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American Railway Association

PROCEEDINGS

OF THE

TWELFTH ANNUAL MEETING

OF THE

MEDICAL AND SURGICAL SECTION

PENNSYLVANIA HOTEL
NEW YORK CITY
JUNE 13, 14, 1932

PROCEEDINGS

OF THE

TWELFTH ANNUAL MEETING

OF THE

American Railway Association

MEDICAL AND SURGICAL SECTION

HELD AT

PENNSYLVANIA HOTEL, NEW YORK CITY

JUNE 13, 14, 1932

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J. Cannon, Vice-Chairman
J. C. Caviston, Secretary

MEDICAL AND SURGICAL SECTION

Officers

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Dr. W. L. Hartman, First Vice-Chairman.
Dr. J. R. Nilsson, Second Vice-Chairman.
J. C. Caviston, Secretary.

MEMBERS OF COMMITTEES

Committee of Direction

(Term expires June, 1933)

Dr. John McCombe (Chairman), Chief Medical Officer, Canadian National Railways, Montreal, Canada.
Dr. W. L. Hartman (First Vice-Chairman), Medical Director, New York Central Lines, Detroit, Mich.
Dr. J. R. Nilsson (Second Vice-Chairman), Chief Surgeon, Union Pacific Railroad, Omaha, Neb.
Dr. G. G. Dowdall, Chief Surgeon, Illinois Central System, Chicago, Ill.
Dr. J. R. Garner, Chief Surgeon, Western Railway of Alabama, Atlanta, Ga.
Dr. Donald Guthrie, Chief Surgeon, Lehigh Valley Railroad, Sayre, Pa.
Dr. C. W. Hopkins, Chief Surgeon, Chicago & North Western Railway, Chicago, Ill.

(Term expires June, 1934)

Dr. Harvey Bartle, Chief Medical Examiner, Pennsylvania Railroad, Philadelphia, Pa.
Dr. G. W. Cale, Jr., Chief Surgeon, St. Louis Southwestern Railway, Texarkana, Ark.
Dr. F. E. Smith, Chief Surgeon, Wabash Railway, Decatur, Ill.

Honorary Members

Dr. A. J. Chesley, Secretary-Treasurer, Conference of State and Provincial Health Authorities of North America, St. Paul, Minn.
Dr. H. S. Cumming, Surgeon General, Bureau of Public Health Service, Washington, D. C.

Committee on Nominations

Dr. D. B. Moss (Chairman), Chief Medical and Surgical Officer, Chicago, Burlington & Quincy Railroad, Chicago, Ill.
Dr. Duncan Eve, Jr., Chief Surgeon, Nashville, Chattanooga & St. Louis Railway, Nashville, Tenn.
Dr. A. W. Ide, Chief Surgeon, Northern Pacific Railway, St. Paul, Minn.
Dr. S. C. Plummer, Chief Surgeon, Chicago, Rock Island & Pacific Railway, Chicago, Ill.
Dr. S. B. Taylor, Chief Surgeon, New York Central Railroad, Columbus, O.

Committee on Occupational Diseases and Rehabilitation

Dr. O. B. Zeinert (Chairman), Chief Surgeon, Missouri Pacific Railroad, St. Louis, Mo.
Dr. G. W. Cale, Jr., Chief Surgeon, St. Louis Southwestern Railway, Texarkana, Ark.
Dr. J. G. Frost, Chief Surgeon, Chicago & Eastern Illinois Railway, Chicago, Ill.
Dr. D. B. Moss, Chief Medical and Surgical Officer, Chicago, Burlington & Quincy Railroad, Chicago, Ill.
Dr. F. E. Smith, Chief Surgeon, Wabash Railway, St. Louis, Mo.

Representative from Committee of Direction

Dr. J. R. Garner, Chief Surgeon, Western Railway of Alabama, Atlanta, Ga.

Committee on Developments Resulting from Physical Examinations

Dr. S. B. Taylor (Chairman), Chief Surgeon, New York Central Railroad, Columbus, O.
Dr. W. N. Blount, Chief Surgeon, Gulf, Mobile & Northern Railroad, Laurel, Miss.
Dr. J. C. Landenberger, Chief Surgeon, Oregon Short Line Railroad, Salt Lake City, Utah.
Dr. J. F. Roe, Chief Surgeon, Denver & Rio Grande Western Railroad, Denver, Colo.
Dr. R. D. Sykes, Asst. to Medical and Surgical Director, Baltimore & Ohio Railroad, Baltimore, Md.

Representative from Committee of Direction

Dr. Harvey Bartle, Chief Medical Examiner, Pennsylvania Railroad, Philadelphia, Pa.

Committee on Extension of Use of Standard First-Aid Packet

Dr. T. R. Crowder (Chairman), Director, Department of Sanitation and Surgery, Pullman Company, Chicago, Ill.

Dr. J. D. Collins, Chief Surgeon, Seaboard Air Line Railway, Norfolk, Va.
Dr. A. M. Hume, Chief Surgeon, Ann Arbor Railroad, Owosso, Mich.
Dr. A. W. Ide, Chief Surgeon, Northern Pacific Railway, St. Paul, Minn.
Dr. F. H. McNaught, Chief Surgeon, Colorado & Southern Railway, Denver, Colo.

Representative from Committee of Direction

Dr. G. G. Dowdall, Chief Surgeon, Illinois Central System; Chicago, Ill.

Joint Committee on Railway Sanitation

(Medical and Surgical Section Representatives)

Dr. T. R. Crowder, Director, Department of Sanitation and Surgery, Pullman Company, Chicago, Ill.
Dr. J. Frank Dinneu, Chief Surgeon, Erie Railroad, Cleveland, Ohio.
Dr. D. B. Moss, Chief Medical and Surgical Officer, Chicago, Burlington & Quincy Railroad, Chicago, Ill.

(Engineering Division Representatives)

R. C. Bardwell (Chairman), Superintendent Water Supply, Chesapeake & Ohio Railway, Richmond, Va.
A. B. Pierce, Engineer Water Supply, Southern Railway System, Washington, D. C.
H. W. VanHovenberg, Sanitary Engineer, St. Louis-South Western Railway, Texarkana, Ark.

(Mechanical Division Representatives)

R. L. Kleine, Assistant Chief of Motive Power, Pennsylvania Railroad, Philadelphia, Pa.
E. P. Moses, Engineer, Rolling Stock, New York Central Railroad, New York, N. Y.
John Purcell, Assistant to Vice-President, Atchison, Topeka & Santa Fe Railway, Chicago, Ill.

(United States Public Health Service Representatives)

L. M. Fisher, Sanitary Engineer in Charge, Int. San. Dist. No. 1, United States Public Health Service, Sub-Treasury Building, New York, N. Y.
A. P. Miller, Assoc. San. Eng., Int. San. Dist. No. 2, United States Public Health Service, 3 "B" St., S. E., Washington, D. C.
R. E. Tarbett, Assoc. San. Eng., United States Public Health Service, Washington, D. C.

(Canadian Health Department Representative)

G. H. Ferguson, Chief Sanitary Engineer, Dept. of Pensions and National Health, Elgin Bldg., Ottawa, Canada.

Committee on Fractures

Dr. S. C. Plummer (Chairman), Chief Surgeon, Chicago, Rock Island & Pacific Railway, Chicago, Ill.
Dr. H. A. Beatty, Chief Surgeon, Canadian Pacific Railway, Toronto, Canada.
Dr. Duncan Eve, Jr., Chief Surgeon, Nashville, Chattanooga & St. Louis Railway, Nashville, Tenn.
Dr. C. C. Green, Chief Surgeon, Texas & New Orleans Railroad, Houston, Texas.
Dr. A. R. Metz, Chief Surgeon, Chicago, Milwaukee, St. Paul & Pacific Railroad, Chicago, Ill.

Representative from Committee of Direction

Dr. Donald Guthrie, Chief Surgeon, Lehigh Valley Railroad, Sayre, Pa.

DIVISION I—OPERATING

MEDICAL AND SURGICAL SECTION

REGULATIONS

Representatives

1. Representatives of members or associate members shall be Chief Surgeons or other officials engaged in a similar capacity. They shall be officially designated by the members or associate members they represent.

2. Affiliated members may be appointed by the Committee of Direction.

Officers

3. The officers of the Section shall be a Chairman, a First Vice-Chairman and a Second Vice-Chairman.

Committee of Direction

4. There shall be a Committee of Direction which shall consist of 10 representatives of members or associate members within the Section, including the Chairman, the First Vice-Chairman and Second Vice-Chairman of the Section, the past Chairman last holding office and 6 other representatives of members. The Committee shall, in addition, include in its membership the Surgeon-General of the United States Bureau of Public Health Service or a representative to be designated by him, and a representative to be designated by the Conference of State and Provincial Health Authorities of North America.

5. The Committee of Direction shall conduct the business of the Section, authorize, order, define duties, determine the number of and appoint members of such committees that may be necessary to properly conduct the work of the Section.

6. Regular meetings of the Committee of Direction shall be held semi-annually, the date and place to be decided by the Chairman. Special meetings of the Committee may be held at the call of the Chairman.

7. The Chairman of the Section shall act as the Chairman of the Committee of Direction. In the absence of the Chairman his duties shall devolve upon the First Vice-Chairman. In the absence of both the Chairman and the First Vice-Chairman, the Second Vice-Chairman shall preside. Should the Chairman and both Vice-Chairmen be absent the members shall elect a Chairman pro tem.

Committee on Nominations

8. There shall be a Committee on Nominations to consist of five representatives of members or associate members not officers of the Section.

9. As candidates for the Committee on Nominations, the Committee of Direction shall select the names of ten representatives, five of whom shall be elected. The candidate receiving the greatest number of votes for membership on the Committee on Nominations shall act as Chairman of that Committee.

10. The Committee on Nominations shall, prior to the annual meeting, select the names of two or more representatives of members or associate members as candidates for Chairman, two or more as candidates for First Vice-Chairman and two or more as candidates for Second Vice-Chairman, and 6 representatives of members or associate members as candidates for the Committee of Direction.

11. Any representative of a member or associate members may, at the annual meeting, nominate for officers or members of the Committee of Direction such representatives as desired, provided that such nominations have been endorsed in writing by ten representatives of members or associate members.

12. The representatives of members or associate members nominated for officers or for the Committee of Direction receiving the highest number of votes, shall be considered elected.

Election

13. The Chairman and Vice-Chairmen shall be elected annually by a majority ballot and shall hold office for one year or until the close of the session at which their successors are elected. The term of office of members of the Committee of Direction shall be two years and 3 members of the Committee shall be elected annually. To provide for the inauguration of the foregoing, 3 members of the Committee of Direction shall be elected at the annual meeting in 1924 to serve for one year and 3 members to serve for two years. At subsequent annual sessions 3 members shall be elected to serve for two years.

14. The election of officers and members of the Committee of Direction and Committee on Nominations shall be by printed ballot and only officially designated representatives shall be entitled to vote. When a ballot for election of officers or members of committees results in a tie such ballot must be retaken.

15. A vote in sessions of the Section may be taken viva voce, by rising, by roll-call or by ballot. If there is any doubt as to the result of a viva voce vote the Chairman can order, or on the request of three members, a roll-call vote shall be taken in accordance with the practice of the American Railway Association, based on the number of memberships held by each member.

Meetings of Committees

16. Meetings of any committee may be held at the call of the Chairman of such committee unless for some special reason notification to the contrary has been issued by the Chairman of the Section.

Annual meeting of the Section shall be held in May or June, the time and place to be designated by the Committee of Direction. Special meetings may be held at the call of the Committee of Direction.

17. If a member of a committee is absent from two consecutive regularly called meetings of the committee, his membership ceases *ipso facto*, and the Committee of Direction shall act as in a vacancy from any other cause.

18. Should a vacancy occur in the officers of the Section, the Committee of Direction or Committee on Nominations, the Committee of Direction is authorized to appoint a representative to fill such vacancy until the next annual meeting.

General

19. The right to hold office, vote and attend executive sessions shall be vested in representatives of members or associate members only.

20. An executive session of the Section may be held at the call of the Chairman of the Section or at the request of five representatives of members.

21. These Regulations may be amended by a majority vote at any regular or special meeting of the Section, subject to approval by two-thirds of the voting members by a letter ballot.

MEDICAL AND SURGICAL SECTION

Pennsylvania Hotel, New York, N. Y., June 13–14, 1932.

The following representatives were present:

Members	Representatives
Ann Arbor R. R.	A. M. Hume, Chief Surgon.
Atlantic Coast Line R. R.	E. A. Drum, Medical Examiner
Baltimore & Eastern R. R.	Harvey Bartle, Chief Medical Examiner.
Bangor & Aroostook R. R.	H. C. Bundy, Chief Surgeon.
Canadian National Rys.	John McCombe, Chief Medical Officer.
	K. E. Dowd, Asst. to Chief Medical Officer.
Canadian Pacific Ry	H. A. Beatty, Chief Surgeon and Medical Officer.
Chesapeake & Ohio Ry.	J. Frank Dinnen, Chief Surgeon.
Chicago & Eastern Illinois Ry.	J. G. Frost, Chief Surgeon.
Chicago & Illinois Midland Ry.	Don Deal, Chief Surgeon.
Chicago & North Western Ry.	C. W. Hopkins, Chief Surgeon.
Chicago, Burlington & Quincy R. R.	D. B. Moss, Chief Medical and Surgical Officer.
Chicago, Rock Island & Gulf Ry	S. C. Plummer, Chief Surgeon.
Chicago, Rock Island & Pacific Ry.	S. C. Plummer, Chief Surgeon.
Colorado & Southern Ry.	F. H. McNaught, Chief Surgeon.
Elgin, Joliet & Eastern Ry.	G. G. Davis, Chief Surgeon.
Erie R. R.	J. Frank Dinnen, Chief Surgeon.
Georgia R. R.	J. R. Garner, Chief Surgeon.
Grand Trunk Ry.	John McCombe, Chief Medical Officer.
Great Northern Ry.	R. C. Webb, Chief Surgeon.
Illinois Central System	G. G. Dowdall, Chief Surgeon.
Lehigh Valley R. R.	Donald Guthrie, Chief Surgeon.
Louisville & Nashville R. R.	Duncan Eve, Jr., District Surgeon
Missouri Pacific R. R.	O. B. Zeinert, Chief Surgeon.
Nashville, Chattanooga & St. Louis Ry.	Duncan Eve, Jr., Chief Surgeon.
New York Central Lines	W. Louis Hartman, Medical Director.
	L. A. Easminger, Chief Surgeon.
	S. B. Taylor, Chief Surgeon.
	Frank V. Whiting, General Claims Attorney.
	H. A. Fathauer, Asst. Chief Claim Agent.
New York, Chicago & St. Louis R. R.	J. Frank Dinnen, Chief Surgeon.
New York, Ontario & Western Ry.	J. B. Hulett, Chief Surgeon.
Northern Pacific Ry.	A. W. Ide, Chief Surgeon.

Ohio River & Western Ry.....Harvey Bartle, Chief Medical Examiner.
Pennsylvania R. R.....Harvey Bartle, Chief Medical Examiner.
Quincy, Omaha & Kansas City R. R...D. B. Moss, Chief Medical and Surgical Officer.
Reading Ry. System.....F. S. Ferris, Chief Medical Examiner.
Rutland R. R.....S. W. Hammond, Chief Surgeon.
St. Joseph & Grand Island Ry.....J. R. Nilsson, Chief Surgeon.
St. Louis-San Francisco Ry.....R. A. Woolsey, Chief Surgeon.
Seaboard Air Line Ry.....J. D. Collins, Chief Surgeon.
South Brooklyn Ry.....R. H. Carr, Medical Director.
Tennessee Central Ry.....Duncan Eve, Jr., District Surgeon.
Toledo, Peoria & Western R. R.....R. A. Hanna, Chief Surgeon.
Union Pacific R. R.....J. R. Nilsson, Chief Surgeon.
J. D. Shingle, District Surgeon.
Virginian Ry.....Southgate Leigh, Chief Surgeon.
Wabash Ry.....F. E. Smith, Chief Surgeon.
Western Maryland Ry.....F. C. Warring, Medical Examiner.
Western Ry. of Alabama.....J. R. Garner, Chief Surgeon.
West Jersey & Seashore R. R.....Harvey Bartle, Chief Medical Examiner.

also

Abbott Chemical Company.....J. F. Biehn, Director.
American Railway Association.....J. C. Caviston, Secretary (M. & S. Section).
H. J. Forster, Secretary and Treasurer.
Beekman Street and Stuyvesant Square Hospitals.....R. H. Kennedy, Attending Surgeon.
Columbia University College of Physicians and Surgeons.....F. W. Bancroft, Associate Professor of Clinical Surgery.
C. R. Murray, Assistant Professor of Surgery.
International Journal of Medicine and Surgery.....F. E. Lewis, M. D., Editor.

The Twelfth
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THE CHAIRM
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(Circular No. M. & S. 136)

American Railway Association

MEDICAL AND SURGICAL SECTION

REPORT OF COMMITTEE ON OCCUPATIONAL DISEASES AND REHABILITATION

Dr. D. B. Moss (Acting Chairman), Chief Medical and Surgical Officer, Chicago, Burlington and Quincy Railroad.
Dr. O. B. Zeinert, Chief Surgeon, Missouri Pacific Railroad.
Dr. G. W. Cale, Jr., Chief Surgeon, St. Louis-Southwestern Railway.
Dr. F. E. Smith, Chief Surgeon, Wabash Railway.

Representative of Committee of Direction
Dr. J. R. Garner, Chief Surgeon,
The Western Railway of Alabama and Georgia Railroad.

New York, N. Y., April 30, 1932.

To the Medical and Surgical Section:

Beginning with this year, the designation of this Committee was changed from that of "Occupational Diseases and Hazards" to that of "Occupational Diseases and Rehabilitation."

An informal meeting of the Committee was held at Toronto on September 22, 1931, and tentative plans for the year's work were mapped out. Dr. W. H. Bohart was appointed Chairman. Following this meeting, as you no doubt know, Dr. Bohart became ill, and because of his illness, meetings of the Committee were delayed so that actually there has been but one formal Committee meeting—that of April 12, 1932, in Chicago, though there was an informal meeting of the Committee in Chicago on January 14, 1932, to make plans for the year. Because of this situation, the Committee has not had the time or the opportunity to give more than a limited consideration to subjects embraced under the new title of the Committee, and for that reason it is thought that it might be helpful to offer a recapitulation of the more important matters already considered by the Committee and reported upon.

Syphilis

A very live topic of the Committee has been that of syphilis among railway employes. In looking over the Proceedings of the Section, we find that when this Committee was appointed in 1921 with Dr. Ensminger as Chairman, this question of syphilis was of first importance, and during the intervening years has been the most important topic considered by the Committee and

discussed by the Section, and without doubt the discussion has been of a value to the railroads which cannot be overestimated. This matter was presented forcefully to the attention of the Chief Surgeons through a paper published by Stokes and Brehmer, of the Mayo Clinic, about ten years ago, calling attention to their record that 11.7 per cent of railroad employes examined at the Clinic had syphilis, contrasted with 1.5 per cent among farmers, 3.8 per cent among business men and 6.1 per cent among laborers. Of these syphilitic railroad employes mentioned, 79 per cent had evidence of nervous system involvement, while 18 per cent had evidence of cardio-vascular syphilis. The evidence of nervous system involvement was pupillary abnormalities, fundus changes, disturbed reflexes, inco-ordination and muscular paralysis. Sixty-four per cent of those presenting clinical or laboratory diagnostic evidence of syphilis had positive spinal fluids. This exhaustive report, which was corroborated by other investigators, influenced your Committee to make very definite recommendations, which were discussed by the Section and favorably received.

Recommendations:

1. In making examinations, either pre-employment or service, note the following for eye changes reaction of pupils to light and accommodation, size, equality, irregularity, fundus changes, muscular paralysis. Note gait, knee reflexes, Romberg, extended arms for tremors, general adenitis.

2. When an applicant for employment on being examined is found to have a primary lesion or other evidence of recent infection, he should be rejected, or at least approval postponed until such time as he shall be able to exhibit evidence that he has received sufficient and proper treatment and may reasonably be thought cured; if he then be accepted, he should be required to report for examination and observation at least annually.

3. An applicant for employment who exhibits any of the signs of late syphilis should be rejected.

4. On periodical service examination, an employe found to have a primary lesion should be temporarily removed from service and required to undergo proper treatment, not being permitted to resume service until he can be considered safe.

5. Those employes manifesting late syphilis but not having progressed to such a stage as to threaten a calamity may be continued in service under proper treatment and observation.

6. Those already having progressed to a state that locomotor ataxia or general paresis is inevitable, should be removed from train service or other responsible or hazardous occupations and assigned to such work as they may be able to do and where they will be free from danger to themselves or others.

7. Those already hopelessly involved and a menace to themselves or others should be retired.

In 1928, the Committee recommended that all applicants for employment in train or allied service should be required, in addition to the regular examina-

tion prescribed, to have a blood test made, and a positive reaction should be considered a cause for rejection. Your Committee holds to the opinion that this is a recommendation which deserves to be emphasized, and urges that it be made a routine by all roads examining applicants for employment, particularly in engine, train and switching service.

Cardiovascular-Renal Disease

Cardiovascular-renal disease received its first consideration when the Committee in 1925 addressed a questionnaire to a number of well-known internists, whose replies may be epitomized into the following:

No definite rules can be set out whereby a deadline can be drawn; employes must be considered individually. But in general, when there is complaint of shortness of breath on exertion, when there is marked acceleration of the heart rate after exercise, which does not return to its resting rate after two or three minutes of rest, or is persistently above a rate of 90 at rest, when the blood pressure does not elevate in a normal way after exercise and within a five minute period returns to a point below the previously resting point, when there are arhythmias of various sorts intensified by exercise, when the examiner observes signs of inadequate heart function, such as hurried breathing, cough on exertion, cyanosis, slight edema of dependent parts, all signs pointing to a pending decompensation, serious consideration should be given to such an individual's fitness to remain in engine, train or switching service. Given an employe presenting such symptoms associated with a hypertension, a kidney impairment evidenced by an albuminuria, casts, and reduced PSP less than 35 per cent to 40 per cent in two hours, an organic heart lesion, particularly a mitral stenosis, or evidence of an aortic lesion, especially when associated with syphilis, warrants a recommendation that such employe should be removed from engine, train or switching service, and should not be returned to duty until there has been a marked improvement. An employe with a fibrillating auricle, a bundle branch block or a heart block is unfit for this class of service.

Dr. Frederick A. Willius, of the Mayo Clinic, presents some statistics on the electrocardiographic study of various heart lesions, which are illuminating and important to the Chief Surgeon in his attempt to decide whether an employe can with safety be continued in service. In a series of 500 cases of auricular fibrillation, Dr. Willius reports a mortality of 41.3 per cent in four years, while in a similar number of cases of heart lesions of various types without fibrillation, there is a cardiac mortality of 13.6 per cent. Auricular fibrillation with abnormal QRS complexes in all derivations of the electrocardiogram has a mortality of 63.4 per cent, while a control series with abnormal QRS complexes in all derivations without auricular fibrillation has a mortality of 54.2 per cent. In another series of auricular fibrillation with abnormal QRS complexes in all Leads and ventricular premature contractions there is a cardiac mortality of 87.5 per cent. A control series of abnormal QRS complexes in all derivations with ventricular premature contractions has the same mortality, 87.5 per cent. From a prognostic standpoint, abnormal

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QRS complexes in all derivations of the electrocardiogram is one of the most serious conditions with which we have to deal. Auricular fibrillation associated with mitral regurgitation has a cardiac mortality of 51.9 per cent, while uncomplicated mitral regurgitation has a mortality of 27.8 per cent. Auricular fibrillation associated with mitral stenosis has a cardiac mortality of 47.1 per cent, while uncomplicated mitral stenosis has a mortality of 22.2 per cent. He further reports that of 117 patients having a T wave negativity in Derivation I, 78, or 66.1 per cent, have died within a period of four and a half years; 33 patients still alive, 10 reporting their condition worse, 15 improved, 8 unchanged. Of 52 patients having a T wave negativity in Derivations I and II, 35, or 67.3 per cent, have died within a period of four and a half years. In another group with a T wave negativity in all three derivations there has been a mortality of 50 per cent in the same four and a half year period.

The Committee has reported these statistics to bring to your attention the assistance which may be derived from resorting to the electrocardiograph in selected cases.

Hypertension

Hypertension, whether it be of the type of essential hypertension or a hypertension on an arteriosclerotic basis, is of outstanding importance to Chief Surgeons, who are responsible for efficiency and safety of the human element in the operation of our railroads. The unknown factors operating in hypertension are the ability of the heart muscle to carry on and the character of the cerebral vessels. Could some way be devised to measure these factors, hypertension would cease to be the problem which it is, because sudden disablement under conditions of risk could then be avoided. Statistics tell us that about 14.3 per cent of those having a hypertension die of cerebral accidents and 7.3 per cent of angina pectoris, either of which may develop and terminate with tragic suddenness. A diminution in renal function, as may be determined by laboratory tests, adds to the gravity of the case, and gives definite prognostic evidence. Fundus changes also furnish evidence which should not be ignored.

Because of the unknown factors in the production and progress of arterial hypertension, the Committee has heretofore recommended that employes engaged in train service who have a persistent hypertension above 175 systolic and below 200 systolic, with a diastolic above 100 and below 120, should be kept under observation. Those having a persistent systolic above 200 or a diastolic above 120 should be removed from service pending investigation, and should be returned to service only after showing definite improvement. Your present Committee wishes to affirm and emphasize the importance of this recommendation.

Diabetes

Diabetes is another condition which has been exhaustively studied by your Committee in recent years. Letters of inquiry were addressed to leading internists, from whose replies it was deduced that diabetes per se was not considered a hazard in railway service. The replies were all to the effect that

the diabetic would probably break down physically or have developed some disease which would incapacitate before he would become a hazard because of his diabetes. However, the predominant opinion of these same men was to the effect that a diabetic taking insulin should not be employed in a hazardous occupation, for the reason that a hyperinsulinaemia is a real menace. Your Committee recommended that a diabetic taking insulin should not be continued in a hazardous occupation whereby he might be injured or cause injury to others through becoming incapacitated suddenly. This recommendation has not met with the unanimous approval of the Section, but your present Committee desires to affirm the wisdom of that recommendation. It is conservative, and directed toward the promotion of safety.

Non-Shatterable Spectacles or Goggles

On February 16, 1932, the Committee forwarded Circular M. & S. 135 to seventy-seven class one railroads having Chief Surgeons to ascertain their practice in connection with the wearing of goggles. The questions asked in this circular letter as well as a summary of the replies received, are shown below:

Question No. 1 a

Is the wearing of spectacles or goggles of non-breakable glass mandatory in certain occupations?

Number answering "Yes"....62
Number answering "No"....11

Question No. 1 b

If so, in what occupations required?

Practically all of the 69 railroads answering the questionnaire indicated in their replies that the practice as to requiring the use of goggles in certain occupations was quite uniform. Some roads stated they were required by "Shopmen;" others by "Mechanical Department;" others by "M. of W. men cutting rail;" others "In all eye-hazardous work;" others "when Chipping, Grinding, Welding, Babbitting, Cutting Rivets, etc."

Question No. 2

Is an employe who has lost one eye continued in service?

Number answering "Yes in some capacities"....28
Number answering "Yes"....22
Number answering "Not in Train or Engine Service"....11
Number answering "Not as a Rule"....7
Number answering "No"....4
Number answering "Have had no such case"....1

Question No. 3

Is it required that the employe who through accident or disease has lost one eye, or who has had the vision in one eye much impaired and not correctible with ordinary lens, shall wear glasses or goggles, the lens, which protects the good eye to be of non-breakable glass, ground to a correction when that is necessary?

Number answering "Yes"	32
Number answering "No"	27
Number answering "Yes in some instances"	2
Number answering "Have had no such case"	2
Number answering "Each case handled on merits"	2
Number answering "Same rule applies as to man who has not lost an eye	1
Number answering "If injured in service, but taken out of service if condition is discovered and found due to injury for which we are not responsible, especially in train service"	1
Number answering "Do not provide or require prescription lenses"	1
Number answering "Not yet practice but believe good idea"	1

Fractured Os Calcis

Following page shows in detail a series of ten (10) cases of fractures of Os calcis treated on one railroad during 1930 and 1931. As is usual in this class of accidents, the injuries are sustained by falling or jumping from unusual heights to the ground.

In two patients both heels were fractured.

The period of disability is uniformly long, however, the end results were quite satisfactory and the majority of employes were enabled to resume their usual occupations. Those who were permanently incapacitated to perform the duties of their former employment, presented defects due to fractures of the femur or tibia and fibula as complicating factors. The latter class of employes will be furnished light work. All cases escaped serious injury to the spine except one, who received fracture (compressed) of first lumbar vertabra; but will doubtless resume his usual work.

These cases were given attention by Surgeons particularly qualified to handle special fractures and dislocations.

FRACTURED OS CALCIS

Occupation	Manner of Infliction of Injury	Character of Injury	Period of Disability	End Results
Hostler	Jumped from standing engine.	Comminuted fracture Os calcis extending into Sub-astragular joint.	4 months	Permanent deformity and broken down arch. Resumed usual employment.
Car Repairer	Jumped from moving train.	Fracture right and left Os calcis.	13 months	No permanent features; resumed work.
Brakeman	While on train in motion, *foot slipped off caboose* and struck end of tie.	Fracture Os calcis	14 months	No permanent features; resumed work.
Machinist	Fell from *standing engine*	*Fracture* Os calcis and Astragulus.	Last examination 4 months after accident.	Restriction of lateral movements. Will be able to resume usual work.
Maintenance of Way Department.	Fell from house roof, distance 8 feet.	Fracture Os calcis	Last examination Dec. 1, 1930.	No permanent features. Will be able to resume usual work.
Machinist	Fell from standing engine	Fracture Os calcis	6 months	No permanent features. Resumed usual work.
Switchman	Fell from top of box car	Comminuted fracture Os calcis; fracture of Femur.	10 months	Permanently disabled for yard service account fracture of *Femur*. Os calcis satisfactory.
Truck Driver	Stumbled and fell on sidewalk.	Comminuted fracture Os calcis.	3 months	No permanent features. Resumed usual work.
B. & B. Carpenter	Fell from broken scaffold, distance 20 feet.	Fracture Os calcis; fracture compressed first lumbar vertebra.	Last examination 5 months after accident.	Restricted movement of ankle but will be able to resume usual work.
Car Repairer	Fell off standing box car	Fracture Os calcis right and left; fracture of femur; fracture of Tibia and Fibula.	Recent accident and still under observation.	*No permanent feature, account* Os calcis, but is permanently disabled as car repairer on account fracture of *femur* and *tibia* and fibula.

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Lumbago

This subject under the caption "Painful backs" is included in the report of Committee in its report of April 28, 1931, at which time further consideration was given to this subject under "Foci of infection." There is little to add except to mention general infections as causative factors as for example, colds, influenza, sore throat, gonorrhea, etc. Exposure in wet or damp clothes may also be followed by lumbago. Traumatic lumbago itself depends upon more or less extensive lesion to the ligaments or muscles or to some other of the structures which are in relation with the vertebrae. From the anatomy of the spinal column it is obvious that these injuries may result from sudden twists or wrenches of the spine or may occur through blows or falls on the back or through lifting heavy weights. The symptoms appear soon after the injury, though it is several days before they reach their maximum intensity. The chief characteristic of the condition and indeed the one which is the basis for most of the others, is pain in the back.

The duration of traumatic lumbago is variable; but if the condition is not accompanied by complications such as Hypertrophic arthritis or other chronic afflictions, the intensity of the pain on movement rapidly decreases and the period of disability usually does not exceed three to four weeks. Employes who because of their occupations are subjected to frequent attacks of lumbago resulting in temporary disability should be given employment if available, requiring no lifting of heavy weights or occupations necessitating unusual muscular exertion.

It should be emphasized that when X-ray examinations of the spine are made, that antero-posterior and lateral views be taken.

Spondylolisthesis

This condition as demonstrated by X-ray examinations is an anterior and downward displacement of the body of the fifth lumbar vertebra in relation with the sacrum. It is the contention of many observers that the condition should be regarded as a congenital defect; however, in alleged injury cases it may be difficult to exclude traumatism as a direct cause of the condition or in aggravating the pre-existing defect.

A case of spondylolisthesis has recently been reported by one road. The condition was caused by a fall, the patient striking upon the buttocks, and which was immediately followed by pain in sacrococcygeal region, very severe in character, movements of back not restricted when admitted to hospital. He made an uneventful recovery with the exception of the displacement of vertebra. It was decided that owing to the latter condition which is permanent, he should not be permitted to perform work in hazardous occupations.

Sacroiliac Disease

Sacroiliac sprain or disease may be considered under the general classification of "Low Back Pain" since its symptomatology in the main is referred to the lumbosacral region. The Committee desires to emphasize the fact that

it is only through a careful history of the case in connection with a critical examination assisted by every laboratory means that the etiology may be worked out and a correct diagnosis finally arrived at. The bugaboo of industry today is the sacroiliac sprain, first described by Goldthwait; it is fast assuming the same importance in claims and litigation as the "railway spine" of a generation ago. Da Costa, in "Modern Surgery," states that a fall, lifting a heavy weight, a blow, a twist, or long continued standing, bending, lying or sitting may cause a sacroiliac sprain. We wish to emphasize particularly "lying" as a cause. Whenever so many ridiculous reasons are given as a cause for a complaint which is wholly subjective, well may we pause to consider whether there is in fact any basis for assuming a sacroiliac sprain as a distinct entity.

The Committee does not deny the existence of sacroiliac pain in occasional patients, but we hold that it is not of frequent occurrence, and the foci of infection which give rise to it may frequently be determined if diligently sought for. We believe that a diagnosis of sacroiliac sprain is too frequently made and on insufficient foundation. Consider, if you will, the anatomy of the sacroiliac union. It is a true joint, because the contiguous surfaces of the sacrum and ilium are covered with cartilage, yet so intimately bound together through cartilaginous union throughout the joint surface as well as the strong ligaments externally as to constitute almost one bone—the strongest joint in the body—and ordinarily the only change which takes place in this joint throughout life is in the pregnant woman, which is a physiological process.

TREATMENT: Besides searching out and eradicating foci of infection, the commonly accepted treatment in these conditions of painful backs is rest, administration of antirheumatic remedies, diathermy, massage, and support, either by properly applied adhesive strap or belt correctly adjusted. Operative procedures may be considered in obstinate cases.

The Committee urges as a routine practice, early and satisfactory X-ray films, both anteroposterior and lateral, in every case of complaint of back pain following an injury, and a searching quiz for history of previous complaints of pain in the back, as being the only way in which the interests of our companies may be properly safeguarded. It will be a surprise also how frequently lateral X-ray films of the spine will reveal evidence of a fractured vertebra when least suspected, and where an anteroposterior reveals no evidence of an injury.

Dust As An Industrial Hazard

Dusts may be industrial hazards in three ways; first, some produce injuries by igniting, burning and exploding, as coal dust and dust of grain elevators and grain mills; second, some produce systematic poisoning by inhalation, ingestion and absorption, as the salts of mercury, lead and arsenic; third, some, though non-poisonous, produce lung pathology when inhaled, and these constitute the most usual health hazard.

All lung pathology caused by inhalation of dust is known as Pneumoconiosis, and this is the hazard I wish to emphasize. The terms silicosis,

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anthracosis, siderosis, etc., are used to designate the pathology caused by dusts from specific materials as silica, coal and iron. Many dusts may cause lung pathology but so far silica ($Si^{\circ}2$) has been found to be the most harmful.

Dust pathology may occur in any occupation where dust is produced and inhaled in sufficient quantity over a long enough period of time. Under certain conditions it occurs in from one to two years or at any time thereafter.

The pathology of pneumoconiosis is that of fibrosis. Wherever the dust lodges in the small alveoli of the lungs it sets up an irritation and the process of fibrosis begins and blocking of the lymphatics in that area occurs. Blocking of these lymph spaces in one area increases the burden of another and with continued dust inhalation and blocking of spaces, the fibrotic process increases until even an entire lobe may be consolidated. This condition is bilateral and symmetrical.

For the purpose of description pneumoconiosis is divided into First, Second and Third Stages. In the first stage the symptoms are few, usually the general health is good except for a tendency for frequent chest colds, there is a slight shortness of breath on exertion, practically no cough or expectoration, and an occasional pleurisy pain. The capacity for work is not decreased. Physical examination is negative except for slight roughening of the breath sounds. X-ray shows a definite increase in the lung shadows due to the increased fibrous tissue.

In the second stage the fibrosis has increased and the lung tissue becomes nodular, more of the lymphatic spaces have been blocked and the interstitial frame work of the lungs is thickened. The symptoms are more pronounced and exertion causes a definite shortness of breath, there is an irritative cough with little expectoration, bronchial colds and pleurisy pains occur more frequently and capacity for work is decreased. On physical examination chest expansion is decreased. On percussion there is a dullness due to thickened pleura and consolidation, breath sounds are decreased in volume and both inspiration and expiration are sharper than normal. No moist rales are heard but dry cracking rales may be heard in the lungs and throat. X-ray shows increased fibrosis throughout the lung, the fibrosis and increased density being caused by filling up of the small lung spaces with lymphatic tissue deposit. Distribution of this fibrosis is equal through both lungs and the pleura is more thickened than in the first stage.

In the third stage the patient presents himself with an advanced diffuse fibrosis and large nodular areas throughout the lung fields. The symptoms are a very marked shortness of breath, persistent cough with a small amount of expectoration (if expectoration is profuse it usually is due to intercurrent infection), persistent pleurisy pains, loss of weight and inability to work. Physical examination reveals a rigid chest wall with practically no expansion, breathing being almost entirely diaphragmatic, shortness of breath being persistent, and cyanosis present at times. Unless there has been intercurrent infection no moist rales are heard in this stage. The X-ray shows a marked increase in the fibrous tissue and large nodular areas, giving the lung field the appearance of a snow storm which is characteristic of this stage.

In the first stage the heart is normal in appearance but as the fibrous tissue increases it is pulled toward the right side until in the third stage it often occupies a vertical position in the thorax.

Dust inhalation renders the lungs susceptible to intercurrent infection and tuberculosis is often superimposed, particularly in the second and third stages. The distinguishing features between pneumoconiosis and tuberculosis are: pneumoconiosis shows no elevation of temperature, improductive cough, no loss of weight until the late stage, sputum negative, X-ray shows bilateral and symmetrical involvement, all lobes affected, apices usually clear with no lung cavities. Tuberculosis shows an elevation of temperature, productive cough, loss of weight, sputum often positive for tubercular bacilli, X-ray shows more often unilateral or non-symmetrical involvement, apices or upper lobes are usually first affected and cavitation may occur.

Dust pathology of the lungs can be prevented in two ways, first, by the adequate and proper use of water to wet down the dust at the point of its origin; second, by forced ventilation to quickly remove the dust particles and replace this with clear air.

After definite involvement of the lungs has taken place curative measures are limited. In the first stage if the patient is removed from the dusty atmosphere, some dust excretion occurs, and a limited improvement takes place and the fibrosis becomes arrested, and capacity for work is not limited. In the second stage after removal from the dusty air the pathology becomes stationary, the general health improves, but shortness of breath and limited capacity for work remain. In the third stage after removal from dusty air very little improvement occurs as the pathology is too extensive and usually secondary infection has taken place. Capacity for work is extremely limited or absent, and treatment is symptomatic only.

In conclusion we wish to emphasize the facts that under certain conditions inhalation of dusts causes a fibrosis of the lungs known as pneumoconiosis and that this is an industrial health hazard, that it can be prevented by proper use of water and ventilation, that after fibrosis develops secondary infection is prone to occur and tuberculosis is often engrafted on the fibrosis, and the radiographic examination is the easiest and most reliable means of diagnosis.

Respectfully submitted,

COMMITTEE ON OCCUPATIONAL DISEASES AND REHABILITATION,
D. B. MOSS, M. D., Acting Chairman.

DR. PLUMMER: Mr. Chairman: You will notice the report is made by the Acting Chairman. It states in the beginning of the report that the Chairman of this committee, Dr. Bohart, became ill. The latest report we have of Dr. Bohart is that he is no better, and the prospect of his ever being with us again is poor.

I would like to make a motion that the Chairman and the Secretary formulate a message, to be transmitted to him, letting him know we are thinking of him while he is unable to be with us at the meeting.

DR. DOWDALL: I second the motion and suggest it be a telegram.
The motion was put to a vote and carried.
(The Secretary accordingly wired Dr. Bohart as follows:)

New York, June 14, 1932.

Dr. W. H. Bohart,
Vero Beach, Fla.

Medical and Surgical Section in Convention assembled sends greetings and best wishes. We all miss you.

(Sgd.) J. C. Caviston,
Secretary."

DR. DOWDALL: I move the report of the Committee on Occupational Diseases and Rehabilitation be accepted as a progress report.

. . . . The motion was seconded by Dr. Taylor, put to a vote and carried.

THE CHAIRMAN: As the hour is growing short I believe you will agree with me that it would be better to proceed to the next number on the program, which is the report of the Special Committee on Developments Resulting from Periodic Physical Examinations. Dr. S. B. Taylor, Chairman.

(Dr. S. B. Taylor here presented the report of his committee, per Circular M. & S. 140 as follows:)