that easily, but we do a good deal of such treatment, and we lessen the disabilities.

So far as arm movements are concerned, the men come in this way [demonstrating]. We treat them a little while and they can get the arms up to here [demonstrating]. In a few more days they can straighten them out a little better. We get them out as far as they can go. We have finger movements which we give in some cases. We also have wrist movements. In that way we get wonderful results. There may be lack of pronation or supination. When we give a certain amount of treatment it lessens the disability and it also lessens the payment of compensation.

Mr. ANGSTEN. Is that done only on disability cases or on all cases?

Mr. HALFORD. In all cases where we think it should be done.

Mr. ANGSTEN. How do you acquire jurisdiction for those treatments? Where do you get the people?

Mr. HALFORD. We have them come to us.

Mr. ANGSTEN. If a man is hurt he is sent to the clinic?

Mr. HALFORD. We bring him in if there is any doubt about the cause at all. We have a little contrivance there—an electrical machine. The fellow lies on his back. If he has knee trouble, we put it on his foot and gradually bring back the movement. We increase the movement as desired. It is remarkable what it does to the fellow. Fellows come in there who can hardly walk, and we send them out with their disabilities wonderfully lessened. We have a little walking machine. Some of these fellows cannot walk. We put them in that and it helps to give them balance. We can tell whether they are able to walk a straight line.

It would be a good thing if you could get some of those things installed over here. That is a privilege our boards have. I am quite satisfied that then you would not have as many difficulties as you have now. We do not require any lawyers to handle our business. We have no such troubles. If the case is not properly adjusted in the first place—if we make a mistake—we open it up again. If the fellow is entitled to anything more we give it to him. On the other hand, if we have given him a pension for life and we find he is not entitled to it, we refuse to go further. I just wanted to tell you about what we have, to give you a little encouragement to work for legislation along that line.

Mr. STEWART. Mr. Wrabetz of Wisconsin says a fact is a fact in workmen's compensation, but it is nothing of the kind. You are dealing with human beings. We have had numbers of instances where a carpenter—just an ordinary carpenter apparently—had lost an arm, and when it was healed he went into the contracting business and became a rich man. He never would have been anything but a carpenter if he had not lost his arm.

Doesn't it always depend upon what man you are talking about as to whether or not a fact is a fact? That is to say, as between the great masses of workmen a fact is not always a truth. I have had some little experience with that myself. I became a totally disabled stammerer at the age of 7 years. I never spoke a word for 5 years; I carried a slate around my neck to write down even what I wanted to eat in my own home. I went to school, but I was not permitted to recite, so I had to sit in my seat and listen to the others recite and to what was said by them. I kept my mouth shut and learned more

than all the others put together. Then, after learning to read, I read about Demosthenes going down to the brook and breaking himself of stammering. I said to myself, "I can do anything that any Greek ever did." I started to carry paving stones under my tongue and I made a gravel train of myself. I read that story again, and I discovered that Demosthenes would put the stone squarely in his mouth and then go down to the seaside and speak so he could hear himself above the sound of the waves. I used to take a book and read it one word at a time. I read it just as loud as I could yell. After 4 or 5 years of that I found that my muscles down here came across fairly well when I told them to say this or that or the other. They were not all right but they were much improved. From what seemed to be a permanent total disability I had a Wisconsin 25 percent.

Some men are improved by accident. The same accident that is a permanent total disability to one carpenter makes another carpenter a contractor, and he builds the Chicago Post Office. You have to take the mentality into consideration. Here I want to come back at your malingerers, Doctor. One of the doctors here this afternoon quoted Dr. C. W. Roberts, of Georgia, but he didn't quote him quite far enough. Dr. Roberts said that certain injuries, certain types of injuries, with certain types of minds, destroy the will power, and such a man is not a malingerer in the common sense of the term; that is, he is not willfully and deliberately refusing to work for the purpose of getting compensation. That is what is ordinarily understood by malingering. If a man gets his leg cut off you put a wooden stick under the stump and he is able to walk around. If a man gets a back injury or a head injury, that breaks down his will power, and is just as much a part of the accident as the fractured vertebra. Instead of putting mental and moral props under him, you cuss him as a malingerer and make him one.

You invented the lump-sum settlement as a premium on malingering, as a bait to hang out before that man, and then you wonder that, with his weakened will power, he does not go to work. It is not the poor devil whose mind has been broken with his back or with his blow on the head who is to blame for his inability to get hold of himself and take advantage of the opportunity he might otherwise have to get well. It is not that poor devil's fault. It is the fault, first, of your lump-sum settlement, of the bait you put in your trap, and secondly, of the unsympathetic attitude you take. You do not see that a back injury or a head injury hurts more than the bone. You cannot see with the X-ray what a breakdown there has been in that man's moral control of himself, or in his will to do and his will to want to do. Until you recognize that ninety-nine hundredths at least of your so-called malingering is the fault of your lump-sum settlement and of your idea that a back is a back, a fact is a fact, and you can see into a man's soul with an X-ray, you have a long way to go.

Mr. PARKS. I know that Mr. Stewart means what he says and that there is a good deal in what he says. There are two things that happen to a man when he is hurt. The man may be a big longshoreman who knows nothing but the strength of his big right arm, and what he can do with it. That arm is crushed off his body. He not only receives that physical injury but something snaps inside. When

that wound is healed, we have to bring his morale back. Mr. Stewart is right. That man's will power is hurt. We have to separate him from the deliberate faker. There are very few deliberate fakers. When we talk about malingerers I mean that kind; I mean the kind of man who comes in or is assisted in. He takes his crutches and puts them in the corner and commences to talk. Then he walks out without them. That is the type of fellow I mean. I have had one or two like that.

Mr. STEWART. In 21 years you have had one or two?

Mr. PARKS. We have had two or three; they are the exceptions. The average workman, I firmly believe, is honest. We have to treat him just as he is. In talking about this, there is no difference of opinion between Massachusetts and Wisconsin and New York and Nova Scotia. Because of their different acts and the different ways in which they are administered we all learn something. How much did we learn from the gentleman from Wisconsin? He told us how those schedules were arrived at; it is a different system from ours. It would not fit in with our present act. We know that Ontario also has a different system from ours. The employers pay into the department, and the commissioners have their fingers on everything in that department. Of course, in Massachusetts, we could not do what they do. I want to say in passing, to my friends the doctors, look out. Be careful that under the compensation act, in insurance States particularly, you do not have a system of State funds. What do they have in Ontario? A few hand-picked doctors and a beautiful clinic, which is taking all of the business out of your hands. You would not be troubled any more about presenting bills to insurance companies. The work would be done nevertheless and done in the scientific way they have of doing it in Ontario, to their credit. I am not criticizing it; I think it is all right.

[A motion thanking the chairman for the arrangement of the day's program and the doctors who prepared the papers was made, seconded, and unanimously carried.]

[Meeting adjourned.]

THURSDAY, SEPTEMBER 14—MORNING SESSION

Chairman, R. E. Wenzel, president I.A.I.A.B.C.

President WENZEL. We will now open the final session of the association. There is only one report which was on the program of the Monday session that has not been presented and that is the report of the medical committee.

[Secretary Baldwin reported that Dr. Graves had spoken to him about the report and stated that whatever report might be made in that connection was covered in the prepared papers that were read, and he felt that no separate report was needed.]

[The report of the auditing committee was presented and after some discussion was referred back to the committee for suggested amendment.]

[The report of the nominating committee was presented. The list of officers will be found on p. 204. Boston, Mass., and September 10–14, 1934, were recommended as the place and time of the next annual meeting. The report of the committee was adopted.]

President WENZEL. The next report is that of the resolutions committee. Is the committee ready to report at this time?

REPORT OF RESOLUTIONS COMMITTEE

Resolved, That the Bulletin of the United States Bureau of Labor Statistics 577, is hereby approved as the record of the nineteenth annual convention of the association held at Columbus, Ohio, September 26 to 29, 1932.

The resolutions committee recommends that the president's report be accepted and spread upon the minutes as read.

Whereas Divine Providence has called from our midst Floyd L. Daggett, president of this association from 1915 to 1916, and F. A. Duxbury, president from 1922 to 1923; be it

Resolved, That the International Association of Industrial Accident Boards and Commissions record with much sorrow the closing of these two books of life at a time when their experience, clear perception, ability to act with force and precision was of such utmost value to their associates; be it

Resolved, That the service rendered during the formative period, the guidance and wise counsel during the 20 years of our existence has enriched this association and it is better because they lived; be it further

Resolved, That the assembly pause in silent tribute to the memory of these distinguished gentlemen; be it further

Resolved, That a copy of these resolutions be sent to the respective families and States represented.

The committee recommends that the special items in the report of the secretary, which was referred to the committee on resolutions, be approved as follows:

1. The resumption of the payment of annual dues, both of active and associate members, such dues to be the amount which was in effect prior to the order of suspension of same.

2. The sale of Liberty bonds (4.25 percent) of the value of $700, which was sold upon the authority of the president to defray current expenses of the association during the year.

3. The association agrees to the proposed revisions to the abrasive wheel code permitting an increased speed for coping wheels from 6,000 surface-feet per minute to 9,000 surface-feet per minute for cutting brick and stone.

The committee also recommends that the matter of disposal of a certificate of $1,500 of the Paterson Mortgage & Title Guaranty Co. of New Jersey, which becomes due and payable on October 19, 1933, be referred to the incoming executive committee for any action which it may deem advisable.

For several years schedules have been collected by the association through the United States Bureau of Labor Statistics to ascertain the remarriage status of widows in the United States, for the purpose of compiling an American remarriage table to replace the Dutch remarriage table now used in this country.

The committee recommends that the association request the United States Bureau of Labor Statistics to compile the schedules received for an American remarriage table.

The resolutions committee recommends that the members of the association do everything in their power to adopt the uniform forms for use in their respective jurisdictions.

Resolved, That the president be authorized to appoint a committee of three to study the situation in the various States and Provinces regarding the determination of average weekly wage, with instructions to have material available as early as possible for the use of those States having legislative sessions during the coming year and to report to the next annual meeting, and that such committee be authorized to expend not to exceed $100 in such study.

Resolved, That we express our appreciation for the many privileges and courtesies extended to and enjoyed by this association, the members thereof and the families of the members thereof, at the twentieth annual meeting of the International Association of Industrial Accident Boards and Commissions, held at Chicago, Ill., September 11–14, 1933.

Resolved further, That the thanks of the association be extended to Charles A. Nowak, former chairman of the Industrial Commission of Illinois, for his cooperative participation in the meetings, and to Peter J. Angsten, chairman of the Industrial Commission of Illinois, and to the many other citizens of said city and State who have had part in providing for our welfare, instruction, and entertainment, and especially to the following members of the medical profession who contributed outstanding papers to the literature of this association: R. G. Leland, M.D., N. S. Davis, III, M.D., John D. Ellis, M.D., Paul B. Magnuson, M.D., Hollis E. Potter, M.D., C. R. G. Forrester, M.D., Philip H. Kreuscher, M.D., Leroy P. Kuhn, M.D., and to Samuel S. Graves, M.D., formerly medical director Industrial Commission of Illinois, for so ably guiding the discussion of the medical questions.

Be it further resolved, That the convention places on record its approval of the wise procedure adopted at the Wednesday meeting of dealing with one important specific subject exclusively.

Resolved, That this association wishes for Chicago a more glorious future and believes its contribution to the world in presenting the Century of Progress at this time is immeasurable.

Unanimously adopted and signed by each member of the committee.

STEPHEN B. SWEENEY, *Chairman*.
G. CLAY BAKER.
P. V. E. JONES.
C. F. SHARKEY.
MRS. E. S. TOUSANT.

[It was moved and seconded that the report of the resolutions committee, as shown above, be adopted. A discussion followed in which the subject of annual dues was brought up. A motion was made and seconded that the associate membership dues be increased from $10 to $25. After a suggestion from the floor that such dues were fixed in the constitution and could be changed only by amendment to the constitution in the manner prescribed therein, the report of the committee was adopted.]

[The amended report of the auditing committee was presented and approved.]

[A motion was made, seconded, and carried that a committee be appointed to draft a new constitution and bylaws, to be submitted at the session next year. The incoming president will appoint the committee.]

[The following motion was referred to the committee for the 1934 program:]

At the meeting of Section A of Exclusive State Fund Jurisdictions on Tuesday, September 12, 1933, the following resolution was moved by Mr. Thomas M. Gregory, chairman of the Ohio Industrial Commission, and seconded by Mr. Howard Keener, chairman of the Arizona board: That it is the wish of the meeting that in making up the program for the next annual meeting a morning and afternoon session be allotted to them.

[A motion was made, seconded, and carried that a statement entitled "General Review of Workmen's Compensation Legislation, etc., During 1933", prepared by Mr. Sharkey, be made a part of the record and printed in the proceedings. The paper is as follows:]

General Review of Workmen's Compensation Legislation, etc., During 1933

By Charles F. Sharkey, *of the United States Bureau of Labor Statistics*

Almost a quarter of a century has elapsed since the first workmen's compensation law was adopted in the United States. For the purpose of bringing together the officials charged with the administration of these laws, an association, national in scope at first but later enlarged so as to include the Canadian administrators, was formed to discuss the interpretation of the laws and the practical problems of the administration, and to adopt so far as possible uniform methods and practices and thereby render mutual help to each other.

Twenty years after that small band of pioneer administrators met in Lansing, Mich., we, their successors, meet in this city to continue the work which they began.

While we cannot boast of a century of progress, yet during the last quarter arc of the past century, workmen's compensation in the United States has advanced from the theoretical stage to the practical. Early constitutional lawyers considered the principle of workmen's compensation antagonistic to our basic State and Federal Constitutions. The common-law theory of employers' liability has now been supplanted by the principle of workmen's compensation in all of the States of the Union with the exception of four (Arkansas, Florida, Mississippi, and South Carolina). No principle of our law fabric has had such a far-reaching effect and change in respect to the rights of employers and employees.

Legislation—United States

Since our last meeting in Columbus, Ohio, another legislative year has rolled around, with the result that some changes have been effected in our basic workmen's compensation laws.

While 40 of the 44 States in which compensation laws are in operation met in regular session during this year, only 30 States amended the law. The legislatures of Alabama, Kentucky, Louisiana, and Virginia—States in which compensation laws are upon the statute books—did not meet this year in regular session. Of the 4 States which do not have workmen's compensation laws, three of the legislatures met in regular session, while the fourth—Mississippi—did not meet. A compensation bill was introduced in Arkansas, but according to a statement of the commissioner of labor, the bill "was never returned from the committee on labor." Similarly in Florida such a bill was proposed but it did not pass.

Many special sessions have been called this year. Of the States from which legislation is available, however, none acted upon the subject of workmen's compensation except Arizona and New York.

In 10 States the workmen's compensation law remains unchanged by the 1933 legislatures. These States are Connecticut, Idaho, Kansas, Maine, Michigan, Missouri, Rhode Island, Texas, Utah, and Vermont. In 12 other States the net result included only 1 or 2 changes, in most instances of a minor nature.

Arizona merely reduced the salaries of the industrial commission from $5,000 to $4,000 per annum at the regular session and amended six sections of the act at the special session. Delaware authorized two municipalities to accept the act, while Nebraska extended the coverage provisions of the act and Maryland excluded wood cutters. Colorado investigated the administration of the workmen's compensation insurance fund, and provided that payment for the rental quarters of such agency be paid out of the fund. The Legislature of North Dakota authorized the governor of that State to remove the commissioners without cause. The effect of this law has, however, been suspended by a referendum petition. Before a coal mine may be operated in this State, full compensation insurance premiums must have been paid. Ohio gave authority to the industrial commission to pledge securities of the State fund for the purpose of borrowing money for the payment of compensation. Indiana and New Hampshire now provide for double compensation in the case of injured children illegally employed. New Hampshire also fixed the minimum weekly rate of compensation at $7, and extended the period of medical and hospital service from 14 to 30 days. Nevada merely provided that a child under 18 years of age need no longer prove residence with the parent in order to establish a conclusive presumption of total dependency.

The attorney general of South Dakota is hereafter to be the industrial commissioner. West Virginia merely amended the provisions of the insurance fund in the matter of investments.

Several States passed legislation securing the payment of compensation by insurance carriers. In Tennessee insurance companies must furnish a bond in the sum of $50,000. In lieu of such bond a certificate may be accepted from the commissioner of insurance of the State in

which the insurance company is organized, or domiciled, assuring that such company has on deposit in the State the sum of $100,000 in cash for the protection of all of its policyholders ratably. Notice to the insured employer of an injury is hereafter deemed notice on the part of the insurer, and such a clause must be inserted in every policy of insurance. The compensation law in this State also was strengthened by giving inquisitorial powers to county grand juries over all violations of the law relating to accident reports and insurance. The Legislature of Georgia also enacted legislation requiring every insurance company doing any workmen's compensation business in the State to furnish a bond of $50,000. An insurance company in this State is hereafter denied the right, after accepting a compensation premium, to plead that the employer was not subject to the act. Between the parties concerned the issuance of a compensation policy is made a definite contract.

Hereafter in North Carolina if any insurance carrier withdraws from doing business in the State while any liabilities are outstanding, the industrial commission may cause suit to be brought on a judgment in the State of the carrier's residence, for the benefit of the claimant.

The Wisconsin law was amended providing that no compensation policy shall be canceled unless notice both to the commission and to the assured shall be given. The new provision is designed to give ample notice and opportunity to an employer to maintain continued coverage.

Before leaving the subject of insurance, brief mention should be made of the creation of a State insurance fund in Oklahoma to be administered by the industrial commission. State and municipal corporations must insure in such fund, while insurance is optional with other employers.

In addition to the increased coverage provisions already mentioned, such amendments were also made in California, Massachusetts, New Mexico, and North Carolina. In California the coverage was enlarged so as to include volunteer firemen. New Mexico added all peace officers and the warden and guards at the State penitentiary to the list of extrahazardous occupations covered under the act. Employees of electric street railroads in all counties except one were extended coverage provisions in North Carolina, but sawmills and logging operators employing less than 15 employees are excluded.

Perhaps the largest number of changes in the basic compensation laws during the current year was made by the Legislature of Oregon. In this State approximately 20 acts were passed, virtually resulting in a new compensation law. I will not enumerate the many changes but refer only to a few of the new provisions. Fees for legal services hereafter must be approved by the commission; extraterritorial effect was given to the compensation law; a volunteer fireman is for the purposes of the act considered engaged in a nonhazardous employment. In the future, notice must be given to the Oregon Industrial Accident Commission whenever a member of the employer's family is hired. The commission was also empowered to accept the warrants or certificates of indebtedness of municipalities in payment of contributions due the insurance fund.

During the economic crisis of the past 4 years the subject of coverage of relief workers has perplexed the courts and administrators of workmen's compensation laws.

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In Pennsylvania the legislature attempted to solve the workmen's compensation problems created by the system of "work relief." This State enacted a special compensation law to cover only those persons engaged in work for any public or charitable organization by direction of the State emergency relief board. The new law is thus limited in scope, and does not include employment by local charitable units not under the emergency relief act. Compensation under the plan commences after 26 weeks of disability, except in permanent injury or death cases. The payments are to be made from the State work relief compensation fund, created by an initial appropriation of $25,000 and supplemented by a payment of 25 cents per week for each worker used by any "work relief" employer who elects to be relieved of liability. The fund is to be administered, however, under the State workmen's compensation insurance fund.

New Jersey is another State which considered this problem. By the provisions of chapter 81, all relief employment is declared to be casual employment, and therefore not covered by the workmen's compensation act. However, the legislature, in order to take care of this problem, authorized the State director of emergency relief to make an award to any person injured in emergency relief work according to the provisions of the New Jersey workmen's compensation law. The award in such a case is to be paid directly from the emergency relief fund.

The law relating to third-party actions received consideration in California, Montana, and North Carolina. The question of appeals and procedure therefor was considered in California, Illinois, Iowa, Maryland, Minnesota, and New York.

Massachusetts, in addition to liberalizing its law, attempted to correct a condition in the granite and foundry industries. The legislature of 1933 provided for the appointment of a committee to investigate the problem of diseases caused by dust in the granite and foundry industries. The investigative commission was empowered to devise ways and means to protect the employees from such diseases, and for some plan of insurance coverage. There was also a mandate for the commission to study the problem of industrial disease compensation in general.

An amendment to the Wisconsin law, in view of the situation in Massachusetts, is of interest. In that State—

> Because of confusion resulting following passage of a revisor's bill in 1931, the supreme court held that in order to recover compensation benefits it was no longer necessary for an employee to establish causal relationship between his employment and his injury or disease, but that it was sufficient to show that disability, regardless of cause, commenced while the relationship of employer and employee existed. In order to express the true and understood intent of the law, the legislature provided that in order to recover compensation the employee must sustain an injury (defined by law as mental or physical harm caused by accident or disease), and that the accident or disease causing injury must arise out of his employment.
>
> Previously the court had held that in case of occupational disease the date of injury was to be taken as the date of disability. Where disability did not result until after the relationship of employer and employee had terminated, the applicant was without remedy because of the provisions of law requiring that at the time of injury the relationship of employer and employee must exist. The legislature amended the law to provide "time of injury", "occurrence of injury", "date of injury" in the case of disease, as the last day of work for the last employer whose employment caused disability. This provision extends remedy to an employee

who, because of exposure contracts disease which, however, does not result in disability until after the employment has been terminated.

New York eliminated the time limit upon reclassification of a disability. It gives the department of labor freedom to change the classification of cases irrespective of lapse of time. A review of a reclassification as permanent disability made more than 7 years after the accident must be by the entire industrial board, and must be decided by an affirmative vote of at least three members.

The Legislature of the State of Washington made a radical change in the method of payments into the accident fund. Instead of being a certain percentage of the pay roll the rates are now fixed at a certain basic rate per workman-hour in the various classes of industry. The basic premium rates in cents per workman-hour apply to the accident fund as well as to the medical-aid fund. Computation of the average weekly earnings of employees was the subject in several States. In California the earnings hereafter are to be based on a 5-day, 30-hour, week.

Liberalization of benefits received the attention of the legislatures of other States in addition to those already mentioned, especially in California, Minnesota, Montana, New Mexico, Oklahoma, and Wisconsin. In New Mexico, while the weekly minimum compensation in total disability cases was fixed at $8, the period of compensation for the loss of one leg between the knee and ankle was reduced from 110 weeks to 100 weeks.

In Illinois the powers of the industrial commission were strengthened, and hereafter employers subject to the act must post printed notices advising employees as to their rights.

While the workmen's compensation legislation committee of this association drafted early this year a uniform provision for submission to the States to care for second-injury cases, only one State acted on the subject. Minnesota increased the amount payable into the second-injury fund from $200 to $300.

Four territorial legislatures also met in regular session. Alaska and Puerto Rico made no changes, while Hawaii made two changes of minor importance. Official information has not been received as to whether any changes have been made or are contemplated in the workmen's compensation law of the Philippine Islands, the legislature of which is now in session.

The Congress of the United States has also been in session since our last meeting. The second session of the Seventy-second Congress was held, and immediately following March 4 an extraordinary session of the Seventy-third Congress convened. While legislation of a far-reaching nature was passed at this session, no changes were made in the compensation law already extended to employees of the Federal Government, longshoremen and harbor workers, and private employees in the District of Columbia.

Legislation—Canada

Of the eight Canadian Provinces having compensation laws the 1933 legislatures of Alberta, Ontario, Quebec, and Saskatchewan acted on the subject of workmen's compensation, while those of British Columbia, Manitoba, New Brunswick, and Nova Scotia did not. Alberta merely enlarged the powers of the board in the

matter of procedure. Ontario amended the act so far as merit rating and silicosis were concerned.

The principal change in the Quebec act was the elimination from the schedule of industrial diseases of silicosis, pneumoconiosis, and several allied diseases. The silicosis act of 1931 was repealed. Other changes included a reduction of the weekly minimum from $12.50 to $10, and a change in the waiting period whereby a workman must be disabled for 3 weeks before compensation is payable from the date of injury.

Under the provisions of the Saskatchewan workmen's compensation law as amended, "employers" hereafter shall include a trustee, receiver, etc., and any person appointed by a court to carry on an industry. Any employer failing to report an accident is made individually liable for medical aid as well as for compensation. The powers of the Saskatchewan commission were also enlarged. The power to remove any of the commissioners may be accomplished by the legislature. They are, however, immune from liability for any act done in the execution of their duties, the same as judges. Other changes of a minor nature were also accomplished.

Occupational Diseases

It has been observed, in the review of this legislation, that many jurisdictions have considered the problem of occupational diseases. At this point it would seem appropriate to refer briefly to the reports of several commissions appointed to investigate this subject. The Pennsylvania committee submitted a report to Governor Pinchot in March of this year. Some of the conclusions of the committee include the following:

> The commission is definitely convinced that any compensation law including occupational diseases within the compensation system of the State of Pennsylvania would require a separate act with a separate framework of rules and procedure for the administration of such law, insofar as occupational disease presents a problem different from that presented by accidents.
>
> The commission is of the opinion that occupational disease legislation should recognize that accidents happen at a given point of time with a particular employer, that occupational diseases are frequently of slow development, clear up and recur, and that special provisions fitted to this difference in character must be made.
>
> Your commission is likewise convinced that the phrase "occupational disease" has a distinct significance, but that it is not capable of such accurate definition that administrative boards and courts will be able without the assistance of scientists to determine what is or is not such a disease.
>
> The commission is also of the opinion that in connection with a listing of diseases there should be a general statement of the occupations within which those diseases naturally occur.
>
> Your commission is of the opinion that the diseases which will be of major importance and which will present the greatest difficulties as administrative problems, are silicosis and/or miners' asthma, and further believes that any act which includes them as compensable diseases must contain special provisions outlining the course of procedure to be followed in determining in a given case whether or not a claimant is entitled to compensation, and which employer or employers shall be held liable therefor.
>
> The commission is of the opinion that it is impossible accurately to estimate the additional cost which will be imposed upon industries by reason of the inclusion of occupational diseases in a compensation system.

Pursuant to a resolution of the Illinois Senate, a report by a medical committee on silicosis was submitted to the chairman of the industrial commission.

The report particularly observed that it was essential to establish definitely as to what physical conditions and pathological pictures should constitute compensable silicosis. Continuing, the report showed that—

> The medical logic behind the present agitation for legislation to include "silicosis", or the effects of inhalation of silica and the silicates, and not "pneumoconiosis", or the effects of the inhalation of any dust, rests upon the opinion of many authorities that disabling fibrosis of the lungs from dust is in reality, in the vast majority of cases, due to silicosis, while an accompanying inhalation of coal dust or clay will actually retard the action of the silica. * * * It is extremely important for anyone proposing legislation to cover the effects of dust inhalation, in order to avoid endless controversy, to decide definitely whether he chooses to propose legislation covering the effects of all dusts (pneumoconiosis) or of dusts of silica or silicates (silicosis).

Court Decisions

A large number of workmen's compensation cases were decided by the courts during the past 12 months. The Supreme Court of the United States had occasion to pass final judgment on several workmen's compensation cases—*Voehl* v. *Indemnity Insurance Co. of North America*, 288 U.S. 162; *Aetna Life Insurance Co.* v. *Moses*, 287 U.S. 530; and *Ohio* v. *Chattanooga Boiler & Tank Co.*, 289 U.S. 439. The first case concerned the workmen's compensation law in the District of Columbia, the second the Federal longshoremen's and harbor workers' compensation act, and the third, the workmen's compensation law of Ohio.

An interesting case was decided by the Court of Appeals of the District of Columbia, in which it was held that a preexisting condition did not bar recovery of compensation. In this case an employee, while using a hot-water hose for defrosting cans, was seized with an epileptic fit. Because of the contraction of his muscles, he continued to hold the hose so that the hot water ran over his body, inflicting serious burns which caused his death. An award was denied by the deputy commissioner, who held that the proximate cause of the injury was the epileptic seizure, which had no relation whatever to the employment.

> From the facts in the case the court of appeals held that the employee's death was caused by the burns and not by the epileptic condition, and that such burns were inflicted by means of an instrumentality in the hand of the employee which he was using in the course of his employment. The court called attention to the fact that a liberal interpretation in favor of an injured employee should be given, since workmen's compensation statutes in general are remedial.

The Supreme Judicial Court of Massachusetts had occasion to pass on a case involving an injury to a workman on Federal property.

> An employee by the name of Charles Lynch was injured while in the employ of the N. P. Severin Co., a general contractor, engaged in the construction of a new post-office building in Boston, Mass. At the time of the accident the employee was at work on land owned by the United States, and while in the course of his employment he had occasion, from time to time, to leave the Federal property. The main contention of the insurer was that since the injury occurred on land belonging to the United States the Federal Government had sole jurisdiction, and that the Industrial Accident Board of Massachusetts was without jurisdiction.
>
> In 1927 (ch. 309, par. 3) the Legislature of Massachusetts amended section 26 of the State workmen's compensation act. By the provisions of this amendment the workmen's compensation act was given extraterritorial force. It is now no longer considered doubtful that anyone who is employed in the State can recover under the workmen's compensation act for an injury which has occurred in another State.

The court based its opinion principally upon a Montana case. (*Loney* v. *Industrial Accident Board*, 87 Mont. 191.) In that case an employee was hired in Montana to work on a road being constructed for the National Forest Service. This road was partly in the State of Montana and partly in Glacier National Park, the latter being a tract of land ceded to the United States by the State of Montana. The injury in this case occurred while the employee was on that section of the road within the boundaries of the national park. The Montana Supreme Court held that there might be a recovery under the Montana workmen's compensation act.

The Massachusetts Supreme Court, in answering the contention that the Federal Government has taken possession of the field of compensation, stated that there is no Federal workmen's compensation law and since the Government has not taken possession of that particular field there was no basis for the contention as raised by the insurer. The court said that the fact that the injury occurred on land of the United States did not render inapplicable the State workmen's compensation act, and that the law as amended by the act of 1927 covers the contract of the parties.

The decree of the lower court was therefore affirmed.

Another case decided in 1933 by the Massachusetts Supreme Judicial Court of interest to members of this association, was that of an employee drowned while engaged in scavenger service on a scow. The case was especially referred to by Mr. Samuel B. Horowitz of Boston at our meeting last year in Columbus, Ohio. The court was called upon to determine whether an employee sweeping the deck of a scow and drowned in navigable waters was engaged in maritime employment or whether the work was a matter of local concern and hence cognizable under the Massachusetts workmen's compensation law.

The high court of Massachusetts upheld the Industrial Accident Board that the death was compensable under the State workmen's compensation law. (*In re Herbert's case*, 186 N.E. 554.)

Other cases which may be deserving of mention are as follows:

(1) The Supreme Court of Tennessee held that a nursery employee was a "farm or agricultural laborer", and therefore not entitled to receive compensation for injuries under the workmen's compensation law of that State. (*Ginn* v. *Forest Nursery Co.*, 52 S.W. (2d) 141.)

(2) An employee contracting a skin disease while in the employment of a rug company, but suffering no disability until some time after he left the company's employ, was not entitled to workmen's compensation according to the Wisconsin Supreme Court. (*Kimlark Rug Corporation* v. *Stansfield*, 246 N.W. 424.)

(3) Compensation was denied for injuries received in employment not incidental to the office by the Supreme Court of New Jersey. In this case the workmen's compensation bureau awarded compensation to a minister who was injured while removing a heavy barrel from the cellar of the parsonage. The supreme court, however, reversed the State bureau. The court reasoned that the claimant was performing a household duty for his own benefit, which he would have been required to perform if he lived in a house owned by himself. (*Van Devander* v. *West Side M.E. Church*, 160 Atl. 763.)

(4) In applying the provisions of a State workmen's compensation statute, due consideration must be given to treaties between the United States and foreign nations. This was held by the Supreme Court of Appeals of West Virginia in the case of *Urbus* v. *State Compensation Commissioner*, 169 S.E. 164.

(5) An employer's violation of a safety order was held by a California court to warrant additional compensation. (*Ethel D. Co.* v. *Industrial Commission*, 21 Pac. (2d) 601.)

(6) The widow of a traveling salesman, who was bitten by an infected wood tick, was awarded compensation for his death by the Supreme Court of Idaho. (*Roe* v. *Boise Grocery Co.*, 21 Pac. (2d) 910.)

In an Oregon case (*Banister* v. *State Industrial Accident Commission*, 19 Pac. (2d) 403) an employee who was cutting brush for the city, and received poison-oak poisoning, was held to have received an accident caused by external means. The State industrial commission in the first instance disallowed the claim, but upon subsequent appeal to the courts the decision of the commission was set aside.

The supreme court discussed the question fully, calling attention to the fact that the commission relied on the statement that "an idiopathic as distinguished from a traumatic disease cannot be regarded as an injury by accident." However, the court said that an idiopathic disease is one which develops gradually or imperceptibly, and that poisoning from poison oak was not such a disease.

(7) An alleged oral agreement by the employer to pay the injured employee wages in lieu of compensation payments was declared by the Superior Court of Pennsylvania to be wholly null and void. (*Blair* v. *Laughead*, 165 Atl. 58.)

(8) In the case of *Manfield & Firman Co.* v. *Manfield* (182 N.E. 539) the Appellate Court of Indiana held that in order to entitle a stockholder, director, or officer of a corporation to compensation under the Indiana workmen's compensation act, "he must be an employee whose remuneration is popularly designated as wages, rather than salary; * * * whose labor is manual or of a like degree of industrial or commercial importance as manual labor when viewed from the standpoint of individual accomplishment."

(9) A pertinent case of interest to administrators was that in Arizona in which the supreme court of the State upheld the right of the governor to remove the entire personnel of the State Industrial Commission. (*Sims* v. *Moeur*, 119 Pac. (2d) 679.)

It may be said in closing that the courts of the nation adjudicated perhaps the usual number of workmen's compensation cases, and that the legislatures of the various jurisdictions which took up the subject of workmen's compensation during 1933, for the most part enacted into law amendments which were beneficial, that the scope of the acts have been enlarged and strengthened, and that the general tendency was toward the improvement of the compensation laws.

[President Wenzel expressed to Mr. Nowak and Mr. Angsten the appreciation of himself and of the association for their part in assuring the success of the convention. He then presented the incoming president, Joseph A. Parks, who took the chair. Mr. Parks expressed his appreciation of the honor conferred upon him and asked for the cooperation of the members during the coming year. After the presentation of the incoming vice president, Mr. Prudencio Rivera Martinez, commissioner of the Department of Labor of Puerto Rico, was asked to speak on the situation in Puerto Rico and responded as follows:]

Mr. MARTINEZ (Puerto Rico). I come from a very far distant place, about 1,400 miles from New York. I have been striving there

for years to have all social legislation enacted in the matter of this compensation law. From 1916 to 1928 we had an exclusive State fund. That proved a failure because of the administration and politics, and in August 1928 there was a change to a competitive form. It happened that in authorizing self-insurers and private carriers to operate, the Government had to take up every bad risk.

Conditions today are worse than they were in the past. Our country is mainly agricultural. Conditions are such that the employers claim that their premiums as applied to agricultural risks are confiscatory. They have been protesting all the time against this insurance provision. There was enacted in special session of the legislature new legislation which I call novel legislation, and it is now awaiting the signature of the governor. According to law, he has 30 days after adjournment of the legislature either to approve or to veto the legislation. We do not know at this time whether it will be signed by him and become a law or be vetoed. We should know about tomorrow, the 15th of September, as that is the expiration of the time within which he has to make it a law or to veto it.[1]

The title of the proposed law is as follows:

An act to promote the welfare of the inhabitants of Puerto Rico as regards accidents causing death, injuries, or diseases derived from the occupations of workmen while engaged in their work; to establish the social service compensation to workmen and employees in Puerto Rico, and to compensate their heirs and beneficiaries, as defined; to provide ways and means for the enforcement of these duties; to create a manager of the Workmen's Compensation Social Service Fund, and an Industrial Court, and to determine the powers and duties thereof; to determine the liability of the Government of Puerto Rico and of its municipalities under this act; to levy a special tax and premium quotas for said services, and to authorize the survey of the reinsurance of workmen; to repeal act No. 85 of 1928, known as the "Workmen's Accident Compensation Act" and all laws in conflict herewith; to appropriate up to the sum of $25,000 out of any funds available in the Treasury of Puerto Rico on December 31, 1933, and preferentially out of any surplus in the fund of the Workmen's Compensation Bureau of the Department of Finance, and for other purposes.

That is the title of the act. The Governor of Puerto Rico refers to the heads of the different departments any legislation affecting their departments. They report on the legislation and either recommend its approval or its rejection and veto. I have written in my report to the Governor of Puerto Rico that the purpose of the law is explained in section 2, by which it is declared that the Legislature of Puerto Rico considers, as a policy of great social and human importance, the need of establishing a system that shall prevent the loss of human beings in factories, shops, and fields of production and in work in general in the Island of Puerto Rico, through disability and death. It is established by this section that all the inhabitants of Puerto Rico shall contribute to this service, thus establishing a doctrine and principles in Puerto Rico which are fundamentally different from those established up to the present and by which only the employers were to pay the loss based on the risk of the employment.

In departure from the old system it has been the purpose of the legislature, as explained, to make of the compensation service a social service, the cost of which should be borne by all the community instead of the employers alone.

[1] This legislation was pocket vetoed by the governor.

Then I might mention the different aspects of the law and come to the part that provides for the premiums, but I am going to mention that in a few minutes.

Section 28 provides that the Treasurer of Puerto Rico should levy and collect from January 1, 1934, until June 30, 1935, in the same form and manner and through the same proceedings in force for the collection and levying of regular property taxes, and in addition to said taxes, a tax of thirty hundredths of 1 percent of the assessed value of all taxable real and personal property in Puerto Rico; and the proceeds of said tax shall be converted into a special fund which shall be known as "Special Fund for the Workmen's Compensation Social Service."

Section 29 provides that from January 1, 1934, until June 30, 1935, the Treasurer of Puerto Rico is likewise authorized and directed to levy, collect, and withhold from any funds belonging to the several municipalities of Puerto Rico, including the government of the capital, 1 percent of the total amount of the municipal budget for the payment of salaries and wages to the municipal employees and workmen covered by this act.

Section 30 provides that for the same period as above, the treasurer should levy and collect annually on any funds of the insular government or of any of its dependencies, boards, or commissions, 1 percent of the total amount of the respective budgets to be used for the payment of salaries and wages of employees and workmen covered by this act.

Section 31 provides that the same official should levy and collect 1 percent of the general budget of every public work carried out by the Federal, insular and municipal governments and by the government of the capital, whether by administration or on call for bids, for the compensation social service of the employees and workmen used therein and covered by this act.

Section 32 provides that the same officer should levy and collect from every person, partnership, or corporation, engaged in any business or industry in Puerto Rico and employing workmen or employees covered by this act and not paying direct taxes on property located in Puerto Rico, 1 percent of the total amount of the annual pay roll of the workmen and employees used in his business or industry.

I was interested in reading that part about contributions and taxes, that is all. My purpose in bringing this to you is that I believe it is important for you. I will leave a copy of the bill with you as well as a copy of my letter to the Governor.

[After remarks by Mr. Stewart referring to conditions in Puerto Rico, a motion was made, seconded, and carried that this matter be referred to the executive committee for consideration and such action as it may see fit to take.]

[Meeting adjourned.]

THURSDAY, SEPTEMBER 14—MORNING SESSION

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

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

Opening Address

By EUGENE B. PATTON, *Director Division of Statistics and Information of New York and President A.G.O.I.*

As most of you know, there are three organizations of labor departments which meet annually. The one with which we are most familiar is what Mr. Stewart terms the alphabet society, the I.A.I.A.B.C., which, being interpreted, is the International Association of Industrial Accident Boards and Commissions. There is another organization known as the A.G.O.I., or the Association of Governmental Officials in Industry of the United States and Canada. It is the joint session of these two bodies which is now beginning.

There is also a third organization of labor department officials known as the International Association of Public Employment Services, which is directly and particularly concerned with the operation of public employment offices. There probably are other organizations, but these are the three which I have in mind.

We have a very short time and a crowded program; therefore my presidential address is to consist simply of a recommendation which probably will not meet with the approval of more than a few of you; yet it is a recommendation which personally I strongly favor and believe to be for the best interests of all concerned.

That recommendation is that henceforth there be one annual meeting of labor department officials. In the term "labor department" I include various titles, such as industrial accident commissions, departments of industrial relations, or whatever they may be. I mean to include that group of people in a State or Province which is concerned with labor problems.

My recommendation is that there be one annual meeting of such officials, at which meeting there be one section devoted particularly to workmen's compensation problems, one section to public employment office problems, and one section to the general problems of labor-law administration and enforcement with which the A.G.O.I. concerns itself. In other words, it is to have something somewhat analogous to the National Safety Council, which deals with the general problem of safety and has separate sections to which those interested in any particular phase of the safety problem are directed and in which they may meet.

I realize quite well that there are reasons rooted in tradition against this, but the present depression has taught us, I think, that it is wellnigh impossible (in many cases it has been proved to be so) to get anything like an adequate representation from each of the Provinces and States for each of these separate conventions. It

takes time, money, and effort, and expense of one kind or another is involved. In many cases the same people from a given Province or a given department who would go to one of these meetings are also expected to go to another. I can see no reason why it would not be more desirable, from the standpoint of stimulation of interest, increase in attendance, and decrease in expense, to have one common, general meeting of labor department interests. I see no reason why any particular interest, such as workmen's compensation, public employment offices, administration of labor laws, and so forth, could not be as well cared for as it is at present. I feel quite sure that there would be a larger attendance and a greater interest manifested by so doing.

This I realize will require changes in the constitutions of each of these organizations. I will take occasion to point out such steps as I could take unofficially and without having any authority entrusted to me in this direction. The A.G.O.I. was to have met in Buffalo in May 1932. Because of the prevailing depression the meeting was postponed for 1 year. We had no session in 1932 and waited until 1933. At a meeting of the executive committee in Buffalo a committee was appointed to prepare for the 1933 session. I made an effort to secure in 1933 a meeting in the same city and at approximately the same time—that is to say, within the same week—of all three of these bodies. The public employment officials were quite eager for it and were going to meet with us, until late in the summer, when they decided that on account of the reorganization of the Federal Employment Service it would be essential that they meet in Washington this year.

The I.A.I.A.B.C. went so far as to agree to this joint session which was at first planned for only a half day; then because of the full program, it was extended to something more than a half day.

That is my recommendation. I realize how much may be said against it; nevertheless I am convinced of its value.

Another thing particularly concerns the A.G.O.I. only. If we do go on as we are, I recommend a constitutional change which will lodge the office of the secretary in the United States Bureau of Labor Statistics, on the ground that it has the organization and the facilities for conducting such work and that it will provide a greater continuity in the management of the program. Even if that is not done, I recommend that some one person, either the secretary or the president, be given full power to draft the program for the coming year. The A.G.O.I. does not have funds for an annual meeting of its executive committee to formulate a program, and therefore it is necessary to correspond with the States and Provinces. I believe that, whoever may be our secretary, if either the secretary or the president is given such power it will save time and effort, and a better program will result, than under the present plan which involves conference by mail.

Mr. Kearns, superintendent of the Division of Safety and Hygiene of Ohio, is to preside at this joint meeting on safety, and he is responsible for a large part of the program. The first two addresses were arranged for by the A.G.O.I., and from then on the speakers have been secured by Mr. Kearns, perhaps acting in conjunction with Mr. Baldwin. Before turning the meeting over to Mr. Kearns, I wish to ask that

in your minds and in your conversation with each other you will at least give the recommendation I have made your serious consideration.

Chairman KEARNS. It is indeed a happy privilege to preside at this joint session this morning, because of my past connection with the Association of Governmental Officials in Industry and my present connection with the I.A.I.A.B.C.

I think it a splendid idea to hold a joint session of these two associations for the purpose of discussing the subject of safety, one of the most humanitarian problems confronting us today, and one which is engaging the attention of the entire world because of the terrific toll of life and limb being taken by accidents, not only in industry but also in the home and on the public highways.

While a great deal has been accomplished in the prevention of accidents in recent years through the enforcement of safety laws and regulations and the promotion of educational safety work in industry (and that is the phase of safety work in which both organizations are primarily interested), the roster of those killed and injured in accidents in industry is still unnecessarily large. When we think of 15,000 being killed and 1,215,000 being seriously injured in industrial mishaps in 1 year in this country alone, we get some idea of the magnitude of the job that lies ahead and of the grave responsibility resting on the shoulders of those of us who are charged with the duty of bringing about the enforcement of safety regulations and promoting industrial safety work.

This responsibility is, I think, greater today than it has ever been. Industry is passing through the most momentous crisis in its history, but the tide seems to be turning, and as it turns and normal conditions once more prevail, safety work and safety workers are almost certain to face a crucial test. Long periods of idleness have softened workers, slowed up the skill acquired by long practice, forced readjustments, placing men on unaccustomed jobs, impaired the efficiency of safety organizations, and put both employer and employee in a frame of mind not conducive to optimism. The mental hazards of industrial jobs have been greatly accentuated in these times, and the readjustment of mental attitudes will be one of our biggest problems.

The future of safety depends largely upon the success attending our efforts to effect a transition from the reckless to the careful age, and the degree of success attained will depend largely on the amount of effort put into the work by those who bear the responsibility. I am as optimistic as any man regarding the future of safety. While the time will probably never come when there will be no industrial accidents, I think the day will come when all preventable accidents will be prevented, when safety consciousness will have taken such root in the hearts and minds of employers and workers that the laxity which permits the occurrence of a preventable accident will be viewed with shame, and when a man's attitude toward safety will have equal weight with his ability and integrity. It may mean years of persistent effort to bring this about, but my prediction is that this goal will ultimately be reached if we all do our part.

So I repeat that it is fitting and appropriate that these two organizations which have so many things in common in connection with this great problem of safety should get together for discussion of the topic, so that we can give each other the benefit of our views and

experiences and do what we can to be mutually helpful in working out a solution of these problems.

In arranging for the program for today, we have endeavored not only to select subjects that would be of vital interest to all safety advocates and workers but also to select speakers who from training and experience could speak with authority on the subject of accident prevention. I believe that every one of the speakers will have a real message on safety for this audience today. The first item on the program is the "Status of Industrial Safety Codes and Regulations in the Various States", by Charles E. Baldwin, Assistant Commissioner of Labor Statistics.

Status of Industrial Safety Codes and Regulations in the Various States

By CHARLES E. BALDWIN, *United States Assistant Commissioner of Labor Statistics*

During the period of domestic and handicraft employment, before the application of steam and electric power, workers were exposed to few hazards, and the question of safety in industrial life was principally a matter of individual caution. Introduction of machinery changed conditions completely. Accident hazards were multiplied, and the safety of the worker depended not only on his own judgment and caution, but also on the judgment and caution of his fellow workers, as well as on the amount of protection afforded by the employer or by the manufacturers of the mechanical devices against the hazards incident to machine operation.

It did, however, take considerable time before it was realized that an accident to a worker is evidence that something has gone wrong, and that a repetition of a particular kind of accident is evidence that something is habitually wrong and should be corrected. The mounting toll of industrial accidents causing physical and mental suffering as well as financial loss to the workers, and the increased cost of production to the employers, finally resulted in enactment of State regulations to safeguard workers from preventable accidents.

Massachusetts took the lead in 1877 with the first American law requiring factory safeguards, providing that all transmission machinery and all machinery having movable parts in factories and workshops, or mechanical and mercantile establishments, should be securely guarded as far as practicable, if so placed as to be dangerous to employees while engaged in their ordinary duties. Factory inspectors were appointed 10 years earlier, and a permanent bureau for the investigation of labor conditions was established in 1869.

The example of Massachusetts was followed by New York, Wisconsin, and other States, many of which adopted blanket codes or regulations of similar character. It was, however, found that under blanket provisions the standard was very indefinite and vague, and that the constant changes in industries and methods required specific and detailed regulations. As a result, a number of special safety codes, rules, or regulations for industrial activities covering either specific important industries, certain mechanical processes, or special

hazards have been developed in the leading industrial States and in others that have considered accident prevention important.

Safety codes or regulations are adopted and enforced for the purpose of preventing accidents. The enactment of workmen's compensation laws and the compilation of accident statistics have played very prominent parts in the accident-prevention movement and have pointed out the necessity for safety regulations. Industry was forced, through workmen's compensation acts, to pay the bills for all accidents. Through such payments the employers began to realize the frightful toll of indifference and, sometimes, criminal negligence. Statistics disclosed that it was cheaper to prevent accidents than to pay for them, and investigation showed that a large majority of accidents could be prevented. The experience of some large firms, which had applied rules of their own, proved both points.

Safety regulations in some States are still statutory, with certain agencies designated for enforcement. In other States it has been found advisable to authorize the enforcing agency (industrial commission, department of labor, utilities commissions, etc.) to formulate reasonable rules, regulations, or orders for the prevention of industrial injuries. In such case the rules are sometimes promulgated by the enforcing agency itself, but the principal industrial States have adopted the method of forming advisory committees for assistance in the drafting of safety codes or orders. Such advisory committees are composed of the various groups interested: Employers; employees; and insurance, medical, legal, or technical experts with special knowledge of the particular problems involved. In some States public hearings are also held before the codes become effective.

Since the previous report to this association an inquiry has been made, through the United States Bureau of Labor Statistics, concerning the specific safety regulations in effect at the present time in the individual States and the District of Columbia. Information has been received from practically all, and is shown in the appendix, by States. Previous information, supplemented by data obtained through careful research, is given for the States from which definite information was not obtained.

In some instances the safety regulations shown in the appendix are authorized specifically by statute, while in others they are promulgated under authority of the industrial commission, the department of labor, or other regulatory agency to carry out the general provisions of law which authorize safety measures, without definite specifications. Safety provisions covering mines and mining operations are indicated under a general classification "Mines", and are not given in detail, as that subject is ordinarily covered by the United States Bureau of Mines.

Two of the States, Alabama and New Mexico, have no safety regulations of any kind, and Florida has only regulations covering employment of children under 16. Other States show considerable variation. Some of them have safety provisions covering all dangerous practices, while others have regulations for a few specific subjects only.

Some revisions and changes were made during the past year in the existing regulations in several States and some new safety codes

were adopted. Notable among the latter were the laws and regulations for the use of nonshatterable glass in motor vehicles, adopted by California, Massachusetts, Michigan, Nebraska, and New York. Bills on this subject have also been introduced in the legislatures of Illinois, New Jersey, and Ohio, and in the United States Congress.

In California a new code was adopted for work in compressed air. In Maryland the existing list of approved safety codes was enlarged by the adoption of codes on compressed-air work; floor and wall openings, railings, and toeboards; and protection against lightning; making a total of 32 separate safety codes approved by that State. In North Carolina regulations were issued covering spray painting and quarries.

In Ohio a new code has been adopted, covering pressure piping and mechanical-refrigeration systems and equipment, while two of the previous codes have been completely revised, bringing regulations up to date for elevators and for fabricating machinery.

Appendix A. Safety Regulations for Industrial Workers, by States, 1933

Safety codes, rules, or regulations for the protection of industrial workers have been adopted by all of the States except Alabama and New Mexico, and by the District of Columbia. Considerable difference exists, however, in the number of subjects covered in the various jurisdictions, partly due to differences in industrial development.

A compilation is here presented of the specific subjects covered in each of the States, either by statutory enactment or by orders of the enforcing governmental agency authorized through the laws to develop and issue regulations, according to information received by September 1, 1933, from the various States and from research of reports and laws.

The classification may not be complete, as some States have blanket regulations covering health and safety of industrial workers in all industries located in the jurisdiction, but it is assumed that all subjects are listed that are covered by specific rules and practically all that are covered by the general rules. Brief explanatory notes are included.

Alabama.—No industrial safety laws have been adopted, and no governmental agency has authority to formulate rules or regulations. Suggestions furnished to industrial establishments, when requested, are usually based on regulations advocated by the various engineering societies or the National Safety Council.

Alaska.—Statutory regulations cover health and safety of workers in mines, and sanitary conditions in factories, canneries, or other establishments where labor is employed, but failure of securing appropriation for necessary expenses has prevented enforcement of the sanitary provisions for nearly a decade.

Arizona.—Safety measures are provided to a certain extent through the industrial commission by variation in the cost of insurance in the State compensation fund. Statutory provisions cover the following subjects: Abrasive wheels, construction work, electrical installation, and power-transmission apparatus.

Arkansas.—Statutory provisions cover boilers, mines, public-safety corporations, and industrial sanitation for female employees, and prohibit employment of children under 16 in dangerous occupations. Some proprietors of laundries, woodworking plants, printing plants, etc., provide safety appliances in conformity with recommendations of companies manufacturing such appliances, but such measures are voluntary.

California.—Safety orders of the industrial accident commission apply to all places of employment in the State, and the commission has power to require that all unsafe conditions be removed, whether that condition is or is not covered by a special order. The safety orders cover the following subjects:

Abrasive wheels
Aeronautics
Air-pressure tanks
Amusement parks
Automobile brakes and brake testing
Automobile headlighting
Bakeries
Boilers
Brewing and bottling
Canneries
Ceramics
Chemicals
Colors for traffic signals
Compressed-air machinery (in part)
Compressed-air work
Construction work
Conveyors and conveying machinery (in part)
Cranes, derricks, and hoists
Dredges
Drycleaning and dyeing
Dust explosions, prevention of
Electrical installations
Elevators and escalators
Engines
Exhaust systems
Explosives
Floor and wall openings, railings, and toeboards
Forging and hot-metal stamping
Foundries, protection of workers in
Gas installations
Grandstands
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Logging and sawmill machinery
Machine tools
Metal working
Milling industry
Mines
Motorboats
Oil drilling
Painting
Paper and pulp mills
Plant railways
Plate- and sheet-metal working
Plumbing
Potteries
Power control, electrical
Power control, mechanical
Power-transmission apparatus
Printing
Protection from fire and panic
Quarries
Refrigeration, mechanical
Rubber machinery
Safety glass
Sanitation, industrial
Scaffolds and staging
Shipbuilding
Steam shovels
Steel mills
Stevedoring operations
Sugar factories
Tanneries
Textiles
Tunnels
Ventilation
Walkway surfaces (in part)
Welding
Window washing
Woodworking plants

Colorado.—Safety regulations, based on broad statutory provisions, are now enforced by the inspection department of the industrial commission, with the exception of mining regulations which come under the coal-mine inspection department or the State bureau of mines, respectively. The following subjects are covered:

Abrasive wheels
Boilers
Compressed-air machinery
Construction work
Conveyors and conveying machinery
Drycleaning and dyeing
Dust explosions, prevention of
Elevators and escalators
Exists, building
Floor and wall openings, railings, and toeboards
Foundries, protection of workers in
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Lighting of school buildings
Machine tools
Mines
Paper and pulp mills
Plate- and sheet-metal working
Power presses, and foot and hand presses
Rubber machinery
Sanitation, industrial
Scaffolds and staging
Spray painting
Sugar factories
Ventilation
Walkway surfaces
Woodworking plants

Connecticut.—Statutory provisions cover the following subjects:

Automobile brakes and brake testing
Automobile headlighting
Boilers
Construction work
Electrical installations
Elevators and escalators
Exhaust systems
Exists, building
Laundry machinery and operation
Lighting factories, mills, etc.
Power-transmission apparatus
Sanitation, industrial
Scaffolds and staging
Ventilation

Delaware.—Statutory provisions cover the following subjects: Aeronautics; automobile brakes and brake testing; automobile headlighting; boilers; canneries; exits, building; and explosives. Local safety provisions for the city of Wilmington cover drycleaning and dyeing, gas installations, plumbing, and protection from fire and panic.

District of Columbia.—Safety regulations, adopted by the Commissioners of the District under authority enacted by Congress of the United States, cover the following subjects:

Air-pressure tanks
Automobile brakes and brake testing
Automobile headlighting
Boilers
Compressed-air machinery
Drycleaning and dyeing
Electrical installations
Elevators and escalators
Engines
Exits, building
Grandstands
Plumbing
Power control, electrical
Power-transmission apparatus
Pressure piping
Pressure vessels
Protection from fire and panic
Refrigeration, mechanical
Sanitation, industrial
Steam shovels

Florida.—The only safety regulations in the State are the statutory provisions of the child-labor law, which include safety and sanitary provisions for children under 16.

Georgia.—Statutory provisions cover building exits and child labor only. None of the governmental agencies are authorized to promulgate safety codes.

Hawaii.—Statutory provisions cover aeronautics, and explosives (under supervision of the Territorial superintendent of public works), while sanitary regulations are promulgated and enforced by the Territorial board of health.

The workmen's compensation law has no provision for safety regulations, but the industrial accident boards cooperate with local insurance carriers and employers to minimize industrial accidents, and ordinances of the city and county of Honolulu regulate several industrial conditions. Including the items mentioned previously, the subjects covered by the various regulations are:

Aeronautics
Automobile brakes and brake testing
Automobile headlighting
Construction work
Electrical installations
Exits, building
Explosives
Floor and wall openings, railings, and toeboards
Grandstands
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Lighting of school buildings
Lightning, protection against
Plumbing
Protection from fire and panic
Safety glass
Sanitation, industrial
Scaffolds and staging

Idaho.—Safety regulations issued by the industrial accident board, which is empowered by statute to protect workers, cover the following subjects:

Elevators and escalators
Exits, building
Laundry machinery and operation
Power-transmission apparatus
Printing
Protection from fire and panic
Woodworking plants

Illinois.—Statutory provisions, administered by the department of labor through the division of factory inspection, cover the following subjects:

Abrasive wheels
Construction work (structural iron)
Cranes, derricks, and hoists (limited)
Electrical installations
Exhaust systems
Exits, building
Floor and wall openings, railings, and toeboards
Foundries, protection of workers in
Gas installations
Ladders (in part)
Laundry machinery and operation
Lighting factories, mills, etc.
Power control, electrical
Power control, mechanical
Power-transmission apparatus
Sanitation, industrial
Scaffolds and staging
Spray painting
Ventilation
Woodworking plants

Indiana.—Statutory provisions of the factory act, the boiler inspection act, and items under the State safety department, cover the following subjects:

Abrasive wheels
Aeronautics
Air-pressure tanks
Amusement parks
Automobile brakes and brake testing
Automobile headlighting
Bakeries
Boilers
Brewing and bottling
Canneries
Ceramics
Chemicals
Compressed-air machinery
Compressed-air work
Construction work
Conveyors and conveying machinery
Cranes, derricks, and hoists
Dredges
Drycleaning and dyeing
Dust explosions, prevention of
Elevators and escalators
Exhaust systems
Exits, building
Explosives
Felt-hatting industry
Floor and wall openings, railings, and toeboards
Forging and hot-metal stamping
Foundries, protection of workers in
Grandstands
Heads and eyes, protection of
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Lighting of school buildings
Logging and sawmill machinery
Machine tools
Metal working
Milling industry
Mines
Paper and pulp mills
Plate- and sheet-metal working
Plumbing
Potteries
Power control, electrical
Power control, mechanical
Power presses, and foot and hand presses
Power-transmission apparatus
Quarries
Refrigeration, mechanical
Sanitation, industrial
Scaffolds and staging
Shipbuilding
Spray painting
Steam shovels
Steel mills
Sugar factories
Tanneries
Textiles
Ventilation
Welding
Woodworking plants

Iowa.—Blanket regulations, covering specified health and safety conditions in all workshops or other industrial establishments, except mines or in agricultural work, authorize orders by the State bureau of labor for proper observance of the law. Regulations for mine safety are under the jurisdiction of the State bureau of mines. Special industrial subjects covered include the following:

Abrasive wheels
Boilers
Dust explosions, prevention of
Electrical installations
Elevators and escalators
Exhaust systems
Exits, building
Forging and hot-metal stamping
Foundries, protection of workers in
Heads and eyes, protection of
Ladders
Laundry machinery and operation
Mines
Paper and pulp mills
Plumbing
Power presses, and foot and hand presses
Power-transmission apparatus
Printing
Rubber machinery
Sanitation, industrial
Woodworking plants

Kansas.—No specific codes for special subjects, but statutory blanket regulations for all industrial establishments authorize orders from inspectors for necessary changes according to individual judgment. In a general way the following subjects are covered:

Abrasive wheels
Aeronautics (in part)
Amusement parks
Automobile brakes and brake testing
Automobile headlighting
Bakeries
Boilers (in part)
Canneries
Colors for traffic signals
Construction work
Conveyors and conveying machinery
Cranes, derricks, and hoists
Drycleaning and dyeing
Dust explosions, prevention of
Electrical installations
Elevators and escalators
Exits, building
Explosives
Floor and wall openings, railings, and toeboards
Foundries, protection of workers in
Gas installations
Gas-mask canisters, colors for
Heads and eyes, protection of (in part)
Ladders
Laundry machinery and operation

Lighting factories, mills, etc.
Machine tools
Milling industry
Mines
Oil drilling
Power control, electrical
Power control, mechanical
Power presses, and foot and hand presses
Power-transmission apparatus
Printing
Protection from fire and panic
Quarries
Refrigeration, mechanical (in part)
Sanitation, industrial
Scaffolds and staging
Sugar factories
Ventilation
Walkway surfaces
Woodworking plants

Kentucky.—Statutory regulations cover only industrial sanitation (under the State board of health), fire prevention (under the State department of fire prevention and rates), coal mines (under the State department of mines), safety provisions for miners and dust removal for polishing or grinding machinery (under the department of agriculture, labor, and statistics). The latter is authorized to inspect industrial establishments and suggest corrections of hazards. Some safety codes have been adopted by the department for the guidance of inspectors in making recommendations.

Louisiana.—Some statutory regulations exist, but the only inspection is in the parish of Orleans by an inspector specifically provided by the law to enforce the child-labor act. The following subjects are covered:

Construction work
Elevators and escalators
Exhaust systems
Exits, building
Ladders
Printing
Protection from fire and panic
Sanitation, industrial
Scaffolds and staging

Maine.—No codes have been adopted. The department of labor and industry is permitted by law to order changes in ways, works, and machinery, where same are deemed necessary. Safety provisions cover the following subjects:

Automobile headlighting
Boilers (in part)
Compressed-air work
Exits, building
Plumbing
Power-transmission apparatus
Sanitation, industrial
Tunnels

Maryland.—American Standards Association safety codes have been adopted by the State industrial accident commission as minimum specific requirements for safety and have the force of law. The following subjects are covered:

Abrasive wheels
Compressed-air machinery
Dust explosions, prevention of
Electrical installations
Elevators and escalators
Exits, building
Floor and wall openings, railings, and toeboards
Forging and hot-metal stamping
Foundries, protection of workers in
Gas installations
Gas-mask canisters, colors for
Heads and eyes, protection of
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Lightning, protection aganist
Logging and sawmill machinery
Mines
Paper and pulp mills
Power presses, and foot and hand presses
Power-transmission apparatus
Refrigeration, mechanical
Rubber machinery
Textiles
Woodworking plants

Massachusetts.—Under authority conferred by statute the State departments of labor and industries, of public safety, and of public works have adopted a number of health and safety codes covering the following subjects:

Abrasive wheels
Aeronautics
Air-pressure tanks
Automobile brakes and brake testing
Automobile headlighting
Bakeries
Boilers
Brewing and bottling
Canneries
Ceramics
Compressed-air machinery
Construction work
Conveyors and conveying machinery
Cranes, derricks, and hoists
Drycleaning and dyeing
Electrical installations
Elevators and escalators
Exhaust systems

Exits, building
Explosives
Felt-hatting industry
Floor and wall openings, railings, and toeboards
Foundries, protection of workers in
Gas installations
Heads and eyes, protection of
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Lighting of school buildings
Lightning, protection against
Logging and sawmill machinery
Metal working
Painting
Paper and pulp mills
Plate- and sheet-metal working
Potteries
Power control, electrical
Power control, mechanical
Power presses, and foot and hand presses
Power-transmission apparatus
Protection from fire and panic
Quarries
Refrigeration, mechanical
Rubber machinery
Safety glass
Sanitation, industrial
Scaffolds and staging
Spray painting
Steel mills
Sugar factories
Tanneries
Textiles
Ventilation
Woodworking plants

Michigan.—In addition to stautory legislation, the department of labor and industry has adopted rules and regulations for safety in industrial establishments, some of them as a result of conferences with those interested. The laws and regulations cover the following subjects:

Abrasive wheels
Automobile brakes and brake testing
Automobile headlighting
Boilers
Canneries
Colors for traffic signals
Construction work
Conveyors and conveying machinery
Dust explosions, prevention of
Electrical installations
Elevators and escalators
Exhaust systems
Exits, building
Floor and wall openings, railings, and toeboards
Forging and hot-metal stamping
Foundries, protection of workers in
Gas installations
Heads and eyes, protection of
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Lighting of school buildings
Paper and pulp mills
Power control, electrical
Power control, mechanical
Power presses, and foot and hand presses
Power-transmission apparatus
Rubber machinery
Sanitation, industrial
Spray painting
Textiles
Ventilation
Welding
Woodworking plants

Minnesota.—The statutes relating to industrial safety are very general in their application and authorize the industrial commission to promulgate specific rules and regulations. With the exception of regulations for plumbing, which are under the jurisdiction of the health department, these cover the following subjects:

Abrasive wheels
Automobile brakes and brake testing
Boilers
Brewing and bottling
Canneries
Construction work
Conveyors and conveying machinery
Drycleaning and dyeing
Dust explosions, prevention of
Electrical installations
Elevators and escalators
Exhaust systems
Exits, building
Floor and wall openings, railings, and toeboards
Forging and hot-metal stamping
Foundries, protection of workers in
Heads and eyes, protection of
Laundry machinery and operation
Logging and sawmill machinery
Paper and pulp mills
Plumbing
Power control, mechanical
Power presses, and foot and hand presses
Power-transmission apparatus
Quarries
Refrigeration, mechanical
Sanitation, industrial
Scaffolds and staging
Ventilation
Window washing
Woodworking plants

Mississippi.—No special safety codes have been adopted, but statutory provisions cover the following subjects:

- Exits, building
- Floor and wall openings, railings, and toeboards
- Guarding of all machinery
- Lighting factories, mills, etc.
- Lighting of school buildings
- Power transmission
- Sanitation, industrial
- Ventilation

Missouri.—The labor laws of the State contain general provisions for the protection of industrial workers, with specific reference to several subjects but details left to the judgment of the State department of labor and industrial inspection, and the only specific rules formulated by the department pertain to boilers. Including this code, and the regulations for mines which are under the jurisdiction of the State bureau of mines, the following subjects are covered:

- Abrasive wheels
- Automobile headlighting
- Bakeries
- Boilers
- Colors for traffic signals
- Floor and wall openings, railings, and toeboards
- Construction work
- Dust explosions, prevention of
- Elevators and escalators
- Exits, building
- Explosives
- Foundries, protection of workers in (in part)
- Gas installations
- Heads and eyes, protection of
- Mines
- Plant railways
- Power control, mechanical
- Protection from fire and panic
- Sanitation, industrial
- Scaffolds and staging
- Ventilation
- Woodworking plants

Montana.—Statutory provisions cover boilers and steam machinery, electrical installations, and mines.

Nebraska.—The safety codes approved by the American Standards Association have been adopted as minimum requirements for safety. The following subjects are covered:

- Abrasive wheels
- Air-pressure tanks
- Bakeries
- Boilers
- Construction work
- Conveyors and conveying machinery
- Cranes, derricks, and hoists
- Drycleaning and dyeing
- Exhaust systems
- Exits, building
- Heads and eyes, protection of
- Ladders
- Floor and wall openings, railings, and toeboards
- Laundry machinery and operation
- Metal working
- Paper and pulp mills.
- Power control, electrical
- Power control, mechanical
- Power-transmission apparatus
- Pressure vessels
- Rubber machinery
- Safety glass
- Sanitation, industrial
- Scaffolds and staging
- Ventilation
- Window washing
- Woodworking plants

Nevada.—Statutory provisions cover the following subjects:

- Abrasive wheels
- Electrical installations
- Exits, building
- Floor and wall openings, railings, and toeboards
- Ladders
- Mines
- Power-transmission apparatus
- Tunnels

New Hampshire.—The factory-inspection law permits the bureau of labor to issue orders covering any condition that is dangerous to the life and limb of workers. Regulations issued cover the following subjects:

- Abrasive wheels
- Automobile brakes and brake testing
- Automobile headlighting
- Boilers
- Compressed-air machinery
- Elevators and escalators
- Exhaust systems
- Exits, building (in part)
- Floor and wall openings, railings, and toeboards (in part)
- Foundries, protection of workers in
- Heads and eyes, protection of
- Ladders
- Laundry machinery and operation
- Lighting factories, mills, etc.
- Logging and sawmill machinery

Machine tools
Paper and pulp mills
Power presses, and foot and hand presses
Power-transmission apparatus
Refrigeration, mechanical
Sanitation, industrial
Tanneries
Textiles
Ventilation
Walkway surfaces
Woodworking plants

New Jersey.—Statutory provisions and safety regulations cover the following subjects:

Abrasive wheels
Boilers
Ceramics
Chemicals
Construction work
Cranes, derricks, and hoists
Dust explosions, prevention of
Electrical installations
Elevators and escalators
Exhaust systems
Exits, building
Explosives
Felt-hatting industry
Floor and wall openings, railings, and toeboards
Forging and hot-metal stamping
Foundries, protection of workers in
Heads and eyes, protection of
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Potteries
Power control, electrical
Power control, mechanical
Power presses, and foot and hand presses
Printing
Refrigeration, mechanical
Rubber machinery
Sanitation, industrial
Scaffolds and staging
Ventilation
Window washing
Woodworking plants

New Mexico.—No safety regulations exist. Some safety practices have been applied in coal mines through cooperation of inspectors and employers, but strictly voluntary, as there are no State laws for enforcement.

New York.—The State department of labor is authorized to formulate and adopt codes or rules which have the same force and effect as statutes enacted by the legislature. Such codes are supplementary to the labor law, which in some sections is specific, but in others broad and general. They are developed with the aid of an advisory committee, and public hearings are mandatory before final adoption. The existing codes cover the following subjects:

Abrasive wheels
Bakeries
Boilers
Brewing and bottling
Canneries
Compressed-air work
Construction work
Conveyors and conveying machinery
Cranes, derricks, and hoists
Drycleaning and dyeing
Dust explosions, prevention of (in part)
Elevators and escalators
Engines
Exhaust systems
Exits, building
Explosives
Floor and wall openings, railings, and toeboards
Forging and hot-metal stamping
Foundries, protection of workers in
Hand tools
Heads and eyes, protection of
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Machine tools
Metal working
Milling industry
Mines
Paper and pulp mills
Plate- and sheet-metal working
Plumbing
Potteries
Power control, mechanical
Power presses, and foot and hand presses
Power-transmission apparatus
Printing
Protection from fire and panic
Quarries
Rubber machinery
Sanitation, industrial
Scaffolds and staging
Tanneries
Textiles
Tunnels
Ventilation
Walkway surfaces
Welding
Window washing
Woodworking plants

North Carolina.—Rules and suggestions promulgated by the State department of labor covering the following subjects:

Abrasive wheels
Automobile brakes and brake testing
Automobile headlighting
Bakeries
Chemicals
Colors for traffic signals
Cranes, derricks, and hoists
Electrical installations
Elevators and escalators
Exits, building
Explosives
Floor and wall openings, railings, and toeboards
Hand tools
Heads and eyes, protection of
Ladders
Lighting, factories, mills, etc.
Lighting of school buildings
Lightning, protection against
Mines
Painting
Plant railways
Plumbing
Power control, electrical
Power-transmission apparatus
Protection from fire and panic
Quarries
Sanitation, industrial
Spray painting
Textiles
Ventilation
Woodworking plants

North Dakota.—Safety regulations of the State department of agriculture and labor cover the following subjects:

Boilers
Construction work
Conveyors and conveying machinery
Cranes, derricks, and hoists
Electrical installations
Engines
Exits, building
Mines
Scaffolds and staging

Ohio.—Safety codes prepared under statutory authorization by the industrial commission, with the assistance of representatives of employers and employees, have the force and effect of statutory regulations. The following subjects are covered:

Abrasive wheels
Air-pressure tanks
Bakeries
Boilers
Ceramics
Compressed-air work
Construction work
Cranes, derricks, and hoists
Drycleaning and dyeing
Elevators and escalators
Exhaust systems
Exits, building
Explosives
Floor and wall openings, railings, and toeboards
Forging and hot-metal stamping
Foundries, protection of workers in
Hand tools
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Lighting of school buildings
Machine tools
Metal working
Painting
Plate- and sheet-metal working
Plumbing
Potteries
Power presses, and foot and hand presses
Power-transmission apparatus
Pressure piping
Pressure vessels
Protection from fire and panic
Quarries
Refrigeration, mechanical
Rubber machinery
Scaffolds and staging
Spray painting
Steel mills
Tunnels
Ventilation
Welding
Window washing
Woodworking plants

Oklahoma.—Statutory regulations, or safety provisions issued by the State department of labor to give effect to the laws, cover the following subjects:

Abrasive wheels
Bakeries
Boilers
Brewing and bottling
Canneries
Compressed-air machinery
Construction work
Conveyors and conveying machinery
Cranes, derricks, and hoists
Drycleaning and dyeing
Dust explosions, prevention of
Elevators and escalators
Engines
Exhaust systems
Exits, building
Explosives (in part)
Floor and wall openings, railings, and toeboards
Foundries, protection of workers in
Heads and eyes, protection of

Ladders (in part)
Laundry machinery and operation
Lighting factories, mills, etc.
Logging and sawmill machinery
Machine tools
Metal working
Milling industry
Oil drilling
Plate- and sheet-metal working
Potteries
Power control, electrical
Power control, mechanical
Power presses, and foot and hand presses
Power-transmission apparatus
Pressure vessels
Printing
Safety glass
Sanitation, industrial
Scaffolds and staging
Steam shovels
Steel mills
Tanneries
Textiles
Ventilation
Walkway surfaces
Woodworking plants

Oregon.—Statutory provisions, or safety standards, promulgated by the industrial accident commission and having the effect of legislative action, cover the following subjects:

Abrasive wheels
Air-pressure tanks
Boilers
Canneries
Compressed-air machinery
Construction work
Conveyors and conveying machinery
Cranes, derricks, and hoists
Electrical installations
Elevators and escalators
Exhaust systems
Exits, building
Floor and wall openings, railings, and toeboards (limited)
Foundries, protection of workers in
Ladders
Laundry machinery and opreation
Lighting factories, mills, etc.
Logging and sawmill machinery
Paper and pulp mills
Plumbing
Power control, electrical
Power control, mechanical
Power presses, and foot and hand presses
Power-transmission apparatus
Pressure piping
Pressure vessels
Printing
Sanitation, industrial
Scaffolds and staging
Walkway surfaces
Window washing
Woodworking plants

Pennsylvania.—Safety codes, developed under statutory authorization by the State department of labor and industry, assisted by employer and employee representatives of the respective industries, and submitted to public hearings before adoption, cover the following subjects:

Abrasive wheels
Automobile brakes and brake testing
Automobile headlighting
Bakeries
Boilers
Brewing and bottling
Canneries
Chemicals
Compressed-air machinery
Compressed-air work
Construction work
Drycleaning and dyeing
Electrical installations
Elevators and escalators
Engines
Exhaust systems
Exits, building
Explosives
Floor and wall openings, railings, and toeboards
Forging and hot-metal stamping
Foundries, protection of workers in
Gas installations
Heads and eyes, protection of
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Lighting of school buildings
Logging and sawmill machinery
Machine tools
Milling industry
Mines
Paper and pulp mills
Plant railways
Power control, electrical
Power control, mechanical
Power presses, and foot and hand presses
Power-transmission apparatus
Printing
Protection from fire and panic
Quarries
Safety glass
Sanitation, industrial
Scaffolds and staging
Spray painting
Tanneries (in part)
Textiles
Tunnels
Window washing
Woodworking plants

Rhode Island.—Statutory provisions of the factory-inspection law and the boiler-inspection law cover the following subjects:

Abrasive wheels
Aeronautics
Automobile brakes and brake testing
Automobile headlighting
Bakeries
Boilers
Colors for traffic signals
Construction work (cities)
Explosives
Floor and wall openings, railings, and toeboards
Foundries, protection of workers in
Laundry machinery and operation
Lighting factories, mills, etc.
Sanitation, industrial
Scaffolds and staging
Textiles
Ventilation

South Carolina.—Statutory regulations pertaining to industrial establishments prohibit children under 14 from cleaning machinery while in motion and require seats for female employees in mercantile establishments and sanitary drinking receptacles, the only industrial safety regulations in the State.

South Dakota.—Statutory regulations cover automobile brakes and brake testing, automobile headlighting, boilers, lighting of school buildings, and industrial sanitation where women or children are employed. They also cover building exits (under the jurisdiction of the State fire marshal), as well as mines, quarries, and the removal of gases, fumes, or dust in smelters or reduction works (all under the jurisdiction of the State mine inspector).

Tennessee.—Safety standards adopted by the factory-inspection division of the State department of labor and published for the use of inspectors or the industries cover the following subjects:

Abrasive wheels
Amusement parks
Compressed-air machinery
Conveyors and conveying machinery
Cranes, derricks, and hoists
Drycleaning and dyeing
Elevators and escalators
Engines
Exhaust systems
Exits, building
Floor and wall openings, railings, and toeboards
Foundries, protection of workers in
Gas-mask canisters, colors for
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Logging and sawmill machinery
Machine tools
Metal working
Paper and pulp mills
Plate- and sheet-metal working
Power control, electrical
Power control, mechanical
Power presses, and foot and hand presses
Printing
Protection from fire and panic
Quarries
Refrigeration, mechanical
Sanitation, industrial
Spray painting
Tanneries
Textiles
Ventilation
Walkway surfaces
Woodworking plants

Texas.—The health, comfort, and safety law, the law for female employees, and the child-labor law permit a broad field for safety rules in factories, mills, workshops, and mercantile establishments. Specific requirements include exits, handrailings, and industrial sanitation, but the State bureau of labor statistics includes the following subjects as covered:

Amusement parks
Automobile brakes and brake testing
Automobile headlighting
Colors for traffic signals
Construction work
Dust explosions, prevention of
Electrical installations (local)
Elevators and escalators
Exhaust systems
Exits, building
Explosives
Floor and wall openings, railings, and toeboards (in part)
Gas installations
Hand tools
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Lighting of school buildings
Logging and sawmill machinery
Milling industry
Mines
Plant railways
Plumbing
Power presses, and foot and hand presses
Power-transmission apparatus
Printing
Protection from fire and panic
Quarries
Sanitation, industrial
Scaffolds and staging
Stevedoring operations
Sugar factories
Textiles
Tunnels
Ventilation
Woodworking plants

Utah.—The industrial commission is authorized to promulgate and adopt safety codes, rules, and regulations. A number of standards have been adopted as a result of conferences with employers and employees. The following subjects are covered:

Abrasive wheels
Air-pressure tanks
Amusement parks
Automobile brakes and brake testing (in part)
Automobile headlighting (in part)
Bakeries
Boilers
Brewing and bottling
Canneries
Ceramics
Chemicals
Colors for traffic signals
Compressed-air machinery
Compressed-air work
Construction work
Conveyors and conveying machinery
Cranes, derricks, and hoists
Drycleaning and dyeing
Dust explosions, prevention of
Electrical installations
Elevators and escalators
Engines
Exhaust systems
Exits, building
Explosives
Floor and wall openings, railings, and toeboards
Forging and hot-metal stamping
Foundries, protection of workers in (in part)
Gas-mask canisters, colors for
Grandstands
Hand tools
Heads and eyes, protection of (in part)
Ladders (in part)
Laundry machinery and operation
Lighting factories, mills, etc. (in part)
Lighting of school buildings
Logging and sawmill machinery (in part)
Machine tools
Metal working
Milling industry
Mines
Oil drilling
Painting
Plant railways
Plate- and sheet-metal working
Plumbing
Potteries
Power control, electrical
Power control, mechanical
Power presses, and foot and hand presses (in part)
Power-transmission apparatus
Pressure piping
Pressure vessels
Printing
Quarries
Refrigeration, mechanical
Safety glass
Sanitation, industrial
Scaffolds and staging
Spray painting
Steam shovels
Steel mills
Sugar factories
Tanneries
Textiles
Tunnels
Ventilation
Walkway surfaces
Welding
Window washing
Woodworking plants

Vermont.—No specific safety codes have been adopted. The statutes are indefinite but broad so far as the jurisdiction of the State commissioner of industries is concerned and the activities of that office cover the following subjects:

Abrasive wheels
Compressed-air machinery
Construction work
Conveyors and conveying machinery
Cranes, derricks, and hoists
Elevators, and escalators
Exits, building
Floor and wall openings, railings, and toeboards
Foundries, protection of workers in
Heads and eyes, protection of
Laundry machinery and operation
Lighting factories, mills, etc.
Logging and sawmill machinery
Paper and pulp mills
Power-transmission apparatus
Quarries
Sanitation, industrial
Scaffolds and staging
Tanneries
Textiles
Ventilation
Walkway surfaces
Woodworking plants

Virginia.—Statutory regulations give the State department of labor discretionary powers in the regulation of safety appliances and sanitary conditions in industrial establishments, but does not provide for the establishment of safety codes. In 1930 the legislature appointed a committee to study the advisability of adopting a safety code for employers and employees. A report of this committee has been submitted to the legislature, recommending

promulgation of safety codes by the industrial commission, with enforcement in the department of labor and industry. Specific statutory provisions cover the following subjects:

Abrasive wheels
Elevators
Exits, building
Explosives
Mines
Power-transmission apparatus
Quarries

Washington.—Under statutory regulations the State department of labor and industries has promulgated general safety standards, adopted after conferences with employers and employees and holding of public hearings. These standards have the status of legislative action, and carry penalties for noncompliance. Much of the safety work is covered by city ordinances, such as building exits, elevator operation, etc., and motor-vehicle subjects are under the jursidiction of the highway patrol. The following subjects are covered:

Abrasive wheels
Amusement parks
Automobile brakes and brake testing
Automobile headlighting
Boilers
Brewing and bottling
Canneries
Chemicals
Construction work
Conveyors and conveying machinery
Cranes, derricks, and hoists
Dredges
Dry cleaning and dyeing
Electrical installations
Elevators and escalators
Engines
Exhaust systems
Exits, building
Explosives
Floor and wall openings, railings, and toeboards
Foundries, protection of workers in
Hand tools
Heads and eyes, protection of
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Logging and sawmill machinery
Metal working
Milling industry
Mines
Oil drilling
Painting
Paper and pulp mills
Plant railways
Plate- and sheet-metal working
Plumbing
Potteries
Power control, electrical
Power control, mechanical
Power presses, and foot and hand presses
Power-transmission apparatus
Pressure vessels
Printing
Quarries
Refrigeration, mechanical
Sanitation, industrial
Scaffolds and staging
Shipbuilding
Steam shovels
Steel mills
Textiles
Tunnels
Ventilation
Walkway surfaces
Welding
Window washing
Woodworking plants

West Virginia.—No special rules have been issued, but statutory provisions cover the following subjects:

Abrasive wheels
Boilers
Elevators and escalators
Exits, building
Laundry machinery and operation
Mines
Power control, electrical
Power control, mechanical
Power-transmission apparatus
Sanitation, industrial
Ventilation
Woodworking plants

Wisconsin.—The industrial commission is charged with the duty of fixing standards of safety in all places of public employment, and has promulgated a number of safety codes or general orders, with the assistance of advisory committees, and public hearings. Including the provisions for plumbing, which are under the jurisdiction of the State board of health, the following subjects are covered:

Abrasive wheels
Aeronautics
Automobile brakes and brake testing
Automobile headlighting
Bakeries
Boilers
Colors for traffic signals
Compressed-air work
Construction work
Cranes, derricks, and hoists

Dredges
Dry cleaning and dyeing
Electrical installations
Elevators and escalators
Engines
Exhaust systems
Exits, building
Explosives
Floor and wall openings, railings, and toeboards (in part)
Forging and hot-metal stamping
Foundries, protection of workers in
Flammable liquids
Heads and eyes, protection of
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Lighting of school buildings
Logging and sawmill machinery (in part)
Machine tools
Mines
Paper and pulp mills
Plumbing
Power control, electrical
Power control, mechanical
Power presses, and foot and hand presses
Power-transmission apparatus
Pressure vessels
Printing
Quarries
Refrigeration, mechanical
Rubber machinery (in part)
Sanitation, industrial
Scaffolds and staging
Spray painting
Tanneries (in part)
Textiles
Tunnels
Ventilation
Window washing
Woodworking plants

Wyoming.—Under the authority of the act creating the State department of labor and statistics, the commissioner issues safety orders for industrial establishments, while under statutory mining regulations the safety orders for mining are issued by the coal-mine inspection department. The following subjects are covered:

Abrasive wheels
Aeronautics
Automobile brakes and brake testing
Automobile headlighting
Colors for traffic signals
Compressed-air machinery
Construction work
Conveyors and conveying machinery
Cranes, derricks, and hoists
Dust explosions, prevention of
Elevators and escalators
Exhaust systems
Exits, building
Floor and wall openings, railings, and toeboards
Forging and hot-metal stamping
Foundries, protection of workers in
Ladders
Laundry machinery and operation
Lighting factories, mills, etc.
Logging and sawmill machinery
Machine tools
Mines
Paper and pulp mills
Plate- and sheet-metal working
Power control, electrical
Power control, mechanical
Power presses, and foot and hand presses
Power-transmission apparatus
Refrigeration, mechanical
Rubber machinery
Sanitation, industrial
Tanneries
Textiles
Ventilation
Walkway surfaces
Window washing
Woodworking plants

Chairman KEARNS. The next number on the program is a report on National Safety Codes Progress, by Mr. P. G. Agnew, secretary of the American Standards Association.

National Safety Codes Progress

By P. G. AGNEW, *Secretary American Standards Association*

There have been many developments in the national safety-code program which are of special importance to governmental agencies, and rather than go into the details of the progress of work on all safety-code projects, which I understand will be printed in the proceedings, I will limit my discussion to some of the high spots of the safety-code activities.

First, you will be interested to know what new projects have been undertaken. Two have been initiated during the past year, covering work in compressed air and specifications and methods of test for safety glass. The first-named project is under the sponsorship of the I.A.I.A.B.C. and was initiated as the result of a request received from that organization. At the present time the States of New York, New Jersey, Massachusetts, and Pennsylvania have safety codes on this subject. A code for the State of California is in the course of preparation. The increased use of compressed air in tunnel, bridging, and building construction necessitating the use of caissons has made this group of regulations of importance. As most of this work is done by special contractors operating throughout the entire United States, it is important that a national group of regulations with which these contractors are familiar should be developed and put into use. The sectional committee for this project has been appointed and work will be undertaken during the coming winter.

The project on safety glass was initiated following a request received from the National Bureau of Casualty and Surety Underwriters, which organization, together with the Bureau of Standards, is sponsoring this project. The scope of the code will cover all kinds of safety glass used in motor vehicles, airplanes, boats, bullet-proof glass for armored cars and partitions, and safety glass for use in goggles. The specifications, as far as goggles are concerned, will supplement and tie in directly with the specifications now contained in the head and eye code.

While the number of new projects which have been undertaken is not very large, a successful effort has been made to revive some of the other projects which have been lying dormant for a number of years. Of particular interest is the safety code for ventilation and the safety code for exhaust systems. The first code is still sponsored by the American Society of Heating and Ventilating Engineers, but a complete new sectional committee has been appointed and work will be started this fall. In addition to all of the material previously collected for use by the old sectional committee, the new committee will have available the ventilation code requirements prepared by the sponsor organization. It is expected that the new committee will be able to make considerable progress in a short period of time, inasmuch as many of the conflicting points of view of different technical organizations have been brought into closer harmony during the past 2 or 3 years.

The safety code for exhaust systems is now being sponsored by the I.A.I.A.B.C., and the new technical committee for this code has been appointed and will shortly proceed with the work. The scope for this project remains as originally approved.

The industrial sanitation code, sponsored by the United States Public Health Service, is now being actively developed by a sectional committee as reorganized during the past year. The committee has held one meeting, considering a tentative draft of the code prepared by the sponsor. Plans have been made for the development of other codes following the completion of the standard now being prepared on industrial sanitation in manufacturing establishments. Other codes will be developed covering labor camps and mercantile establishments.

Among the projects now under revision that are of outstanding importance is the safety code for the protection of the heads and eyes of industrial workers. The sponsor, the United States Bureau of Standards, has submitted a new scope in order to permit the project to contain specifications for respirators. This new section will be of extreme importance to all regulatory bodies in view of the emphasis that is being placed these days on occupational diseases resulting from dust hazards. Any regulatory bodies having special points of view should send their comments to the representatives of the I.A.I.A.B.C. and the A.G.O.I. so that they will be able to present such comments to the sectional committee. Additional comments on the experience of regulatory bodies in applying the provisions of the national head and eye code would also be of considerable value to the sectional committee.

The use of the national safety codes by regulatory bodies is constantly increasing, and there is one point in this connection which has been brought forward and should be emphasized at this time. Many of the States feel that it is not possible for them to use safety codes, inasmuch as they have not been accorded any regulatory authority by their respective legislatures. That such States can use safety codes in their inspection work is exemplified by the way in which the State of New Jersey has found it possible either to develop its own codes or to use the national codes without having specific authority to do so.

The factory laws administered by labor departments prescribe that certain hazards must be eliminated without specifically stating the methods. In such cases inspectors, when issuing orders for the elimination of hazards and when requested for information as to the methods which should be followed, can refer to the safety codes as the standards which are being followed by the department and in this way put across the proper safety-code program. Of course, the plant manager would be in position to follow his own method of removing a particular hazard if he so desired, but he would have to furnish ample evidence that his own method was the equal of that set forth in the standards of the Department of Labor.

The A.S.A. will be very glad to go into this situation further with any regulatory body which would like to proceed with the development of a code program and has been unable to get the necessary legal authority from its legislature.

National Safety Codes—Progress Report

A9 (1929).—Building-exits code

A.G.O.I. representative, John Campbell, Pennsylvania Department of Labor and Industry.

I.A.I.A.B.C. representative, James L. Gernon, New York State Department of Labor.

At the annual meeting of the National Fire Protection Association in May 1933, the proposed report of the building-exits code committee, which includes certain revisions harmonizing this code and the building code of the United States Department of Commerce was approved. It is expected that the revised tentative draft will soon be printed and circulated to the members of the committee and other interested groups for comment and criticism.

A10.—American standards for safety in the construction industry

The organization meeting of this sectional committee was held in September 1930, at which time arrangements were made for the appointment of six subcommittees with individual chairmen, to carry on the work of the various sections

of the code. These subcommittees are now at work on the preparation of drafts of the various sections and it is probable that a meeting of the sectional committee will be held in connection with the National Safety Congress in Chicago in October of this year.

A11 (1930).—Code of lighting: Factories, mills, and other work places

A.G.O.I. representative, C. H. Weeks, New Jersey Department of Labor.

I.A.I.A.B.C. representative, T. C. Eipper.

The revision of this code, which gives recommended values and minimum requirements for illumination of various classes of industrial buildings and work places has been widely used since its approval in 1930. The code has also been recommended in a study on the Lighting of Work Places, published by the Women's Bureau of the United States Department of Labor.

A12 (1932).—Safety code for floor and wall openings, railings, and toe boards

A.G.O.I. representative, E. J. Pierce, New York Department of Labor.

I.A.I.A.B.C. representatives, J. L. Gernon, New York Department of Labor; C. H. Weeks, New Jersey Department of Labor.

This code is the result of several years' work of a broadly representative technical committee and is perhaps one of the most important of the safety codes developed during the last 10 years. It contains definitions and regulations applying to all places where there is a hazard of persons or materials falling through floor and wall openings, or from stairways or runways. Copies of the code were distributed to regulatory bodies, building inspectors and other interested groups at the time of its approval.

A14.—Safety code for the construction, care, and use of ladders

I.A.I.A.B.C. representatives, R. J. Cullen and J. L. Gernon, New York Department of Labor; R. McA. Keown, Industrial Commission of Ohio; J. P. Meade, Massachusetts Department of Labor and Industries.

On the basis of comments and criticisms received following the distribution of the last draft of this code, a final draft is now being prepared by the chairman of the committee, and it is expected that it will be put to letter ballot of the sectional committee within a few weeks and then submitted to the American Standards Association for approval.

A17 (1931).—Safety code for elevators, dumbwaiters, and escalators

A.G.O.I. representative, J. P. Meade, Massachusetts Department of Labor and Industries.

I.A.I.A.B.C. representatives, M. H. Christopherson, New York State Insurance Fund; C. H. Weeks, New Jersey Department of Labor.

The technical committee in charge of this code is a permanent one and an annual meeting is held. At the meeting held in March of this year various revisions were given consideration which will bring the code into line with the latest engineering practice. The handbook for inspectors which will supplement the National code has not yet been submitted for approval, but when it is completed this standard will be of value as a means of giving additional information concerning the application of the provisions of the code.

A22.—Safety code for walkway surfaces

A.G.O.I. representatives, John Campbell, Pennsylvania Department of Labor and Industry; H. E. Mackenzie, Connecticut Department of Labor.

I.A.I.A.B.C. representative, T. C. Eipper.

The code drafting committee is still making every effort to prepare a draft for submission to the sectional committee. Following the last meeting of the code drafting committee, held on February 14, 1933, a questionnaire was sent out to members of the committee asking for fundamental information from the field to determine the type of material to be included in a draft code. A report is then to be prepared for transmission to the full sectional committee summarizing the work of the subcommittee and requesting that the members use the questionnaire as a means of obtaining further practical information from industry.

A23 (1932).—Code for lighting of school buildings

This standard was prepared under the joint sponsorship of the Illuminating Engineering Society and the American Institute of Architects, and the last revision was approved as an American standard in September 1932.

A39.—Safety code for window cleaning

I.A.I.A.B.C. representatives, T. C. Eipper; C. A. Pense, Illinois Department of Labor.

The final draft of this code has been approved by the sectional committee and by the sponsor, the National Safety Council. It is now before the executive com-

mittee of the safety code correlating committee and will be submitted for formal approval to the Standards Council within a few weeks.

B7 (1930).—Safety code for the use, care, and protection of abrasive wheels

I.A.I.A.B.C. representatives, John Campbell, Pennsylvania Department of Labor and Industry; H. G. Ehret, Industrial Commission of Ohio; R. McA. Keown, Wisconsin Industrial Commission; J. P. Meade, Massachusetts Department of Labor and Industries; John Roach, New Jersey Department of Labor.

The latest revision of this code was approved in June 1930. The code is continuously under revision and the committee is now considering changes in certain provisions of the code regarding allowable speeds for coping wheels. The permanent sectional committee also acts as a committee on interpretation of technical questions arising in the application of the code. The code has been almost universally adopted throughout the grinding-wheel industry and as a basis of requirements for State regulatory bodies and insurance inspectors.

B8 (1932).—Safety code for the protection of industrial workers in foundries

A.G.O.I. representative, E. J. Pierce, New York State Department of Labor.

The revision of this code which was originally approved in 1922 was developed under the joint sponsorship of the American Foundrymen's Association and the National Founders' Association. Probably the outstanding provision of the revised code is the requirement which applies to charging buggies (new equipment only) calling for the use of small size automatic couplers. The revised code was approved as American standard in April 1932.

B9 (1933).—Safety code for mechanical refrigeration

A.G.O.I. representative, M. H. Christopherson, New York State Insurance Fund.

I.A.I.A.B.C representative, J. F. Scott, New Jersey Department of Labor.

A revision of this code covering the refrigerant methyl formate was approved in January 1933. The code is still under revision and a list of amendments to the present requirements has been prepared by the subcommittee on interpretations and exceptions for consideration by the entire sectional committee. These amendments cover the small office-household type of air conditioning unit which was not included in the original code.

B11 (1926).—Safety code for power presses and foot and hand presses

This project was originally undertaken in 1920 and approved as American tentative standard in 1922. The work of the committee was continued and in December 1924 the code was advanced to the status of American standard. The last revision was approved in 1926.

B15 (1927).—Safety code for mechanical power transmission apparatus

I.A.I.A.B.C. representatives, John Campbell, Pennsylvania Department of Labor and Industry; S. Kjaer, United States Bureau of Labor Statistics; R. McA. Keown, Industrial Commission of Wisconsin; J. P. Meade, Massachusetts Department of Labor and Industries; John Roach, New Jersey Department of Labor.

A new section to this code, on mechanical power control, has been before a special subcommittee for some time, but no progress has been made during the last year owing to the difficulty of securing attendance at committee meetings under present business conditions.

B19.—Safety code for compressed-air machinery

I.A.I.A.B.C. representative, J. F. Scott, New Jersey Department of Labor.

This committee has been inactive for several years and no meetings have been held.

B20.—Safety code for conveyors and conveying machinery

A.G.O.I. representative, J. P. Meade, Massachusetts Department of Labor and Industries.

I.A.I.A.B.C. representatives, M. H. Christopherson, New York State Insurance Fund; R. McA. Keown, Industrial Commission of Wisconsin; J. F. Scott, New Jersey Department of Labor.

This project is being developed under the sponsorship of the American Society of Mechanical Engineers and the National Bureau of Casualty and Surety Underwriters. The work has been divided into several sections and subcommittees are now at work preparing drafts which will be considered at a later date by the entire sectional committee.

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

A.G.O.I. representatives, J. P. Meade, Massachusetts Department of Labor and Industries; John Roach, New Jersey Department of Labor.

I.A.I.A.B.C. representatives, R. McA. Keown, Industrial Commission of Wisconsin; S. Kjaer, United States Bureau of Labor Statistics.

This code was initiated in 1923 and approved as American recommended practice in April 1927. No revision has been undertaken.

B28.—Safety code for rubber machinery

A.G.O.I. representative, E. L. Sweetser, Massachusetts Department of Labor.

I.A.I.A.B.C. representatives, S. Kjaer, United States Bureau of Labor Statistics; John Roach, New Jersey Department of Labor; R. E. Lee, Ohio Department of Industrial Relations.

A subproject, B28a, safety code for rubber mills and calenders, was completed by the technical committee in charge of this code and approved as American recommended practice in March 1927. The committee is at present inactive.

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

A.G.O.I. representative, E. B. Patton, New York Department of Labor.

I.A.I.A.B.C. representative, S. Kjaer, United States Bureau of Labor Statistics.

A completed draft of this code was submitted to the members of the sectional committee in July 1932. Various comments and suggestions were received as the result of the circulation of this draft, and they are still being considered by the sectional committee.

B31.—Code for pressure piping

I.A.I.A.B.C. representative, A. L. Wilhoit, Youngstown Sheet & Tube Co., Youngstown, Ohio.

No drafts of this standard have been completed or submitted for final approval. The sponsor for the project, the American Society of Mechanical Engineers is now preparing revised drafts which have been reviewed by the editorial committee.

C2 (1927).—National electrical safety code, parts I and III

I.A.I.A.B.C. representative, S. Kjaer, United States Bureau of Labor Statistics.

This project was approved in 1927 as American standard. While no revisions have been undertaken during the past year, one of the rules of the code provides that when new values for the ultimate fiber stresses of wood poles shall have been formulated by the sectional committee on wood poles–05, the values given in the national electrical safety code shall be proportionately adjusted. New values for these fiber stresses were approved as American standard in November 1930 and have therefore been incorporated in the electrical safety code.

D1 (1925).—Aeronautic safety code

This project was developed under the joint sponsorship of the Society of Automotive Engineers and the Bureau of Standards and approved as an American tentative standard in 1925. The Bureau of Standards later resigned from its sponsorship, leaving the Society of Automotive Engineers as sole sponsor. In January 1933 a request was received from the American Society of Mechanical Engineers for a revision of this code. The sponsor was notified of this request, but the American Standards Association has not as yet been advised as to whether or not such a revision will be undertaken. The present code is completely obsolete, necessitating its either being revised or dropped from the status of American standard.

D2 (1922).—Safety code for automobile headlighting—laboratory tests for approval of electric headlighting devices for motor vehicles

This code was submitted for approval as an existing standard by the Illuminating Engineering Society in 1921, and was given formal approval as American tentative standard in November 1922. The Illuminating Engineering Society and the Society of Automotive Engineers were then designated as cosponsors to undertake a revision of the code. Extensive research was carried on and in January 1928 a proposed revision was issued by the Illuminating Engineering Society for trial, comment, and criticism. In October 1932 the National Bureau of Casualty and Surety Underwriters requested the early completion of this revision as being of vital interest both from a humanitarian and from a commercial point of view. An informal conference was held composed of members of the sponsor organizations, the National Bureau and the American Standards Association staff. It was agreed by the meeting that a sectional committee should immediately be formed to undertake the development of a comprehensive group of national specifications covering not only the technical points in the construction of headlights but also standards of service and usage.

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D3 (1927).—Colors for traffic signals

This code was developed under the sponsorship of the American Association of State Highway Officials, the Bureau of Standards, and the National Safety Council, and was approved as American standard in November 1927. It represents the only group of national standards which have been developed on this subject. No revision is at present being undertaken.

D4 (1927).—Safety code for brakes and brake testing

The American Automobile Association and the Bureau of Standards acted as joint sponsors for this project, which was approved as American tentative standard in 1927. A revision has been under way for several years and considerable research work has been done, but owing to the lack of funds it has been impossible to complete the research work necessary. Obtaining new funds will probably have to await improvement in business conditions.

D5.—Manual on street-traffic signs, signals, and markings

The American Engineering Council, sponsor for this project, has requested that action by the American Standards Association be delayed, due to the formation of a joint committee of the American Association of State Highway Officials and the National Conference on Street and Highway Safety to bring about the coordination of the codes of the organizations. The joint committee has made very definite progress in the development of a manual following considerable research conducted by the Bureau of Standards. It is expected that the committee will complete its work by the end of the year.

K2 (1927).—Gas safety code

This code was developed under the sponsorship of the American Gas Association and the Bureau of Standards and was approved as an American standard in December 1927.

K13 (1930).—Safety code for the identification of gas-mask canisters

A.G.O.I. representative, John Roach, New Jersey Department of Labor.

I.A.I.A.B.C. representative, C. A. Pense, Illinois Industrial Commission.

Under the sponsorship of the National Safety Council this code was approved as American recommended practice in January 1930. As a result of a suggestion of the German national standardizing body that this code be correlated with other national codes on the same subject, the International Standards Association was requested to appoint a committee to consider the correlation of the work of the several national standardizing bodies. No action has as yet been taken.

L1 (1929).—Safety code for textiles

A.G.O.I. representative, John Campbell, Pennsylvania Department of Labor and Industry.

I.A.I.A.B.C. representatives, J. P. Meade, Massachusetts Department of Labor and Industries; H. M. Stanley, Georgia Industrial Commission.

Work on this code was undertaken in 1925 and was approved as American tentative standard in March 1929.

O1 (1930).—Safety code for woodworking plants

I.A.I.A.B.C. representatives, R. McA. Keown, Industrial Commission of Wisconsin; S. Kjaer, United States Bureau of Labor Statistics; J. P. Meade, Massachusetts Department of Labor and Industries.

This code became an American tentative standard in 1924 under the sponsorship of the National Bureau of Casualty and Surety Underwriters and the I.A.I.A.B.C. A revision was approved as American standard in March 1930. The sectional committee is now considering the question of dust explosions as related to woodworking establishments, but no drafts have as yet been submitted to the American Standards Association for approval.

O2 (1924).—Logging and sawmill safety code

See p. 174.

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

I.A.I.A.B.C. representatives, John Campbell, Pennsylvania Department of Labor; J. P. Meade, Massachusetts Department of Labor; H. Schreiber, Wisconsin Industrial Commission.

This code was developed under the sponsorship of the National Safety Council and approved as American tentative standard in January 1925. This code is now under revision and several additions have been made to the personnel of the sectional committee. A revised draft of the code was circulated to members of the sectional committee under date of January 24, 1933, and a meeting of the committee has been held to consider this draft.

Z2 (1922).—National safety code for the protection of the heads and eyes of industrial workers

A.G.O.I. representative, J. P. Meade, Massachusetts Department of Labor and Industries.

I.A.I.A.B.C. representative, C. W. Roberts, M.D., Atlanta, Ga.

This project was sponsored by the Bureau of Standards and approved as American recommended practice in 1921. It was advanced to the status of American standard in October 1922. A revision was undertaken in 1928 and the scope found not to be broad enough to include gas masks and respirators. The sponsor was asked to submit a restatement of scope for approval to cover these subjects. This statement has now been received and referred to the committee on scope for recommendation. A draft was submitted to the committee under date of May 26, 1933, and on June 8 further material was forwarded to the committee supplementing the draft. It is probable that some reorganization of the technical committee will be undertaken to insure that all interested groups are afforded representation.

Z4.—Safety code for industrial sanitation

A.G.O.I. representative, T. C. Eipper.

I.A.I.A.B.C. representatives, John Campbell, Pennsylvania Department of Labor; S. Kjaer, United States Bureau of Labor Statistics; John Roach, New Jersey Department of Labor.

A second draft of this code was forwarded to the sectional committee under date of June 13, and the first meeting of the reorganized committee held on July 12. Various changes in the draft were considered by this meeting and the proposed revisions have been circulated to the entire committee. It is expected that another meeting will be held in the early fall for the purpose of completing the section of the code now under consideration, the safety code for industrial sanitation in manufacturing establishments.

Z5.—Ventilation code (proposed committee)

A.G.O.I. representative, John Vogt, New York State Department of Labor.

I.A.I.A.B.C. representative, John Vogt.

The sectional committee being formed by the sponsor, the American Society of Heating and Ventilating Engineers is now practically completed and it is expected that work will be begun on the project in the early fall.

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

This code was developed under the sponsorship of the A.G.O.I., the Laundry-owners National Association, and the National Association of Mutual Casualty Cos. It was approved as American tentative standard in June 1924.

Z9.—Safety code for exhaust systems

A.G.O.I. representative, John Roach, New Jersey Department of Labor.

I.A.I.A.B.C. representatives, John Campbell, Pennsylvania Department of Labor and Industry; T. P. Kearns, Industrial Commission of Ohio.

The sponsorship for this project has been reassigned to the I.A.I.A.B.C. and the sectional committee is now about completed. An organization meeting will probably be called some time in the near future and work actively begun.

Z12.—Safety codes for the prevention of dust explosions

A.G.O.I. representative, W. J. Burk, New York State Department of Labor.

I.A.I.A.B.C. representative, John Roach, New Jersey Department of Labor.

Under the joint sponsorship of the National Fire Protection Association and the United States Department of Agriculture, nine standards have already been approved under this general heading. This is a permanent committee, and other standards having to do with the prevention of dust explosions will be submitted from time to time.

Z13.—Safety code for amusement parks

A.G.O.I. representative, T. C. Eipper.

I.A.I.A.B.C. representative, S. W. Homan, Pennsylvania Department of Labor and Industry.

Various sections of this code are being developed by subcommittees and several drafts have been submitted to the American Standards Association for correlating and editing. The work is being carried on under the sponsorship of the National Association of Amusement Parks and the National Bureau of Casualty and Surety Underwriters, but owing to business conditions during the past 2 years very little progress has been made.

Z16.—Standardization of methods of recording and compiling accident statistics

A.G.O.I. representative, J. H. Hall, Jr., Virginia Bureau of Labor and Industry.

I.A.I.A.B.C. representatives, Evan I. Evans, Industrial Commission of Ohio; A. O. Fried, Industrial Commission of Wisconsin; L. W. Hatch, New York State Department of Labor; W. J. Maguire, Pennsylvania Department of Labor and Industry.

This code is being sponsored by the I.A.I.A.B.C., the National Council on Compensation Insurance, and the National Safety Council. A final draft of part I on definitions and rates has been submitted to the sectional committee for letter ballot but no action has as yet been taken.

Z20.—Safety code for grandstands

A.G.O.I. representative, E. F. Seiller, Kentucky Department of Labor.

A final draft of the subcommittee on portable steel and wood grandstands has been completed and is now being put to letter ballot of the subcommittee. It will then be submitted to the sectional committee and later to the American Standards Association as a separate standard under the general heading of the grandstand code.

Z26.—Specifications and methods of test for safety glass

This project was initiated in March 1933, and the National Bureau of Casualty and Surety Underwriters and the Bureau of Standards appointed as cosponsors. The following scope has been approved:

"Specifications and methods of test for safety glass (glass designed to lessen or prevent injuries resulting from accident) as used for all purposes, including windshields and windows of motor vehicles, motorboats, and aircraft; goggles; and bullet-proof windows and partitions."

The sponsors are now completing the personnel of the sectional committee and it is expected that the work will go forward early in the fall.

Z28.—Safety code for work in compressed air

The initiation of this project and the assignment of sponsorship to the I.A.I.A.B.C. was approved in January 1933. The sectional committee is now being formed and work will probably be started within a very short time.

The approved scope of the project under which the committee will carry on its work is as follows:

"Construction and operating rules for work in caissons, tunnels, or wherever workers are subjected to air under pressure higher than atmospheric; including protection from mechanical hazards, the use of necessary instruments and apparatus, provision of locks, methods of lighting, communication and decompression, the keeping of records, medical attendance, periodic inspection and air analysis, rest rooms, hours of labor, sanitation, ventilation, fire prevention, fire protection, temperature control, and other conditions of work."

B13 (1924).—Logging and sawmill safety code (revision to be called 01)

This code was developed under the sponsorship of the Bureau of Standards and was approved as American tentative standard in January 1924. The National Safety Council is now collecting material to be placed before the sectional committee in connection with a revision which will advance the code to a full American standard. The sectional committee is now considering, in cooperation with the committee on dust explosions, Z12, the question of dust explosions as related to logging and sawmill operations.

DISCUSSION

Chairman KEARNS. Are there any questions that anyone would like to ask at this time about this report, or about the progress of codes?

Mr. KEEFER (Illinois). The National Safety Council has been very much interested, of course, in the safety-code work of the American Standards Association. We have had a representative in Washington, D.C., for several months in conferences with officials of the N.R.A. I should like to ask Dr. Agnew, if I may, what chance there is, in the first place, of securing recognition of the A.S.A codes in the N.R.A. codes that are coming up for approval from time to time.

Dr. AGNEW. We have made no formal representation to the N.R.A. about that. Some organizations have made inquiries as to why we should not have the safety codes written into General Johnson's general industrial codes. Our reply to those inquiries has been that while we believe that the proposal would be an extremely valuable one, we have not felt quite free to press for it. The American Standards Association has been very jealous of not becoming known in any way as a lobby organization. So we have responded to this proposal that we think that either the State bodies or perhaps the Industrial Advisory Board or the Labor Advisory Board might be the proper bodies to bring this up. I have transmitted copies of that correspondence with a little memorandum to the Secretary of Labor. I think perhaps Dr. Lloyd might add something on that extremely important point.

Dr. LLOYD (Washington, D.C.). As it actually works out in practice, it is not the Industrial Advisory Board nor the Labor Advisory Board which has taken the initiative in this matter, but the Consumers' Advisory Board. It is now definitely proposing to the Administration that something should be said in the codes along two lines. One involves the quality of the product, which is essentially a consumer consideration, making it a matter of fair practice properly to represent quality, and to maintain, as far as possible, good quality. The Consumers' Advisory Board considers it is also a matter of concern to the consumer to prevent industrial accidents, because we all know that accidents are costly. We know that the cost is far greater than the mere compensation which is paid to the worker, it having been estimated that industry pays four times that amount. We also know that such increased costs of production are going to be reflected in the price to the consumer. The Consumers' Advisory Board has consequently considered it appropriate to its field to make some move toward writing into these codes some element of accident prevention by making it a matter of fair competition between the producers to keep their accidents down as far as possible.

An effort is being made to have the matter of safety standards and quality standards brought into some of these codes and to put all manufacturers on the same basis in respect to those matters. At some of the public hearings it has been proposed that a number of these safety codes should be written into the industrial codes. I recall particularly the hearing on the code for the soft-coal industry, which has not yet been finally promulgated. The representative of the American Association for Labor Legislation made a pronounced request that since there are so many deaths of coal miners due to explosions in mines, since these can easily be prevented by rock dusting, and since there is an American standard code for rock dusting of soft-coal mines, that that should be put into the industrial code. It is not yet known whether that will be done. That is a very striking instance of accidents that are very expensive and that can very easily be prevented. One of our American standard codes is available to tell just how it should be done.

Miss JOHNSON (Massachusetts). I understand that the American Standards Association has encouraged regional agreements applying to States on the adoption of uniform safety codes. I should like to ask Dr. Agnew how that is progressing and whether any action

is being taken by the association in connection with the movement for interstate compacts. I do not know whether any other State has enacted such legislation, but this year Massachusetts passed a resolve providing for the appointment of a commission to take up with competing States, or States in the vicinity, the question of uniform labor legislation compacts, or agreements between the States for uniform labor laws. Although that resolve mentioned specifically hours of labor and wages, it is broad enough to include specific questions in the matter of safety and industrial hazard. I am wondering if the American Standards Association was planning any action in connection with that commission.

Dr. AGNEW. The Safety Code Correlating Committee, of which you are a member, has through a subcommittee developed a model safety law. Our board of directors has felt (there has not been any official action) that that work really lies beyond the scope of the association. Consequently, I have informally conferred with the Secretary of Labor in reference to that and have given the Secretary copies of the developments up to date. It was my understanding that it was the intention of Miss Perkins and her colleagues to discuss that point with the joint bodies now in session. I do not know what the plans are, but I should think that is a point which might well come up for discussion and action by this joint body here today. It seems to me that these two bodies are the bodies which should handle such questions.

Chairman KEARNS. The next speaker on the program is Mr. W. Dean Keefer, who has been connected with the National Safety Council for a period of about 15 years, first as business manager and later as director of the industrial division. The National Safety Council, through this industrial division under the direction of the speaker, has done a splendid job in accident-prevention work in industry, in the home, and in public safety. There is no one in America to whom I would rather go for counsel and advice on industrial safety work than to Mr. Keefer.

The New Deal and Safety

By W. DEAN KEEFER, *Director Industrial Division, National Safety Council*

The subject that your chairman assigned to me, The New Deal and Safety, seems to carry with it the implication that in the past 20 years the safety men in industries have done a pretty good job of it. But perhaps we are now entering a new era when it is about time to cast aside some of our old methods, some of our old activities, and look for something new, something with which we might combat new problems.

Some of the industrialists with whom I have spoken in recent weeks have expressed the fear that accident rates are going to go up, because they see in the future or in the next month or two, thousands of workers coming back to the job, perhaps with reduced skill, perhaps with reduced stamina. They call attention to the fact that the mental hazards of these jobs are going to be increased because the men have been worried by idleness, they have financial obligations which are pressing, and maybe sickness in the home.

Unquestionably these factors are big factors which we must consider if we are to attempt to keep our accident rates down to the low levels which have been established in 1930, 1931, and 1932. Undoubtedly the fears that have been expressed by State labor department officials and by industrialists are justified. This is the first point I want to discuss briefly: Do we want to cast aside all of the plans, all of the activities, all of the methods which have proved to be so satisfactory and so successful during recent years, and look around for something brand new just in the hope that it may work miracles for us?

Before I discuss that point in detail I want to review hurriedly the success that has attended the accident preventionists in industry during the past 20 years, and see if we can draw from the success that has met the efforts of these men anything that will interest us concerning the activities which they have followed in bringing about this success. Perhaps the most comprehensive accident data or accident statistics which we have available now have come to us through the National Safety Council, which has estimated that there were 19,000 industrial fatalities in 1928, 20,000 in 1929, 19,000 in 1930, 17,000 in 1931, and 15,000 in 1932. There were no satisfactory estimates prior to 1928, so far as we can make out. From the period of about 1920 to 1928 the figure usually quoted was 23,000, without much change from year to year. Prior to 1920 the figure usually quoted was anywhere between 23,000 and 35,000. However, in spite of the fact that we do not have more convincing data, I think we can rest assured that the safety men in industry have done a pretty good job; success has fairly well attended their efforts. How far can we rely on such figures? Certainly we cannot take them at their face value, because they do not take into consideration the important factor of exposure.

Here again I think we can turn to some of the records of the National Safety Council, the individual reports of individual industrial concerns. There were 4,000 individual industrial concerns reporting to the council in 1932, and from the tabulated records of these various individual concerns we have figured the frequency rates and the severity rates. From 1926 to 1931 the indexes for frequency rates declined 60 percent and for severity rates declined 36 percent.

It is on the basis of this downward trend that I feel rather optimistic about the plans, methods, and activities which we have been using in the past, and I wonder if we can afford to discard all of the things which have been worked out and have proved to be fairly successful.

As I see it, the average State department of labor, industrial board, or industrial compensation board has its safety activities pretty well divided into three general classifications: (1) Formulation and enforcement of safety laws, rules, and regulations; (2) encouragement of backward employers to organize as their forward-looking competitors have done; and (3) helping backward employers, once any interest on their part has been secured.

The first activity I think needs little consideration. Let me make one point, however. In all this work of formulating and enforcing safety laws, rules, and regulations the work has gradually been on the decline, and I think justifiably so, because there are literally thousands of employers throughout the United States who are vitally interested in safety work. Not only have these employers complied with the

laws and rules and regulations of the States under which they work, but many of them have gone way beyond that, not only doing the minimum required by the State enactments, but actually doing the maximum for the protection of their workers.

If I may be permitted to criticize any of the States in the United States, I think that criticism should be leveled against those States which have devoted too much time and attention to the enforcement part of their programs.

The second function of State departments, that of encouraging employers to take an interest in accident prevention, is certainly an old job. I wonder if we want entirely to abandon encouraging the backward employers to take an interest in safety work—to organize safety work as they have organized sales, or as they have organized production and accounting. Until all groups combine in selling safety to these backward employers we are certainly not going to attain the millenium which was mentioned by one of our former speakers. Even though this may be an old job, we cannot afford to throw it aside and look for something brand new with which to combat a supposedly new problem.

The third point, that of helping employers once a fraction of interest has been attained, from a safety point of view is perhaps the most important function of a State department. The problem which confronts you in this respect is quite similar to the problem which confronts the National Safety Council along the same line. We know that every year a few of the companies which become members of the National Safety Council sign their names on the dotted line, pay $50 average annual dues, put up a few posters, and then expect that the millenium has come and that accidents will naturally drop to zero. They do not realize, sometimes, that the best the National Safety Council can do for them under such circumstances is to give to them the accumulated experience of thousands of other employers to give them posters, pamphlets, leaflets, etc., which they can use; but, if they are to be effective and accomplish anything they must be studied, adapted, and applied. By whom? By the council? By the State department? No; by the employer himself. He has to be taught, led by the hand, if you please, into what he considers an easy job, that of preventing industrial accidents. In that respect, it seems to me, your work is very similar to the work of the National Safety Council.

The council or the State or any other organization cannot alone prevent accidents. The work must be done by the employer.

A short time ago I had an opportunity to talk to a State official in one of the States, who told me of the criticism that had been leveled against him and his associates because a catastrophe had occurred in his State whereby some 12 workers were killed. This critic, I think falsely, accused the State department of neglecting to enforce safety laws, rules, and regulations in that State, and practically laid the entire blame for that catastrophe upon the shoulders of the State department. In my humble opinion, this commissioner in replying to this criticism prepared a masterpiece, bringing out, among other things, the very important fact that safety can never be legislated and enforced into industry. Safety must be sold and taught into industry. I wonder if all of us realize the importance and the truth of such a statement.

The New Deal certainly brings new problems, but let me repeat my question: Does the New Deal make it necessary for us to cast aside all of the plans and all of the activities which have proved successful, and does that New Deal require us to look for new plans and new ideas which we hope will bring success?

The second point I want to discuss briefly is this: If we are convinced in any way, shape, or form that we can not afford to throw away all of our old ideas and plans, then what is there that we can pick up from the old regime? What plans should we consider at this time? What old things should we still work on in carrying out the selling and teaching program that we have laid out for ourselves?

What is new in safety? That question is a very hard one to answer. There is not very much that is new, certainly not from a day-to-day standpoint, and what may be new to me may be awfully old to 99 out of 100 others. Perhaps it is partly due to my difficulty in answering that question that I feel somewhat conservative on this matter. Is there very much that is new? Has very much that is new come to your attention, either through your own efforts or through the efforts of the safety men who are working in your State?

Accidents are still occurring in much the same way as in the past decade, aren't they, and aren't most accidents the result of unsafe conditions and unsafe practices? Isn't it still the job of the employer to safeguard his machinery and equipment and to teach his men the safest way to do their jobs? Those are the fundamentals, it seems to me, of the accident-prevention program in industry.

I wonder if there are not many safety men, many State officials in the United States, who in these trying times are just sitting back waiting for the heavens to open and some new discovery to come out that will create a royal road to success and relieve them of the responsibility of fighting for results.

This reminds me of the old king in the ancient days who decided that he wanted to learn mathematics. He called in the greatest mathematician of the time and said to him, "I want to be taught all there is to know about mathematics in one lesson." What did the mathematician reply? He said something like this: "In spite of the fact you are the king, you cannot learn mathematics in one lesson. You are going to have to sit down and study, just like every other common ordinary individual. There is no royal road to knowledge, certainly not in mathematics."

I feel pretty strongly that there is no royal road to success in accident-prevention work, and perhaps our seeking for it is going to lead us up some blind alley. In view of that fact, may it not be advisable for us to do a little studying, a little work, a little thinking.

I call to mind a story that was told about Lloyd George some time ago. Lloyd George, in giving advice to a young politician, said this: "If you want to learn anything about a subject and become an expert on it, you have to study first of all. Then after you have studied, to clinch your knowledge, sit down and write a book. If you don't want to write a book, do something, even make a speech. If you can't find an audience before whom to make your speech, go ahead and make that speech to your wife. Maybe you won't teach her an awful lot, but she will certainly teach you a lot."

Another example along this same line comes to us from the experience of Papini, who, you know, started out some years ago to

write a book disproving the divinity of Christ. Some of us recall that the more Papini studied on the subject the more convinced he became that Christ was divine, and finally he wrote one of the best books of its type, the book depicting the life of Christ and absolutely proving His divinity.

I mention these illustrations simply to bring out the point that studying, writing, speaking, and adapting are the things we must do if we are to be successful in our accident-prevention work.

A short time ago I asked one of my friends here in Chicago: "Tom, you have done a lot of safety work in the last 20 years. You have pulled a lot of stunts and I am wondering if you have not thrown away a lot of those stunts, discarded them, called them no good. Suppose your boss came to you and said, 'Tom, look here. I am going to restrict you to one activity now, from now on, just one activity. What will that activity be?'"

Tom reflected a moment and said that if he were restricted to one activity in safety, and only one, he felt that he would carry on pretty much the same activity he had been carrying on for the past 8 or 10 years, that in which the foremen of the plant had a luncheon meeting every day, under the chairmanship of the operating superintendent, to discuss two things, operating problems and safety. But he did not split it into two; he said operating problems, including safety. I asked him to tell me more about it.

First, he told me that his job consisted of passing over to the chairman of the meeting a short list giving a couple of the high points on every accident that had occurred during the 2 or 3 days preceding the meeting. The chairman would get up, start to read the list, and say, "The first accident we have here is to Bill Jones, out in the heat-treating department. Tom, you are foreman in that department. What about that accident?"

My friend, in telling this story, said the first two or three times the chairman pulled this stunt the foreman would get up, scratch his head, and say, "I didn't know that man was hurt. Tell me about it." And the general superintendent did. First of all, he said something like this, "Well, you are the foreman of your department, aren't you?"

"Yes."

"You are supposed to be responsible for the production out there?"

"Yes."

"And you are responsible for the safety of your men?"

"Well, maybe."

"Well, if you are responsible for production and don't know what is happening to your men and don't know what they are doing, how can you get out a good production? If you don't find out and don't keep up to date on what is happening to your men, you are not going to be foreman of that department very long."

As these meetings went on it was not very long before these foremen got the proper cue and got up each time and said, "Yes, that man was hurt. I know how it happened. This is what I have done to prevent its recurrence." Or he would say, "I don't know what to do to prevent recurrence. What can this group suggest?" Then they would have a discussion of that particular accident and they would usually come away with something that Tom considered very

much worth while. That, briefly, is an outline of the method Tom would carry on if all his activities were restricted to one activity.

I had the privilege of asking that same question of a man from another concern. His answer was very different, but I think it is equally interesting. He said: "If I were limited to one activity, and only one, I would continue to hold meetings every morning of the year, meetings at which I get 15 to 20 of our workers and talk to them about safety and fire prevention."

The first 20 or 30 minutes in these meetings were spent in a sort of lecture to these men. They gradually loosened up, got to be more informal, and discussed the problems in their own departments. This man told me that he had learned more from the men themselves than he could ever hope to learn by making inspections of those very departments in which these men worked.

One interesting experience that he told me about in connection with this work was at a meeting he held. He had talked for 20 or 30 minutes when suddenly a tall fellow got up in the back of the room, reached for his hat, and started out. My friend said, "Wait a minute. Why are you going out?"

"Well, listen, Mister, if what you say is true, and I believe it is true, your company can have my job right now. I am done. Do you know what I had to do yesterday? I am a truck driver. I was down at the station and the foreman put on my truck 3 bales of scrap paper, 4 cylinders of nitrogen, 8 cylinders of oxygen, 3 cases of dynamite, and some other stuff, and forced me to drive up the middle of this city to the plant with that kind of load on my truck. If what you say is true, I don't want the job any longer."

Well, the meeting was adjourned immediately. My friend encountered the foreman of that department and asked him if it was true. He brought about some changes that not only made it possible for this man to keep his job but whereby the lives of many of the citizens of that city would not be endangered by equally foolish jobs in the future.

This man, in other words, said, "If I were to be restricted to one activity and one activity only, I would go on with this old plan of conducting these safety and fire-prevention discussions with my men, whereby every man comes into that meeting at least once a year."

I could give numberless illustrations. I should like to tell you about the answer given to me by the Youngstown Sheet & Tube Co. man, something about the plan they formulated for the elimination of unsafe practices. I should like to tell you about the work of Jones & Laughlin Steel Co. in Pittsburgh. Their first answer to that question was, "We would rely upon the safety contest." The answer to that question has been revised, and it now has to do with the safety and foremanship series of booklets that has been gotten out by the National Safety Council and which have been used successfully, not only there, but in many other plants throughout the United States.

I don't want you to misunderstand and get the idea that I am advocating the restriction of all safety activities in any plant to one activity. Certainly that cannot be done. Nor do I say that any of these activities can be transplanted from one plant and pushed down the throats of the management of another plant simply because it worked well in one. That cannot be done, because safety depends so much

upon the attitude of the management and upon the convictions and the ability of the safety man himself. To give you other illustrations would simply lead to this conclusion: Industrial safety men in these troublous times are not looking to any great extent for the heavens to open and bring out some new discovery that will enable them to combat their present problems. They are going back to their old ideas and their old plans, which have worked so successfully. They are taking into consideration new factors, they are speeding up, and they are accepting the challenge brought about by the emphasis of the need in industry; but they are sticking to the old, tried, and true things which have proved successful.

In concluding, I should like to emphasize that one thought, that if we are to continue to make progress and not slip backward, we have to study, we have to write books and articles, we have to make speeches, and we have to teach, sell, and adapt, and perhaps then we may be doing about half of our jobs.

[Meeting adjourned.]

Second Joint Session of A.G.O.I. and I.A.I.A.B.C.

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

Chairman KEARNS. The first number on the program this afternoon is an address, Cause Analysis of Accidents Causing Injury and Near Injury, by Mr. C. B. Boulet, safety director of the Public Service Corporation of Milwaukee, Wis. Mr. Boulet is eminently qualified to speak on this subject. He has been with this corporation for approximately 15 years. For 11 of those years he has been in charge of the personnel work of the company, including the safety work. He has given a great deal of personal attention to the problem of accident prevention in this corporation. In speaking about the record of his company, he told me of some very remarkable records it had made. I asked him if he was going to mention that in his address. His reply was no, that they didn't want to live in the past. They were going to live in the future. I think these records are worthy of mention. For 3 of the last 4 years this company has won in the national safety contest for large public utilities conducted by the National Safety Council, as having the best accident record. Mr. Boulet informs me that in the past 11 years, or since he has had charge of this safety work and since the company has been doing organized, intensive safety and accident-prevention work, it has reduced its accident frequency from 42.4 to 1.1. I think that is a remarkable achievement and it is entitled to a lot of credit. I take great pleasure at this time in presenting Mr. Boulet of the Public Service Corporation of Milwaukee, Wis.

Cause Analysis of Accidents Causing Injury and Near Injury

By C. B. BOULET, *Public Service Corporation, Milwaukee, Wis.*

A number of years ago in a small electric utility company the generator suddenly stopped running. The local engineer could find nothing wrong, so a long-distance call brought an expert from the General Electric Co. in Chicago. The expert examined the machine carefully, took a small hammer from his bag and tapped several times at a certain point on the machine. The switch was thrown and the machine operated. Asked for his bill he nonchalantly said, "One hundred five dollars and expenses." "What!" said the owner of the plant, "one hundred five dollars for a few taps with a hammer?" "Yes", said the expert, "five dollars for the taps and one hundred dollars for knowing where to tap."

That is the secret of any curative science, knowing where to tap. But to know where to tap takes years of study, of trial and error, of experimentation, of analysis of causes. Without knowing the cause of the trouble, it is impossible to prescribe the cure. So it is with accidents.

It is altogether possible that the number of accidents in any plant might be reduced by any individual who might simply apply a number of generally accepted principles of accident prevention. He is just as likely to get results as the old grandmother who gave castor oil for every ailment. Minor trouble might be corrected and favorable results shown up to a certain point, but when that point is reached the doctor who understands the symptoms must be called in to restore the patient to perfect health.

And what is the doctor's procedure? To look at the patient and prescribe a cure off-hand? No; not at all. He first of all discovers the facts. All the facts which exist which might have a bearing on the case—the patient's temperature, his pulse, condition of his tongue and his eyes, condition of the blood, his heart, his lungs—all these are mentally tabulated by the doctor as facts, and when they have been discovered a picture is completed which tells him at once the cause of the trouble, and knowing the cause he is in a position to prescribe a remedy.

But first of all he must have all the facts.

In the analysis of accident causes it is likewise necessary that all facts be obtained and tabulated. A part of the difficulty experienced by many engineers in their attempt to analyze accident causes has been failure to go all the way in obtaining facts. Their opinion as to cause has therefore been based on an incomplete record and consequently the cause as determined from the information available has been incorrect.

Let us try to find the reasons for this half-way analysis.

There may be several: (*a*) Overanxiety on the part of the investigator to reach a conclusion; (*b*) failure to distinguish between prime and secondary conditions affecting the cause; (*c*) loss of sight of the object of cause analysis, and consequent distorted facts developed from those involved.

There is a natural tendency on the part of many of us to jump to conclusions following an accident which has caused serious injury. The facts which immediately appear in the foreground are accepted as real causes, while careful scrutiny and further investigation might develop underlying facts which have a far greater bearing on the real cause than those which are so self evident.

I cannot attribute this failure to assemble all facts to laziness, but rather to a desire to find at once the cause of the accident.

Likewise, what often is indicated to be a prime cause of an accident should be classed more correctly as only a secondary or incidental cause.

The third possibility is to me important.

Facts pertaining to accidents are developed usually through personal investigation of conditions and through careful questioning of the injured party and witnesses of the accident. The attitude of those to be questioned must be correct or the true facts will never be obtained. If the employee feels that an effort is being made to place the blame somewhere, you may be sure that his loyalty to his fellow employee will far outweigh his sense of duty to the investigator. It is important, therefore, that he be promptly made to understand that the reason for the investigation is to determine the cause of the accident and that this is necessary if future similar accidents are to be prevented. He must be made to feel that he is being consulted and

his assistance in helping to stop accidents is being sought, if all facts are to be developed.

The investigation of an accident should be confined to determining facts through which to discover the cause. Overtures which make of the investigation a legal affair, and cross-examination of witnesses which tends to arouse their antagonism or suspicions, will prove of no value in determining accident causes.

I appreciate the fact that many reports required by industrial commissions and accident boards require only such information as is relevant to the cause of injury and oftentimes the cause of accident is not divulged.

Take, for instance, a certain report which recently came to my desk. This report supposedly tabulated "causes of accidents." Among other things in the report was a classification "Electricity" or "Electrocution"; a certain number of injuries were classified under this head, some of which were fatal while others were less serious.

From my own experience I know that every single electrical accident I have investigated was brought about by certain underlying fundamental causes, such as protective equipment not used, lack of supervision, lack of instructions, poor mental condition of injured, worry, etc.

Investigation of the causes of each of these accidents has taught a definite lesson and has prevented recurrence of future similar accidents.

Getting back to the industrial commission reports, simply classifying these cases as electrical, I cannot think of a single benefit derived from this knowledge. The reason for this failure to arrive at accident causes is, of course, evident. The prime duty of commissions has in the past been considered to be the supervision and determination of compensation because of disability due to injury. I believe a great service can be rendered by you gentlemen if more thought is given to the determination in each accident of real causes, followed by the broadcasting of information as to how to eliminate these causes of accident and thereby reduce the number of injuries.

I have made these preliminary remarks because, no matter how elaborate a system of accident analysis is developed, it is worth nothing unless the facts on which the analysis is based are correct and complete.

Any accident cause analysis tabulation must have certain characteristics to be of value. First of all, it must be sufficiently complete, so as to permit of proper classification of all accidents. Secondly, it must be sufficiently simple to permit its application to various industries and by engineers, superintendents, etc., who do not claim to be experts in this field. Third, it must be in sufficient detail to permit management and others to understand and derive from it information necessary to apply proper remedies.

Such a classification is not easy to find. I have at hand a number of classifications or tabulations which vary from the simplest form as first used by a number of eastern public utility companies to a very complete form suggested in the forthcoming report of the A.S.A. committee on causes.

The simplest classification breaks down accident causes into three main divisions:

1. Supervisor failure.
2. Employee failure.
3. Causes beyond control of injured.

Under the first of these are seven subdivisions:

1. Class of work beyond experience or physical or mental ability of injured.
2. Use of improper tools or devices.
3. Lack of proper instructions.
4. Protective devices not provided or inadequate in number.
5. Protective devices not used.
6. Lack of proper inspection and maintenance.
7. Insufficient light.

Under the second heading, employee failure, are seven subdivisions:

1. Rules or instructions not followed.
2. Intemperance.
3. Lack of concentration, carelessness.
4. Hurry.
5. Poor judgment.
6. Willfulness.
7. Unfit physical condition of the injured.

Under the third heading are five subdivisions:

1. Particles carried by air currents.
2. Contributory negligence of others.
3. Abnormal weather conditions.
4. Failure of equipment.
5. Nonindustrial.

For the small plant where it is impractical to expect a highly organized safety department, I believe some such classification of accidents can be of inestimable value. Even in larger organizations which have not previously analyzed accident causes, the code can be used as a beginning. It has numerous advantages. It is simple, it covers the main causes of accidents, and can be understood by the foreman, superintendent, and manager. A study of results obtained under this classification will prove helpful in determining the causes and will point to the elimination of future accidents of a similar nature.

Under the more complex tabulation, which will be used by larger industries, by national associations, and by industrial commissions in an effort more easily to locate all factors contributing to accidents, several contributory factors are tabulated.

For instance, a suggested code, now under consideration, requires a 7-column field of a tabulating card. Accident causation under this code is identified by such contributory factors as internal agencies, broken down into 14 heads such as machines, pumps, prime movers, elevators, conveyors, boilers, tools, chemicals, electrical apparatus, etc. Each accident is classified under one of these heads.

A further break-down of any one of these material agencies in order to tabulate the exact part of the agent causing the accident can also be made, for instance, "gears and pulleys" of machines, "belts" of pumps, "tubes" of boilers, etc.

Third, the manner of contact is analyzed and classified under one or more of 11 headings such as falls of persons on level, falls of persons from one level to another, slips—not falls, struck against, drowning, caught in or between, shock, burns, etc.

The accident cause is again classified according to performance of person injured. Under this head is tabulated such conditions or causes as operating or working at unsafe speed, using defective tools, overloading, nonuse of safety devices, etc. Each of these items can

again be broken down into specific causes; for instance, under operating or working at unsafe speed, the exact cause might be given as running, feeding too rapidly, driving too rapidly, throwing material instead of carrying or passing it, driving too slowly, etc.

Lastly, the accident may be classified according to proximate causes, and this classification broken down into physical causes and supervisory causes.

Under the first will fall such items as improperly guarded hazards, defective equipment, unsafe dress or apparel, etc.

Under the second such causes as improper instruction and willful disregard of instructions should be listed.

The National Safety Council in its Safe Practice Pamphlet No. 21 suggests a modified code covering cause analysis that is neither as simple as the first which I have discussed nor as complicated as the second.

This code segregates and classifies causes under five heads as follows:

1. Machine or other agency involved in accident.
    - *a*. Mechanical.
    - *b*. Nonmechanical.
2. Manner of performing work or job.
3. Method of contact.
    - *a*. Inhalation, absorbing, burning, poisoning, etc. (acute).
    - *b*. Inhalation, absorbing, burning, poisoning, etc. (slow).
    - *c*. Falls of persons (on level).
    - *d*. Falls of persons (to different levels).
    - *e*. Slips.
    - *f*. Falling or flying objects.
    - *g*. Caught in or between.
    - *h*. Struck against.
    - *i*. Drowning.
    - *j*. Shock (electrical).
    - *k*. Burning (electrical).
4. Mechanical causes.
5. Personal causes.

It will be noted that the code suggested by the N.S.C. follows to some degree the code suggested by the committee on causes, but is somewhat more elaborate. Personally, I lean toward the established code as suggested in Safe Practice Pamphlet No. 21.

So much for methods used in classifying accident causes.

You, I am sure, would have little faith in a doctor who tabulated your temperature, pulse, lung action, and blood analysis and then took a good look at the tabulation, picked up his medicine case, and walked out on you—perhaps to go to the golf course and play the customary 19 holes.

That, however, is the chief difficulty with many agencies gathering information on accident causes. They forget the objective which they started out to attain. After all, the analysis of accident causes is not an end in itself, but is rather a means to an end. What we seek through this analysis is remedies to apply in order to prevent future accidents of similar nature. The interpretation of statistics compiled through the analysis is the final measure of its value.

I have seen many tabulations prepared by national trade associations, accident-prevention organizations, and industrial commissions

that simply tabulate and leave the patient as is. The doctor who would not even suggest a cure or at least prescribe a sedative would certainly not merit his pay.

The job of you men, the most important job, is to interpret these statistics and suggest remedies for the conditions indicated by the facts presented.

The job of accident prevention, of selling employees on a new code, a suggested practice or a change in method has been made immeasurably simpler in my own organization whenever we have been able to show by careful analysis that a certain practice or procedure was the underlying cause of an accident or near accident and should be discontinued.

Experience continues to be the best teacher and it is our job, yours and mine, to select from experience those lessons which will, if taught by us to the men in the field, stop accidents.

What is true of the employees in my company is true of the employers of labor over whom you exercise a certain jurisdiction. If you can show them, by illustration, that a large percentage of actual accidents have been due to a certain cause, if you can cite cases proving your contention, and if you can then point out a definite way to stop these accidents in the future, then your efforts at cause analysis will be of some value. To continue simply to present statistics and sit complacently by while accidents continue to happen and statistics continue to accumulate, is worthless to the employer of men and will have no effect in the elimination of national economic waste.

Summarizing, I think the responsibilities of a forward-looking commission or accident board can be set forth as follows:

1. Determination of all the facts pertaining to every compensable accident.
2. Analysis of these facts to determine:
   a. Accident cause.
   b. Compensation liability.
3. Publication of a description of these accidents, setting out:
   a. Facts pertaining to causes.
   b. Causes.
   c. Remedies.

Again, I say it is your job to teach the lesson that your analysis of information collected indicates must be taught if accidents are to be stopped.

DISCUSSION

Chairman KEARNS. I am sure that all of you feel that there is food for thought in the suggestions made by Mr. Boulet, and some of you may want to ask him questions about some of the points he made regarding the cause analysis of accidents. Is there any question you would like to ask Mr. Boulet?

Mr. STEWART (Washington, D.C.). I think we all agree that that was about the best analysis of accidents from the objective point of view, so far as objective things can be recorded, that we have had. The longer I live the more I feel that there is a principal cause of accidents that is not covered by our guarding of machinery or any objective things that can be done. The superintendent of public safety in Buffalo a number of years ago, when the automobile accident

rate began to rise so rapidly, said, "There is but one adequate remedy for the increasing automobile accident rate and that is starting 5 minutes sooner." We put off starting until we must go at a break-neck speed to get there on time. Instead of taking the advice of that superintendent in Buffalo, we have been increasing our speed rate, setting back 5 minutes each week or month or so the time when we start.

The speed rate which the speaker referred to in the factory is not always set by the worker, and the individual is not always the cause of the accidents listed. When you reduce the piece rate you increase the speed rate, and your accident as a result of the increased speed is not the fault of the individual, who is under a necessity that neither he nor she can control, but is caused by your change in the piece rate. That is an illustration of the mental cause that you cannot get any X-ray picture of at all. Another thing that you cannot get an X-ray picture of is the mental state of the employee caused, not always but sometimes, by the attitude of the foreman or the straw boss. I remember walking through a factory once with the manager or superintendent. We were talking about the cause of accidents at the time. I saw a girl at her machine crying. The tears were rolling down her cheeks. I said to this fellow, "You are going to have an accident over there the first thing you know."

He said, "Why?"

I said, "Not because that girl is crying, but because there is something the matter with her that makes her cry."

He looked around and said, "I don't know. Her boss reported her yesterday."

"Maybe that is why she is crying and if you have an accident maybe the boss will be the cause of the accident."

In the extreme tension of industry, anything that throws off the guard of the individual will have its effect.

A commissioner to whom I was talking this morning said, that during the years she had been on that commission, very few of the cases she had heard (practically none of them, I think her expression was) had been caused otherwise than by the foolishness of somebody. After years of experience with the labor question, I once made the statement that I had never investigated a strike nor attempted to settle a strike where the final, ultimate, or end cause of the strike was not that somebody had forgotten to be a gentleman, and such forgetfulness on the two sides of the conflict is about 50–50. I wonder how many accidents are caused by somebody who forgot to be kind, somebody who forgot to be human, or somebody who forgot to know what was going on.

The foreman ought to know the physical condition of the persons working for him. So far as the mental condition is concerned, the mental conditions produced in a factory by the unkind word, the inhumane treatment, ought to be checked up. We ought to know who in the establishment is responsible for it. Of course, you can carry that too far too, but after all it must not be ignored.

One foreman said to me that whenever he had an accident he always asked the fellow if he had had a row with his wife that morning or the night before. Once when he asked a fellow that question, the fellow thought the foreman was a fool as he was not married at all.

Suppose you do miss fire once in a while. There are other things that affect the mental condition which we safety men have not yet discovered as a cause of accidents. Kindness in the factory, square dealing, seeing eye-to-eye between men and men, and men and women—in other words, the subjective cause of accident—I trust will be your next field of study.

Chairman KEARNS. Is there any further comment on that?

Mr. PATTON (New York). I want to congratulate Mr. Boulet on his paper, but I want to point out to him that he must not criticize industrial commissions or labor departments altogether for the lack of information as to causes of accidents as distinguished from causes of injuries. You are all familiar, I guess, with the study of H. W. Heinrich of the Travelers Insurance Co. It has been out for some years. In his study he indicates that 98 percent of all industrial accidents are preventable. In other words, nearly all accidents are due to some lack of supervision on the part of the employer. He made a recommendation, you know, and our association committee on statistics and costs has been wrestling with it for a long time, calling on all States to get the facts on the causes of accidents as distinct from the causes of injuries. Without waiting for the final report of that committee and its adoption, we have been experimenting with this idea in New York, and a number of other people have been experimenting with it.

Mr. Boulet would like, and so would I, accident reports to indicate whether the accident was caused by supervisor failure or by employee failure. But do you think that the foreman who makes out that report, knowing that the accident may become the subject of a compensation hearing, is going to say that the accident was due to supervisor failure?

At a meeting of claims representatives of insurance carriers a year ago, I asked, "What would be your objection, if any, if the New York reporting form was amended", so as to call for not merely what Mr. Boulet does in his paper but that still more complex form of which he speaks. They almost hooted me out of the room. "We are not going to have our policyholders report to the Department of Labor of New York that this accident was caused by the fact that their foreman gave improper instructions, or failed to issue instructions, or that the machine was improperly guarded." I said, "In New York and in many other States liability for payment of compensation has no relation whatever to negligence on the part of employer or employee. You would have to pay no more even though you do report you are at fault." These representatives said, "That is all right, but we are not going to require policyholders to report facts indicating that they are at fault."

I have made a serious effort to get this sort of information in a supplementary form. So far the results have been disappointing. Before the depression close to 500,000 accidents a year were reported to the New York State commission. How would it be possible ever to get sufficient appropriations from the legislature to make the kind of investigation of each of these accidents that Mr. Boulet says we ought to have and which I think we ought to have? It is one of those things that appear now to be beyond the bounds of practicability. On the other hand, the present accident causes tabulations which we print do not stop merely with "electrocution." The present

standard cause code recommended by the association and in general use in the country has between eight and nine hundred different classifications. Electrocution accidents are subdivided into quite an imposing list.

The figures indicate that over a period of years falls of persons have been one of the most serious types of accidents. Furthermore we have those falls subdivided into some 40 or 50 kinds of falls. If the safety man is provided with that information, it is up to him as safety man to discover what hazards exist which help to bring about falls. When the report comes in that a man slipped, that is all the foreman says and that is all the compensation referee wants to know—all he wants to know is the fact necessary in deciding whether an award is to be made or not. We know that the floor may have been slippery or the light poor, etc., or he may have had a sudden shock or fright—all those things help to bring about falls.

Can anyone tell me how any State legislature can be expected to provide sufficient funds for the kind of subjective analysis and fact finding that theoretically we ought to have? I see no practical way out of it. In New York whenever a hazardous condition is found to exist that is causing accidents, we isolate a certain number of incoming accidents of that sort, and send out agents to investigate them on the spot, while the accident is fresh. From that sample of accidents we learn what is the best thing to be done in the matter of accident prevention. As yet I do not see any more practical way of handling it. I am willing to admit that theoretically all the 500,000 accidents should be investigated and that 10 or 20 times that many near accidents were never reported. As has been pointed out, a near accident is just as much a warning or indication to a safety man, or ought to be, as an accident, but we have to limit ourselves to our possibilities. What we can do must be considered as well as what we ought to do. I cannot agree with the statement that merely because in New York we have 100,000 tabulated accident causes broken down into more than 800 different subdivisions, that that tabulation is not of service as a guide-post and as an indication to any safety man who is seeking to prevent accidents in his plant.

Mr. BOULET. I fully appreciate the difficulties that have been mentioned. I should like to quote this: "Nothing will ever be accomplished if first all objections must be overcome." I appreciate there are difficulties. We know that well. We have our troubles; the commissions have theirs. There are problems that I know nothing about so far as the commissions are concerned. I simply tried to bring to you something that would be of value to me. It is probably selfish, but I believe that ultimately something must be worked out. If we are to stop accidents there must be some practical way worked out and that way should be found.

Chairman KEARNS. I quite agree with Mr. Boulet that a good deal more care and attention should be given to cause analysis, and insofar as it is possible to do it, the industrial commissioners should, after a careful study, give out information as to the causes that would be helpful in the prevention of such accidents. In many cases, and I know from our own experience in Ohio, you seldom get sufficient information on the accident report itself to make the detailed study that Mr. Boulet refers to; yet I think it is a wonderful thing for governmental labor officials, factory inspectors, men and women charged

with the enforcement of safety regulations, and particularly those making investigations of accidents, to keep in mind those different things that should be investigated in order to determine the cause of the accident as well as the cause of the injury. I do not believe that any of us who are engaged in safety work at the present time are giving sufficient attention or attaching sufficient importance to the matter of investigating the cause of the accident, where that is possible, rather than the cause of the injury. I think the records show that there are perhaps 300 accidents occurring to one accident resulting in injury.

I think it an excellent idea to investigate all of our minor injuries, to make a thorough investigation, because after all each of them is potentially a major accident, and according to the law of averages sooner or later those minor injuries are going to result in major injuries. The same thing is true of accidents that cause no injury. The accident may not cause an injury today, tomorrow, or the next day, but sooner or later if such accidents continue to occur they will cause an injury and it may be a very serious one.

So I think it might be a good thing for us to give considerable thought to that subject of investigating causes of accidents that do not cause injury, as well as those that do cause injury, and find a remedy to prevent the recurrence of these accidents also.

Mr. KJAER (Washington, D.C.). The United States Bureau of Labor Statistics gets quite a few copies of the accident reports in the iron and steel industry made to the different States. I have noticed that a good deal of the necessary information is lacking on some of them that should really be in the report. There is no one to blame for that except the employer who sends out the report. The industrial commissioners cannot be blamed; they cannot compile the facts when they do not get them. I think the fault lies directly with the employer in that case.

Chairman KEARNS. Perhaps that is true; yet I think, on the other hand, it might be said that in many instances the industrial commissions and accidents boards do not make use of some of the information they do get. To be perfectly candid about it, I think a good deal more attention should be given to the general question of accident prevention by all of the industrial commissions and accident boards throughout the country. I realize that they do not always get this information, but certainly they get some information that could be used to advantage among the employers and safety men of the State in the matter of promoting accident-prevention work.

Mr. ELMER F. ANDREWS (New York). Mr. Patton has described our system. One of the things that might be of interest is that we photograph every first report of accident. That goes to a unit where a card index is kept to show the accident experience of each factory in the State. Furthermore, a second photostatic copy goes to our inspection division. We have inspectors traveling in the districts where accidents occur, and we have inspections of every major plant in New York. Our factory inspectors are advised immediately after an accident is reported. Then the inspector in that district takes it up personally with the management of the factory on his next visit. So far, we think that does a great deal of good. We are getting very fine reactions from the employers.

Mr. BEASOR (Ohio). I should like to bring out something that I think they should know here. We send out to our field men each month a record of the serious and near-serious accidents. Those men go into the plants, with all the information they have, and talk the thing over with the particular employer, not to criticize but to help. We have found in Ohio, as Mr. Patton has in New York, that these people are not going to incriminate themselves by saying that it was the foreman's fault or the supervisor's fault. With the idea of teaching the employers to keep that record, we are suggesting to them the keeping of that data in such a manner that the manager or person in charge of the plant will know exactly the person who is responsible for the injury or the accident. It is being suggested to them that they not only keep such records of injuries but also keep a record of their accidents.

Our field men are reporting that it has been taking very well with a number of employers and they are following out the scheme, so much so that for some time a certain group of employers, such as the electric-industry men, have their safety men attend round-table meetings about once a month. Of course this information goes to nobody else but those men in the meeting. They lay the record of each plant right on the table and are able to make a cooperative effort to help each other. I think some of those plants even extend into another State, but since it is similar work, they are getting these other fellows in, perhaps to help them.

Standardization of Codes and Mechanical Guarding at Point of Manufacture

By ROBERT MCA. KEOWN, *Engineer Industrial Commission of Wisconsin*

[Read by Mr. Wise, Industrial Commission of Wisconsin]

When accident-prevention work was first undertaken by some of the States more than 20 years ago, the lack of standards to guide the inspection personnel was soon apparent. Without standards it was impossible to secure uniform compliance where more than one inspector was assigned to the work.

The first regulations, adopted either by legislative act as in some States, or by the board or commission having supervision of the work as in others, appear in the light of present-day experience as rather crude, but they served their purpose at least to a degree, and as time went on and more experience was gained these regulations were revised and new ones adopted as new methods and processes in industry introduced new accident hazards.

With many of the States and some cities adopting regulations for the safety of employees and the public, and many insurance companies having their own standards, the need for some central organization to undertake standardization of regulations on a national scale became almost a necessity. With this object in mind the United States Bureau of Standards called a conference in Washington in January 1919 for the purpose of considering methods to be used for the promulgation of a set of national safety standards. At this conference there were approximately 150 representatives of the Federal Government, State boards and commissions, and engineering associations. More than 50 safety codes were discussed with the idea of developing

national standards that would supplant the large number of individual State regulations on each subject.

The American Engineering Standards Committee, now the American Standards Association, had already been organized (1918) by five major engineering societies for the purpose of carrying on standardization work, and as a result of two Washington conferences arrangements were made to have safety standards included within the scope of their activities. Since then the safety code work has been made a part of the American Standards Association program.

In order that standards finally approved by the American Standards Association may in fact be American standards, the association has outlined definite methods of procedure for the guidance of any organization wishing to have standards approved. These methods are outlined in the American Standards Association method of procedure from which the following statements are taken:

The association recognizes four such methods: (1) Sectional committee method; (2) existing standards method; (3) proprietary standards method; (4) general acceptance method.

Of these four ways for the development of standards, the sectional-committee method is the one most generally used. According to the association, the name of the committee is so called because of the fact that its personnel represents a true cross-section of the industries and organizations concerned with the development of any standard.

The rules of the association require that for safety codes sectional committee memberships shall be made up as follows: (*a*) Manufacturers (makers of equipment); (*b*) employers (users of equipment); (*c*) employees; (*d*) governmental bodies having regulatory power or influence over the field in question; (*e*) independent specialists, such as staff representatives of technical societies, consulting experts with no exclusive business affiliation, and educators; (*f*) insurance interests. It will be recognized that with a committee organized in this manner, the standard finally proposed for approval should be quite generally acceptable.

The existing standards method is, as the name implies, a method for having an existing standard approved by the association, but can only be used where in fact the existing standard is qualified to receive approval.

The proprietary standards method is, according to the association, for those standards that were formulated in the first instance and thereafter revised entirely under the auspices of the sponsor organization, and which are in fact competent to be approved by the association as national standards.

The general acceptance method for procuring national standards is primarily for simple projects and for which the organization of a sectional committee is not deemed advisable. This method consists of a conference of those individuals or groups principally concerned, supplemented by a sufficiently large number of written acceptances of the conference recommendation from all of those substantially concerned with the scope and provisions of the recommendation.

The 1932–33 year book of the American Standards Association lists 44 accident- and fire-prevention codes that have been approved as the American standard and 18 such projects not yet completed.

The American Standard Safety Code on any particular subject may not be as rigid as are the requirements in individual States that

have had regulations for a number of years, and in some instances it might not be desirable to lower the State standard, although it should be borne in mind that where a State has a standard that appears to be more rigid than the balance of the country, if it relates to apparatus that is used country wide, the customers in that State will pay more for such apparatus. As an example of this may be cited the grounding of noncurrent-carrying parts of electrical equipment. Wisconsin for a number of years required the grounding of all such parts for voltages exceeding 100, but when the code was revised in 1930, the majority of the State advisory committee was of the opinion that this requirement should be made to conform to the national standard. The arguments were that State and national standards should be uniform, and that for some kinds of electrical appliances, particularly small equipment, it would be safe only for the manufacturer to make the ground connections as they must almost of necessity be built into the machine. Instances were cited where insulation had been broken down when such work was done by local electricians. This position was taken notwithstanding the fact that many Wisconsin users of electrical equipment had already made the change and although there have been a number of fatalities on noncurrent-carrying parts that had become "alive" due to insulation becoming defective and where the voltage was presumably below 150. This is a matter, it seems to me, that should be given further consideration to determine whether or not manufacturers of this equipment should supply ground connections on all appliances using the ordinary lighting circuit.

Where a State has no regulations in any particular subject, the advantage of having an American standard either to adopt as is or to use as a guide in formulating regulations will be apparent.

In 1923 it was desired to issue a code regarding the use of spray coating in Wisconsin, and as far as could be ascertained no State had any regulations specifically covering this subject. It was therefore necessary for the advisory committee appointed to suggest a set of regulations, to visit plants where this method of painting was carried on, and by a process of elimination frame regulations that would prohibit those conditions which were observed to give unsatisfactory results. This meant days and days of work before the committee was prepared to make its recommendations to the industrial commission. Since the original adoption of the regulations, they have twice been revised because of the use of new materials or for other reasons, and within a short time will be subjected to another revision.

A similar condition existed with reference to the commission's general order on trench guarding. The original order stated that trenches, "* * * must be securely shored up." On a contested case the supreme court ruled that this was not definite enough and that the employer must be told how to shore them. There were not to our knowledge any existing regulations on this subject, so the advisory committee drafted a set of timber requirements for trenches, and after several hearings they were finally accepted as being reasonable and were adopted. The results obtained have been gratifying.

Probably one of the most uniformly adopted codes is that for boilers, known as "A.S.M.E. Boiler Code." As far as we have ascertained there is but one State having boiler regulations that does not accept boilers made in accordance with this code. The adoption

or acceptance of boilers built according to a standard code has many advantages, which may be listed briefly as follows.

(a) The advantage to the boiler manufacturer who does an interstate business. Boilers can be manufactured in quantity in advance, taking advantage of quantity buying of materials and of slack seasons for employment.

(b) The purchaser can get a better price and prompt shipment.

(c) Resale value of standard boilers is higher because of acceptance in a larger field.

(d) Boiler insurance companies operating in many States can give better inspection service due to inspectors becoming familiar with standard construction.

(e) Responsibility centered with manufacturer, over whom State officials can easily exercise control, and as a result the boiler is made uniform and safe at the source.

(f) Prevents dealers from making the State a dumping ground for worn-out and obsolete boilers.

(g) Employees benefit from the greater safety due to concentrating on one set of specifications and develop to the greatest extent safety features that are universally approved.

There have been instances come to our attention, when having shop inspections made of new boilers, that the boiler because of some substandard condition, could not be accepted under the State requirements. Such boilers are not scrapped but are sold elsewhere. Frequently, also, boilers because of age and design are not permitted a working pressure in excess of 15 pounds. These boilers are taken out of service, given an overhauling, and sold elsewhere as second-hand power boilers.

Another example of the value of uniform requirements is to be found in the case of elevators. Elevator manufacturers submitting proposals for elevator installations in various States can more readily satisfy the customer if the requirements of the State are in accordance with national standards.

In discussing this matter with insurance company inspectors, who in Wisconsin are licensed to make elevator inspections that are accepted in lieu of regular State inspections, and who operate in a number of States, the thought is frequently expressed as to the desirability of a standard code and particularly for one that is enforced by the State officials who have jurisdiction. If the insurance inspector is not able to "sell" the assured on the necessity of complying with the standards, the only thing that the insurance company can do, if it does not wish to put up with the conditions, is to cancel the policy. Sometimes, if the insurance inspector is too insistent in securing compliance with the code, the assured will cancel the policy. This is a condition that should not be tolerated, and the owner should be made to comply with the code no matter with what company he carries insurance.

Another case showing the value of national standards is found in building construction and particularly with respect to structural requirements. Some points that might be mentioned are:

(*a*) Live load requirements for structural design can be uniform.

(*b*) Allowable unit stresses in any particular type of building material should be the same. Existing building codes at present differ as to allowable working stresses.

(*c*) Organizations, national in scope, provide standards that can be universally adopted. They are as follows: (1) Steel—American Institute of Steel Construction; (2) concrete—American Concrete Institute; (3) wood—National Committee on Wood Utilization; (4) masonry, solid and hollow—American Society for Testing Materials.

Standards of the above organizations have been adapted to the Wisconsin State building code. If such standards were in general use the buying public would benefit. Without such general standards the responsible designer and manufacturer is always at a loss to know whether his work is in competition with other designs and products. The result is that such designers and manufacturers are forced to meet irresponsible competition, with a consequent lowering of ideals rather than raising them.

Examples are frequently brought to light in Wisconsin, from out-of-State designers who do not have any particular standard to follow, in which variable assumed loadings and working stresses are used.

In manufactured materials the same results are found. Wisconsin has certain requirements on hollow building units. Neighboring States have none, except perhaps in individual cities; consequently, out-of-State manufacturers have difficulty in marketing their products in Wisconsin. This is particularly true in regard to concrete blocks. Another phase of the matter is the opportunity that Wisconsin manufacturers have to dispose of inferior products in other States where there are no regulations. This could be avoided by standard requirements.

By the standardization of allowable working stresses and of building material in general, the buying and building public would benefit and a curb would be placed upon irresponsible designers and manufacturers.

There are instances where State authorities do not wish to adopt national codes because of their length. As an example of this we may cite the power press code. Wisconsin's requirement is contained in a single order, but mention of the national code is made in a footnote, referring to it as a valuable source of information on the subject.

States making new safety regulations or revising existing requirements will assist to a large degree in promoting the national standardization program if they will make free use of the national standards that have already been prepared.

The National Safety Council through its A.S.S.E. engineering section has had for a number of years a standing committee on research, standards, and code, one of the principal functions of which is to promote use of national safety standards.

That the American Standards Association appreciates the cooperation that it is receiving from your organizations is indicated by the following quotation taken from the association's 1929 year book:

> The State governments are also actively participating in the work. This cooperation is chiefly through national organizations of State commissions. The most active of these are the International Association of Industrial Accident Boards and Commissions and the International Association of Governmental Officials in Industry, through which the State governments are taking a leading part in the entire safety-code program.

So far in this discussion no mention has been made of mechanical guarding at the point of manufacture, although the bringing about of this condition will undoubtedly be made much easier if uniform safety standards are adopted.

There are a number of reasons why safety of operation of machinery should be taken into consideration by the manufacturer, a few of which are as follows:

1. A more workmanlike and finished job can be done at the factory when the guarding is given consideration while the machine is in process of design than can generally be done by the purchaser.
2. The purchaser dislikes very much to buy a new machine and then have some inspector come along and inform him that he must provide additional guards to make it comply with State requirements.
3. The complete guarding of a machine makes a good selling point for the manufacturer.
4. A machine designed with safety of operation in mind is more efficient than one not so designed.

For a number of years our department has been making use of a small form upon which the inspector reports substandard conditions found on new machines. On this form the inspector gives the following information: Name of maker of the machine; address; name of machine; name of manufacturer using machine; address; suggestions for safeguarding.

Upon receipt of this information from the inspector a letter is written to the machine builder calling attention to the ways in which the machine in question does not comply with safety standards, pointing out to him some of the advantages of guarding before selling and requesting his cooperation. In general the results obtained have been very encouraging. Occasionally, however, a reply is received that leads one to believe that not all manufacturers are alive to the situation. A certain plant purchased a large and expensive woodworking machine upon which there was an unguarded sprocket chain and wheels. A letter to the manufacturer was referred to the legal instead of the engineering department and brought the reply, that since their machines were shipped to all parts of the world it would be impossible to keep up to date on all of the various guarding standards, and therefore they shipped without guards. They completely overlooked the fact that proper guarding of this sprocket chain and wheels would have passed muster in any country regardless of their standards.

Only recently a bulk gasoline storage station employee, while reaching for the clutch lever on a newly installed gasoline pump, missed the lever and lost two fingers in the gears that were only partially enclosed. Correspondence with the pump manufacturer brought a reply enumerating the States where this pump was acceptable as fully complying with safety requirements. Upon being informed, however, that complete enclosure of gears was required, he took steps to replace the guards on all recent installations. The pity of it was that a person had to be permanently injured before this was brought about, and besides his employer was called upon to pay additional compensation because a substandard condition was the cause of the injury.

One frequent source of injuries is that caused by machinery used in highway construction, including quarry and gravel-pit outfits. Most counties and contractors using this class of machinery are not well equipped to do any guarding, particularly during the season when it is used on the job.

For a number of years there has been a large working exhibit of this kind of machinery in Madison during the annual road school conducted by the Wisconsin Highway Commission. Each year it has been our practice to make an inspection of this equipment and to write to the manufacturers, pointing out the respects in which it did not meet the State safety requirements. The cooperation received from these manufacturers has been very fine, and at their request we have sent a man to their plants, even to other States, to discuss with their engineering departments methods of safeguarding. Whether this guarding is in all cases furnished as standard equipment with machines sent to other States we do not know, but the improvement in safety of machines furnished to Wisconsin purchasers has been quite noticeable.

Another way in which buyers of machinery can secure guarding by the manufacturer is to include specifications for safety along with and on a par with other specifications. If such specifications are sent out when asking for bids, all bids will be submitted on the same basis. Safety specifications should be based upon practical and recognized safety standards and should require that all machines furnished must be equipped with properly designed, constructed, and installed guards. In some cases it will be desirable to go into details even more than this and state the guards desired.

The following table, compiled from United States census reports, gives some information on the concentration in the manufacture of a few important classes of machinery:

Proportion of United States total of specified classes of machinery manufactured in States noted as leading producers, 1929 [1]

Classes of machinery manufacturers	Number of States classified as leading producers	Percent of United States total			States classified as leading producers													
		Number of establishments	Average number of wage earners	Value of products	California	Connecticut	Illinois	Indiana	Iowa	Massachusetts	Michigan	New Hampshire	New Jersey	New York	Ohio	Pennsylvania	Rhode Island	Wisconsin
Agricultural implements	7	56.3	83.9	83.4	X	--	X	X	X	--	--	--	--	X	X	--	--	X
Electrical machinery	7	66.3	84.2	84.2	--	--	X	X	--	X	--	--	X	X	X	X	--	--
Foundry and machine-shop products, including woodworking and laundry machinery	11	72.2	84.2	85.4	X	X	X	X	--	X	X	--	X	X	X	X	--	X
Machine tools	7	72.9	70.3	74.6	--	X	X	--	--	X	--	--	--	X	X	X	--	X
Prime movers	7	64.8	82.5	81.6	X	X	X	--	--	--	X	--	--	--	X	X	--	X
Textile machinery	5	71.5	83.5	84.0	--	--	--	--	--	X	--	X	X	--	--	X	X	--

[1] U.S. Department of Commerce. Manufacturing Market Statistics. (Domestic Commerce Series No. 67.) Washington, 1932.

It will be noticed from this table that 7 States produce in value 83.4 percent of the agricultural implements, 84.2 percent of the electrical machinery, 74.6 percent of the machine tools, and 81.6 percent of the prime movers of the United States. With this concentration in a few States many of which are among the leaders in the safety movement, it would not seem to be an insurmountable task for industrial boards and commissions to make considerable progress in securing cooperation from their respective State manufacturers of equipment.

In closing, I would like to urge upon your organizations the continuing with even greater force of the support that you have given these programs in the past, to the end that the day may soon come when all safety standards will be national in scope and all machines guarded at the point of manufacture.

DISCUSSION

Mr. PATTON. In a meeting of this body at Toronto Mr. Lewis DeBlois read a paper embodying the experience obtained by correspondence with every State in the United States. He wrote to each of the States to get its safety requirements on a long list of prescribed topics. The replies indicated a bewildering array of differences. For instance, why should a guard rail in one State be required to be 36 inches high and a guard rail of precisely the same sort in other States be 42 inches high? There are many such illustrations. Mr. DeBlois was making the point that in order to stimulate the manufacturers to safeguard machinery at its source, it would be very helpful if the States, through their standard practice bodies, should eliminate these minor and nonessential, and in a number of cases perfectly useless, differences that now exist. In other words, it would greatly strengthen the drive for manufacture of machinery which would be safe, if the different States would get together even more than they have done in the past in making safety requirements standard. It is sometimes difficult for the manufacturer in making a machine to have to build it in seven different ways because each of seven different States has a different way of safeguarding it.

Chairman KEARNS. I have always felt that an exposed gear, an exposed set-screw, a shaft end, or any other piece of machinery that is open is just as hazardous in one State as it is in another. If it is strictly and satisfactorily guarded in one State I think the same requirement should be used in the other States for proper protection to the employees.

In Ohio in the last few years we have been endeavoring to make our codes conform as closely as we could to the requirements of the A.S.A. standards. I think all of the States should do that, so far as it is possible. Of course, local conditions make it necessary sometimes to adopt additional requirements or to modify the requirements, or, in some cases, to make them more stringent, but on the whole it seems to me that it would be to the advantage of everybody concerned if these codes were standardized. I think we should all work to that end.

Dr. LLOYD. This is an old question that is brought up here today. I think it was 10 years ago that I addressed this association on somewhat similar lines, pointing out the advantages of uniform requirements in the different States. This paper brings out something that I think is perhaps a new idea to some of us, the part the State authorities can play in obtaining better practice among the manufacturers. It is true that there are varying requirements in the different States, but in the case of the guard rail, a man who builds his guard rail 42 inches high meets the requirements of both the 42-inch State and the 36-inch State. When it comes to the guarding of gears, I do not think there is any such differentiation that we can point out. A gear is either enclosed or it is not enclosed. When enclosed it is safe.

Mr. McKeown describes the practice that has been followed in Wisconsin, and apparently it is getting results. I think we can get a great deal more in the way of results if that practice were copied in other States. I think most State authorities are content to point out to the owner of the establishment the ways in which his installation fails to comply with the regulations, but Wisconsin is going farther than that. It finds out who is the manufacturer of that equipment and calls his attention to the defects and urges him to supply machinery that will meet the requirements. If the manufacturers received such requests as that from a great many of the States, I think it would be much more effective in getting machinery guarded at the point of manufacture, where it can be done much better than by trying to apply the guard after installation. We would thus get a more general supply of equipment that is thoroughly protected by the manufacturer. Putting a guard on a machine after it is installed is usually to some extent a patchwork job. If the manufacturers would all build the guard into the machine it would give us much better results. We would get them at less expense, because, taking it all around, it is less expensive to do the thing right at the start. It is perhaps not possible to sell the guarded machine at as low a price as the unguarded machine, and there is not the incentive to the manufacturer to put on something to increase its cost. If, however, the customer realizes that sooner or later he will have to pay that expense the manufacturer undoubtedly can sell the guarded machine in the first place and it will be better guarded and better designed.

It seems to me that State officials can do quite a lot to bring that about if they will follow Wisconsin's practice of going to the manufacturer of the machinery in case anything is not sufficiently guarded. Many manufacturers are already doing a good job on that. You see over here at A Century of Progress and in other exhibits of machinery numerous examples of machinery that are completely guarded by the manufacturer. An effort is needed to bring the slipshod manufacturers into line to do the same thing, and a little pressure from all sides might accomplish more in that direction.

Chairman KEARNS. Have you any idea, Dr. Lloyd, as to how many States have a statutory requirement that machinery and equipment shall be guarded in accordance with the requirements of the code of the State before it is shipped into the State?

Dr. LLOYD. I do not know of any State that has such definite requirements. I suppose it might be possible to enforce that. On second thought, I think that has been done in one or two States, but I am not sure. I think possibly Minnesota has such a requirement.

Mr. KJAER. I believe several laws cover the point that new machinery installed must be guarded in a certain way.

Dr. LLOYD. Is it illegal to bring it into the State without the guards? I think some State has started a movement in that direction, but I am not positive of it. A requirement of that kind might be very effective in getting results.

Mr. ELMER F. ANDREWS. I think the Federal Department of Labor is very much interested in this subject. I know the American Standards Association is. Perhaps there is a clearing house in Washington for information for all of the States so that there may be standardization in guarding machinery and in enabling legislation. It

would be fine if those interested would communicate with Miss Perkins. I am sure she would be glad to hear of any suggestions and whether the idea is thought to be a good one by the various States and their representatives.

Mr. JOHN B. ANDREWS (New York). I recall that more than 20 years ago when industrial codes and the machinery-guarding proposition were advanced, one of the strongest arguments raised in favor of the code was its elasticity. In a State the representatives of the different interests would serve on the code committee. They would draw up the safety code through an educational process, and then as conditions changed in industry from month to month it would be unnecessary to wait for the next session of the legislature in order to make desirable modifications in the code. With the advance of the American Standards Association code, I am wondering what has happened to elasticity on a national basis. Can anyone throw any light upon how many of these codes, when once established by the A.S.A., have been modified by the same educational procedure after they have once been adopted? Are we losing something of that educational effect in the development of codes by the representative process within the State, with the State's expert assistance, or are these A.S.A. codes, as uniformly adopted, being modified with the changes in industry? I have been impressed with this a little in making a study of the advance of this very important branch of labor legislation in the last 20 years. I find that some States which have been rather inactive in the development of safety codes have suddenly, within 1 year, adopted as many as 20 codes in a single State. I should like to know how many of the A.S.A. codes have been frequently modified to meet new conditions.

Mr. STEWART. So far as the codes that have been sponsored by this organization are concerned, there have been, I think, a number of changes in every code with which I have had anything to do in the past. Take the abrasive wheel code. There have been at least two changes, and the association has just approved a third. I think that is true of all the codes. Of course, in the nature of the thing, these codes are looked after by the manufacturers' associations—the manufacturers producing the machinery. If there is any proposed improvement in the machinery that necessitates a change in the code, they see that a request is made that the code provides for that new machinery. The sectional committees of the A.S.A. take up suggested changes and perfect the code. I know especially that that one code has been changed three times since it was adopted.

Mr. KJAER. Two of the States—Nebraska and Maryland—have adopted the A.S.A. codes verbatim. I think they are the only two that have done so. Nebraska specifies the A.S.A. codes where the matter is not covered by other requirements of the State, and Maryland has adopted a number of them. Outside of that, not a single code has been adopted that conforms exactly to the A.S.A. code. There have been changes in the A.S.A. codes, some by amendment. On the whole, the majority of the codes conform to the A.S.A. codes. Some of the States use these codes only as a guide for their inspectors mstead of adopting them exactly. In these States the feeling is that the codes are to be used to advise the employer instead of demanding that he conform to the standard.

Dr. LLOYD. Dr. Andrews brought up a point that perhaps needs further consideration, that is whether the adoption of the ready-made

code involves a loss in the educational process of the people who have to live with that code within the State. I do not think the two things are incompatible. In most of the States it is required by law that a public hearing be had before the regulations are adopted. Frequently there are local committees to draw up a code or at least to consider it before it can be brought before a public hearing. It is my view that full use can be made of these codes prepared on a national basis without losing the advantage of the local discussion. If the national codes are brought to the attention of the local committee, if they are used as a basis for the local committee's work, after full discussion in a public hearing, if we could get into operation some machinery by which the local committee would always get the benefit of the enormous amount of work done on the subject before the national code has been promulgated, it would be very helpful. It would be extremely helpful, when such committees are working in the several States and when these public hearings are being held, if someone who has been intimately connected with the development of the national codes could be present to explain why some of these requirements are in the code—requirements to which perhaps some local objection is made. Experience can be related justifying those requirements and the necessity of them pointed out.

Then we would have in practice a code that is locally prepared and adapted; yet it would be substantially identical with the national code, because the local committee would have the same reasons for adopting the national code as the national committee had. In many cases I know that codes or preliminary drafts of codes have been altered by local committees or State committees, due to objections raised in public hearings, because there was nobody present who could explain why certain requirements were in the national code. They are usually there for a good reason. It is the experience in other States that justifies the requirement, and if, by hearing such experience, the local committee could be satisfied that the requirement is a good one, we would not have so many of these local variations.

I hope the American Standards Association will sometime be in position to pay the necessary expenses of sending to any State that is devloping a code, or having a local hearing, a man who can explain why the national code is a good one and why it is to the advantage of that State to adopt it verbatim or without making serious changes in it. Usually there is a good reason for everything in it, but the local people do not always know what that reason is.

Mr. KJAER. That is just the reason the American Standards Association codes were adopted in Nebraska. There was a member of the staff of the American Standards Association in Nebraska. He interviewed those people and showed them the desirability of the national codes. Consequently the codes were adopted verbatim.

Miss JOHNSON (Massachusetts). When we were adopting the lighting code the Federal Bureau of Standards sent Dr. Lloyd to speak at the public hearing on the code. While the code adopted was not identical with that of the American Standards Association, it was a lot more like it than otherwise would have been the case.

Chairman KEARNS. We are all agreed, I think, that standardization is a good thing and that we should all do what we can to bring it about. I think also that we feel it advisable, where it can be done, to have all machinery and equipment guarded in accordance with the require-

ments of the State regulations before it is shipped into the State. We do not have such a law in Ohio, but we are attempting to overcome that by contacting the employers of the State and asking them to write into their purchase orders a proviso that the machinery or equipment must conform to the requirements of the Ohio law. As a result, we have had frequent requests from manufacturers of machine-tool equipment in a number of States throughout the Union. Many of our employers are carrying out that idea.

[The following resolution, which was drafted for consideration and possible action by both the I.A.I.A.B.C. and the A.G.O.I., was read by Mr. Patton:]

Resolved, by the I.A.I.A.B.C. and the A.G.O.I. in joint convention, that it be recommended to the National Recovery Administration that some such clause as the following be included in each of the industrial codes:

Every employer coming under the jurisdiction of this code shall comply with all safety and health laws and regulations of the State in which the work place is located. In all occupations in which workmen are not protected by State laws or regulations the employer shall comply with provisions of any standard safety code approved by the American Standards Association which provides protection against any hazard encountered in such occupation.

Resolved, That a copy of this resolution be transmitted to General Hugh S. Johnson, Administrator of the National Industrial Recovery Act.

Mr. PATTON. There has been a great deal of discussion as to the safety provisions, or lack of safety provisions, in the N.R.A. codes, and this resolution is put forward for consideration as to whether or not it is the opinion of these two bodies that all such codes should include the statement that the State safety and health laws and regulations should be observed, and that insofar as there was no State safety law in effect the employers should comply with the safety code approved by the American Standards Association.

[A motion to adopt the resolution was made and seconded. There was considerable discussion as to the propriety of such a resolution from the joint session of the I.A.I.A.B.C. and the A.G.O.I. before the motion was put to a vote and carried.]

[The method of transmitting the resolution to General Johnson was discussed, followed by a motion, duly seconded, instructing the secretaries of the two organizations to act jointly in sending the resolution. The question of including the Consumers' Advisory Board in the resolution was also discussed, after which the motion was put to a vote and carried.]

[Meeting adjourned.]

Appendixes

Appendix A.—Officers and Members of Committees for 1933–34

President, Joseph A. Parks, chairman Massachusetts Department of Industrial Accidents.
Vice president, G. Clay Baker, chairman Kansas Commission of Labor and Industry.
Secretary-treasurer, Charles E. Baldwin, Assistant United States Commissioner of Labor Statistics.

EXECUTIVE COMMITTEE

Joseph A. Parks, Massachusetts Department of Industrial Accidents.
G. Clay Baker, Kansas Commission of Labor and Industry.
Charles E. Baldwin, Assistant United States Commissioner of Labor Statistics.
Matt H. Allen, North Carolina Industrial Commission.
Peter J. Angsten, Illinois Department of Labor.
Fred. W. Armstrong, Nova Scotia Workmen's Compensation Board.
Parke P. Deans, Virginia Department of Workmen's Compensation, Industrial Commission.
T. M. Gregory, Ohio Department of Industrial Relations.
R. E. Wenzel, North Dakota Workmen's Compensation Bureau.

COMMITTEE ON STATISTICS AND COMPENSATION INSURANCE COSTS

Chairman, L. W. Hatch, New York Department of Labor.
Secretary, S. Kjaer, United States Bureau of Labor Statistics.
Charles R. Blunt, New Jersey Department of Labor.
Marie Brindell, Kansas Commission of Labor and Industry.
Albert E. Brown, Maryland Industrial Accident Commission.
E. I. Evans, Ohio Department of Industrial Relations.
O. A. Fried, Wisconsin Industrial Commission.
Sharpe Jones, Georgia Department of Industrial Relations.
William J. Maguire, Pennsylvania Department of Labor and Industry.
Howard B. Myers, Illinois Department of Labor.
O. E. Sharpe, Quebec Workmen's Compensation Commission.
Walter O. Stack, Delaware Industrial Accident Board.
George T. Watson, West Virginia Workmen's Compensation Department.

MEDICAL COMMITTEE

Chairman, Francis D. Donoghue, M.D., Massachusetts Department of Industrial Accidents.
J. E. Belanger, M.D., Quebec.
D. E. Bell, M.D., Ontario Workmen's Compensation Board.
James J. Donohue, M.D., Connecticut Board of Compensation Commissioners.
H. H. Dorr, Ohio Department of Industrial Relations.
L. Kraeer Ferguson, M.D., Pennsylvania.
G. H. Gehrmann, M.D., Delaware.
Philip H. Kreuscher, M.D., Illinois.
LeRoy P. Kuhn, M.D., Illinois.
M. D. Morrison, M.D., Nova Scotia Workmen's Compensation Board.
Cadis Phipps, M.D., Massachusetts.
C. W. Roberts, M.D., Georgia Department of Industrial Relations.
Joseph H. Shortell, M.D., Massachusetts.
H. U. Stephenson, M.D., Virginia.

COMMITTEE ON SAFETY AND SAFETY CODES

Chairman, Thomas P. Kearns, Ohio Department of Industrial Relations.
Vice chairman, R. B. Morley, Ontario.
Will J. French, California Department of Industrial Relations.
A. B. Funk, Iowa Workmen's Compensation Service.
O. R. Hartwig, Oregon State Industrial Accident Commission.
John P. Meade, Massachusetts Department of Industrial Accidents.
E. B. Patton, New York Department of Labor.
L. M. Rickerd, Washington Department of Labor and Industries.
John Roach, New Jersey Department of Labor.
Ira M. Stouffer, Indiana Industrial Board.

ELECTRICAL SAFETY CODE COMMITTEE

Chairman, Charles H. Weeks, New Jersey Department of Labor.
J. Fred Cherry, Virginia Department of Workmen's Compensation, Industrial Commission.
L. L. Elden, Massachusetts Department of Industrial Accidents.
B. P. Foster, Delaware Industrial Accident Board.
C. P. Keogh, New York Department of Labor.
A. H. Meier, Indiana Industrial Board.
J. E. Wise, Wisconsin Industrial Commission.

COMMITTEE ON FORMS

Chairman, Sidney W. Wilcox, New York Department of Labor.
A. J. Altman, Wisconsin Industrial Commission.
A. C. Dale, Pennsylvania Department of Labor and Industry.
Miss R. O. Harrison, Maryland Industrial Accident Commission.
P. V. E. Jones, Manitoba Workmen's Compensation Board.
S. Kjaer, United States Bureau of Labor Statistics.
Hal M. Stanley, Georgia Department of Industrial Relations.
Mrs. Emma S. Tousant, Massachusetts Department of Industrial Relations.

COMMITTEE ON REHABILITATION

Chairman, George A. Kingston, Ontario Workmen's Compensation Board.
Donald D. Garcelon, Maine Industrial Accident Commission.
Hal M. Stanley, Georgia Department of Industrial Relations.
Mark M. Walter, Pennsylvania Department of Labor and Industry.
Voyta Wrabetz, Wisconsin Industrial Commission.

COMMITTEE ON WORKMEN'S COMPENSATION LEGISLATION

Chairman, Abel Klaw, Wilmington, Del.
T. A. Edmondson, Ohio Department of Industrial Relations.
Howard Keener, Arizona Industrial Commission.
O. F. McShane, Utah Industrial Commission.
Charles F. Sharkey, United States Bureau of Labor Statistics.

Appendix B.—Constitution of the International Association of Industrial Accident Boards and Commissions

ARTICLE I

This organization shall be known as the International Association of Industrial Accident Boards and Commissions.

ARTICLE II—*Objects*

SECTION 1. This association shall hold meetings once a year, or oftener, for the purpose of bringing together the officials charged with the duty of administering the workmen's compensation laws of the United States and Canada to consider, and, so far as possible, to agree on standardizing (*a*) ways of cutting down accidents; (*b*) medical, surgical, and hospital treatment for injured workers; (*c*) means for the reeducation of injured workmen and their restoration to industry; (*d*) methods of computing industrial accident and sickness insurance costs; (*e*) practices in administering compensation laws; (*f*) extensions

and improvements in workmen's compensation legislation; and (*g*) reports and tabulations of industrial accidents and illnesses.

SEC. 2. The members of this association shall promptly inform the United States Bureau of Labor Statistics and the Department of Labor of Canada of any amendments to their compensation laws, changes in membership of their administrative bodies, and all matters having to do with industrial safety, industrial disabilities and compensation, so that these changes and occurrences may be noted in the Monthly Labor Review of the United States Bureau of Labor Statistics and the Canadian Labor Gazette.

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 or individual actively interested in any phase of workmen's compensation or social insurance 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 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.

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: *Provided*, That the executive committee may, in its discretion, reduce the dues for active membership for those jurisdictions in which no appropriations are made available for such expenditures, making it necessary that the officials administering the law pay the annual dues out of their own pockets for the State.

SEC. 2. Associate members shall pay $10 per annum.

SEC. 3. Annual dues are payable any time after July 1, 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.

ARTICLE VI—*Meetings of the association*

SECTION 1. An annual meeting shall be held at a time to be designated by the association or by the executive committee. Special meetings may be called by the executive committee. Notices for special meetings must be sent out at least one month in advance of the date of said meetings.

SEC. 2. At all meetings of the association the majority vote cast by the active members present and voting shall govern, except as provided in Article X.

ARTICLE VII—*Officers*

SECTION 1. Only officials having to do with the administration of a workmens' compensation law or bureau of labor may hold an office in this association except as hereinafter provided.

SEC. 2. The association shall have a president, vice president, and secretary, treasurer.

SEC. 3. The president, vice president, and secretary-treasurer shall be elected at the annual meeting of the association and shall assume office at the last session of the annual meeting.

SEC. 4. If, for any reason, an officer of this association, during the term for which he was chosen, shall 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 to serve for the remainder of the term.

ARTICLE VIII—*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 and to make all needed arrangements for such 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. The executive committee may also reconsider the decision of the last annual conference as to the next place of meeting and may change the place of meeting if it is deemed expedient.

ARTICLE IX—*Quorum*

SECTION 1. The president or the vice president, the secretary-treasurer or his representative, and one other member of the executive committee shall constitute a quorum of that committee.

ARTICLE X—*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 on the first day of the conference, and all changes of which notice shall have thus been given shall be referred to a special committee, which shall report thereon at the last business meeting of the conference. No change in the constitution shall be made except by a two-thirds vote of the members present and voting.

Appendix C.—List of Persons Who Attended the Twentieth Annual Meeting of the International Association of Industrial Accident Boards and Commissions, Held at Chicago, Ill., September 11–15, 1933

CANADA

Manitoba

P. V. E. Jones, workmen's compensation board, Winnipeg.

New Brunswick

John A. Sinclair, workmen's compensation board, St. John.

Nova Scotia

Fred W. Armstrong, workmen's compensation board, Halifax.

Ontario

A. W. Crawford, Department of Labor, Toronto.
H. J. Halford, workmen's compensation board, Toronto.

Quebec

J. E. Belanger, M.D., workmen's compensation board, Quebec.
O. E. Sharpe, workmen's compensation board, Quebec.
Mrs. O. E. Sharpe, Quebec.

Saskatchewan

Alfred Higgin, workmen's compensation board, Regina.

UNITED STATES

Arizona

Howard Keener, industrial commission, Phoenix.

California

Mrs. Mabel E. Kinney, division of industrial welfare, Los Angeles.

Delaware

C. W. Dickey, E. I. du Pont de Nemours & Co., Inc., Wilmington.
Abel Klaw, E. I. du Pont de Nemours & Co., Inc., Wilmington.
Emil J. Riederer, Atlas Powder Co., Wilmington.

District of Columbia

Miss Mary Anderson, director, United States Women's Bureau.
Charles E. Baldwin, assistant commissioner, United States Bureau of Labor Statistics.
Miss Tracy Copp, Federal Board for Vocational Education.
S. Kjaer, United States Bureau of Labor Statistics.
M. G. Lloyd, United States Bureau of Standards.
Charles F. Sharkey, United States Bureau of Labor Statistics.
Miss Estelle Stewart, United States Bureau of Labor Statistics.
Ethelbert Stewart, Washington, D.C.

Georgia

Sharpe Jones, department of industrial relations, Atlanta.
Mrs. J. C. Petette, Atlanta.
Hal M. Stanley, Atlanta.
Robert Thrasher, department of industrial relations, Atlanta.
T. E. Whitaker, department of industrial relations, Atlanta.
Miss Marcia Whitaker, Atlanta.

Illinois

Peter J. Angsten, industrial commission, Chicago.
Mrs. Peter J. Angsten, Chicago.
Frank Baldwin, Chicago.
A. W. Becker, industrial commission, Chicago.
H. R. Berg, American Mutual Liability Insurance Co., Chicago.
Miss Mae Callahan, Chicago.
Thomas E. Cambridge, International Harvester Co., Chicago.
A. N. Christian, International Harvester Co., Chicago.
Joseph D. Cronin, industrial commission, Chicago.
N. S. Davis, III, M.D., Chicago.
Walter F. Dodd, Chicago.
J. D. Dooley, Norwich Union, Chicago.
John D. Ellis, M.D., Chicago.
G. E. French, Liberty Mutual Insurance Co., Chicago.
T. G. Glenn, General Electric Co., Chicago.
Ross Grant, Chicago.
Samuel S. Graves, M.D., Chicago.
C. G. Gregory, International Harvester Co., Chicago.
F. M. Harvey, M.D., Crane Co., Chicago.
A. J. Hummert, industrial commission, Chicago.
Mrs. A. J. Hummert, Chicago.
Anton Johannsen, industrial commission, Chicago.
William Kerr, Chicago.
Mrs. Laura Kerr, Chicago.
Paul R. Kerschbaum, department of labor, Chicago.
A. L. Kirkpatrick, Chicago Journal of Commerce, Chicago.
LeRoy P. Kuhn, M.D., Lumbermen's Mutual Casualty Co., Chicago.
R. G. Leland, M.D., American Medical Association, Chicago.
Abe Levin, industrial commission, Chicago.
Joseph L. Lisack, industrial commission, Chicago.
J. E. MacLean, Bankers Industry Insurance Co., Chicago.
Miss Winnie May, industrial commission, Chicago.
Howard B. Myers, department of labor, Chicago.
Charles A. Nowak, Chicago.

Mrs. Charles A. Nowak, Chicago.
Charles Nowak, Jr., Chicago.
Lawrence J. O'Connell, industrial commission, Chicago.
M. J. O'Brien, Chicago.
Russell I. Piale, Metropolitan Casualty Insurance Co., Chicago.
Miss M. Josephine Powers, Chicago.
B. S. Quigley, Liberty Mutual Insurance Co., Chicago.
E. H. Rategan, M.D., industrial commission, Chicago.
Garvin H. Richards, industrial commission, Chicago
A. F. Riggs, General Electric Co., Chicago.
Miss Hilda Roughley, industrial commission, Chicago.
W. H. Rutherford, Chicago.
F. L. Smith, M.D., Western Electric Co., Chicago.
Miss Edith Stewart, Chicago.
D. P. Thayer, Pere Oil Co., Chicago.
A. M. Thompson, industrial commission, Chicago.
E. E. Thompson, industrial commission, Chicago.
Miss Mary Trant, industrial commission, Chicago.

Indiana

Ira M. Snouffer, industrial commission, Indianapolis.

Iowa

Ora Williams, industrial commission, Des Moines.

Kansas

G. Clay Baker, commission of labor and industry, Topeka.
Marie Brindell, workmen's compensation commission, Topeka.

Maine

Donald D. Garcelon, industrial accident commission, Augusta.
Mrs. Harriet Garcelon, Augusta.

Maryland

Albert E. Brown, industrial accident commission, Baltimore.
Robert H. Carr, industrial accident commission, Baltimore.
Omar D. Crothers, industrial accident commission, Baltimore.
Miss Rowena O. Harrison, industrial accident commission, Baltimore.

Massachusetts

Miss Helen C. Barry, Boston.
Miss Elizabeth Merrick, Roslindale.
Joseph A. Parks, chairman industrial accident board, Boston.
Mrs. Joseph A. Parks, Boston.
Mrs. Emma S. Tousant, department of industrial accidents, Boston.

Minnesota

J. D. Williams, industrial commission, St. Paul.
Mrs. Gertrude Williams, St. Paul.

New York

Elmer F. Andrews, department of labor, New York.
John B. Andrews, American Association for Labor Legislation, New York.
H. C. Barelman, Employees' Mutual Liability Insurance Co., New York.
R. M. Crater, American Telephone & Telegraph Co., New York.
E. B. Patton, department of labor, division of statistics, New York.
Mrs. E. B. Patton, Bronxville.
John L. Shea, New York.
Ruth A. Yerion, Commonwealth Fund, New York.

North Carolina

J. Dewey Dorsett, industrial commission, Raleigh.

North Dakota

R. E. Wenzel, workmen's compensation bureau, Bismarck.

Ohio

Carl C. Beasor, industrial commission, Columbus.
H. H. Dorr, M.D., industrial commission, Columbus.
Mrs. H. H. Dorr, Columbus.
Miss Mildred G. Durbin, Columbus.
T. A. Edmondson, department of industrial relations, Columbus.
Mrs. T. A. Edmondson, Columbus.
Miss Lucille Edmondson, Columbus.
E. I. Evans, division of workmen's compensation, Columbus.
Thomas M. Gregory, industrial commission, Columbus.
Thomas P. Kearns, division of safety and hygiene, Columbus.
Wellington T. Leonard, Columbus.
Mrs. Wellington T. Leonard, Columbus.
D. M. McDonald, Firestone Co., Ohio.
W. E. Obetz, M.D., industrial commission, Columbus.
Mrs. W. E. Obetz, Columbus.
Miss Mabel Obetz, Columbus.
Miss Helen C. Simons, industrial commission, Columbus.
E. E. Watson, Columbus.

Pennsylvania

W. F. Ames, Bethlehem Steel Co., Bethlehem.
Miss Margaret Bach, Philadelphia.
Howard E. Bricker, M.D., Philadelphia Rapid Transit Co., Philadelphia.
Mrs. Howard E. Bricker, Philadelphia.
W. H. Horner, Permanent Self-Insurers' Association, Harrisburg.
Raymond Scott, General Accident Insurance Co., Philadelphia.
Stephen B. Sweeney, M.D., director bureau of workmen's compensation, Harrisburg.
Mrs. Stephen B. Sweeney, Harrisburg.
Walter Tiern, Pennsylvania Self-Insurers' Association, Philadelphia.
A. L. Watson, Koppers Co., Pittsburgh.

Puerto Rico

P. R. Martinez, department of labor, San Juan.
Miss O. Martinez, San Juan.

Virginia

Parke P. Deans, department of workmen's compensation, Richmond.
Mrs. Parke P. Deans, Richmond.
J. Errett Hall, industrial commission, Richmond.

West Virginia

R. H. Giles, workmen's compensation commission, Charleston.
George T. Watson, workmen's compensation commission, Charleston.

Wisconsin

Carl A. Kasper, Employers' Mutual Liability Insurance Co., Wausau.
C. W. Kroening, Employers' Mutual Liability Insurance Co., Wausau.
B. E. Kuedale, Employers' Mutual Liability Insurance Co., Wausau.
Harry R. McLogan, industrial commission, Madison.
Voyta Wrabetz, industrial commission, Madison.

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