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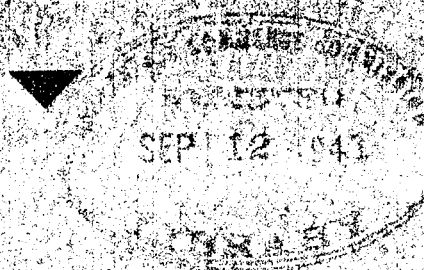
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Association of American Railroads

PROCEEDINGS
OF THE
TWENTY-FIRST ANNUAL MEETING
OF THE
MEDICAL AND SURGICAL SECTION



MOUNT ROYAL HOTEL
MONTREAL, QUEBEC, CANADA
MAY 27-28, 1941

PROCEEDINGS
OF THE
TWENTY-FIRST ANNUAL MEETING
OF THE
Association of American Railroads
MEDICAL AND SURGICAL SECTION



HELD AT
MOUNT ROYAL HOTEL
MONTREAL, QUEBEC, CANADA
MAY 27-28, 1941

EASTERN PRINTING CORPORATION
NEW YORK, N. Y.
1941

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 G. D. Brooke, President, Chesapeake
 M. W. Clement, President, Pennsylvania
 Geo. B. Elliott, President, Atlantic
 E. J. Engel, President and Chief
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ASSOCIATION OF AMERICAN RAILROADS

Officers

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 R. V. Fletcher, Vice-President and General Counsel (Law Department)
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 A. F. Cleveland, Vice-President (Traffic Department)
 E. H. Bunnell, Vice-President (Finance, Accounting, Taxation and Valuation Department)
 H. J. Forster, Secretary-Treasurer

Board of Directors

J. J. Pelley, Chairman (ex-officio).
 L. W. Baldwin, Chief Executive Officer, Missouri Pacific Lines.
 G. D. Brooke, President, Chesapeake & Ohio Railway.
 M. W. Clement, President, Pennsylvania Railroad Company.
 Geo. B. Elliott, President, Atlantic Coast Line Railroad Company.
 E. J. Engel, President and Chairman of Executive Committee, Atchison, Topeka & Santa Fe Railway.
 E. S. French, President and Chairman, Executive Committee, Boston & Maine Railroad and Maine Central Railroad Company.
 F. J. Gavin, President, Great Northern Railway.
 J. B. Hill, President, Louisville & Nashville Railroad.
 W. M. Jeffers, President, Union Pacific Railroad.
 A. D. McDonald, President, Southern Pacific Company.
 Ernest E. Norris, President, Southern Railway System.
 L. R. Powell, Jr., Receiver, Seaboard Air Line Railway.
 E. W. Scheer, President, Reading Company.
 M. S. Sloan, President, Missouri-Kansas-Texas Railroad.
 Daniel Willard, President, Baltimore & Ohio Railroad Company.
 R. L. Williams, Chief Executive Officer, Chicago & North Western Railway.
 F. E. Williamson, President, New York Central System.

OPERATIONS AND MAINTENANCE DEPARTMENT

C. H. Buford, Vice-President

DIVISION I—OPERATING-TRANSPORTATION

Officers

W. K. Etter, Chairman
 R. W. Brown, Vice-Chairman
 G. C. Randall, Chairman, General Committee
 L. B. Knott, Secretary

MEDICAL AND SURGICAL SECTION

Officers

Dr. A. R. Metz, Chairman
 Dr. J. Frank Dinnen, Vice-Chairman
 J. C. Caviston, Secretary

MEMBERS OF COMMITTEES

Committee of Direction

Dr. A. R. Metz, Chairman
 Dr. J. Frank Dinnen, Vice-Chairman

(Term expires in 1942)

Dr. T. L. Hansen, Chief Surgeon, Chicago, Rock Island & Pacific Railway,
 Chicago, Ill.
 Dr. G. I. Jones, Chief Surgeon, Southern Railway System, Washington, D. C.
 Dr. John McCombe, Chief Medical Officer, Canadian National Railways,
 Montreal, Canada.
 Dr. G. P. Myers, Medical Director, New York Central System, Detroit, Mich.

(Term expires in 1943)

Dr. Harvey Bartle, Chief Medical Officer, Pennsylvania Railroad, Phila-
 delphia, Pa.
 Dr. J. Frank Dinnen, Chief Surgeon, Erie Railroad, Cleveland, Ohio.
 Dr. Donald Guthrie, Chief Surgeon, Lehigh Valley Railroad, Sayre, Pa.
 Dr. E. V. Milholland, Medical and Surgical Director, Baltimore & Ohio
 Railroad, Baltimore, Md.

(Term e

Dr. W. J. Lancaster, Superintende
 ment, Atlantic Coast Line Rail
 Dr. A. R. Metz, Chief Surgeon, C
 Railroad, Chicago, Ill.
 Dr. John R. Nilsson, Chief Surgeon
 Dr. C. A. Walker, Chief Surgeon, S
 Calif.

Honora

Dr. A. J. Chesley, Secretary-Treas
 Health Authorities of North A
 Dr. Thomas Parran, Jr., Surgeon
 Service, Washington, D. C.

Committee on Dis

Dr. J. R. Garner (Chairman), Chief
 R. R., Atlanta, Ga.
 Dr. J. D. Collins, Chief Surgeon, Se
 Dr. W. W. Leake, Chief Surgeon, I
 Dr. R. A. Woolsey, Chief Surgeon, S

Representative from

Dr. G. I. Jones, Chief Surgeon, Sou

Commit

Dr. R. C. Webb (Chairman), Chic
 apolis, Minn.
 Dr. K. E. Dowd, Assistant Chief
 Montreal, Que., Canada.
 Dr. Duncan Eve., Chief Surgeon,
 Nashville, Tenn.
 Dr. O. B. Zeinert, Chief Surgeon, A

Representative from

Dr. J. R. Nilsson, Chief Surgeon, U

Committee on Developments I

Dr. O. H. Horrall (Chairman), Chi
 R. R., Chicago, Ill.
 Dr. M. L. Bishoff, Chief Surgeon, A
 Kansas.
 Dr. J. J. Brandabur, Assistant Sup
 Huntington, W. Va.
 Dr. D. E. Remsburg, Assistant Sup
 Pension Department, Norfolk

RELIEF DEPARTMENT

President

TRANSPORTATION

Committee

SECTION

Chairman

COMMITTEES

on

Chairman

2)

Rock Island & Pacific Railway,

System, Washington, D. C.

Canadian National Railways,

Central System, Detroit, Mich.

3)

Pennsylvania Railroad, Phila-

delphia, Cleveland, Ohio.

Lehigh Valley Railroad, Sayre, Pa.

Director, Baltimore & Ohio

(Term expires in 1944)

Dr. W. J. Lancaster, Superintendent and Medical Director, Relief Department, Atlantic Coast Line Railroad, Wilmington, N. C.

Dr. A. R. Metz, Chief Surgeon, Chicago, Milwaukee, St. Paul & Pacific Railroad, Chicago, Ill.

Dr. John R. Nilsson, Chief Surgeon, Union Pacific Railroad, Omaha, Nebr.

Dr. C. A. Walker, Chief Surgeon, Southern Pacific Company, San Francisco, Calif.

Honorary Members

Dr. A. J. Chesley, Secretary-Treasurer, Conference of State and Provincial Health Authorities of North America, St. Paul, Minn.

Dr. Thomas Parran, Jr., Surgeon General, Bureau of the Public Health Service, Washington, D. C.

Committee on Disability and Rehabilitation

Dr. J. R. Garner (Chairman), Chief Surgeon, Western Ry. of Alabama-Georgia R. R., Atlanta, Ga.

Dr. J. D. Collins, Chief Surgeon, Seaboard Air Line Ry., Norfolk, Va.

Dr. W. W. Leake, Chief Surgeon, Illinois Central System, Chicago, Ill.

Dr. R. A. Woolsey, Chief Surgeon, St. Louis-San Francisco Ry., St. Louis, Mo.

Representative from Committee of Direction

Dr. G. I. Jones, Chief Surgeon, Southern Railway System, Washington, D. C.

Committee on Fractures

Dr. R. C. Webb (Chairman), Chief Surgeon, Great Northern Ry., Minneapolis, Minn.

Dr. K. E. Dowd, Assistant Chief Medical Officer, Canadian National Ry., Montreal, Que., Canada.

Dr. Duncan Eve, Chief Surgeon, Nashville, Chattanooga & St. Louis Ry., Nashville, Tenn.

Dr. O. B. Zeinert, Chief Surgeon, Missouri Pacific R. R., St. Louis, Mo.

Representative from Committee of Direction

Dr. J. R. Nilsson, Chief Surgeon, Union Pacific R. R., Omaha, Nebr.

Committee on Developments Resulting from Physical Examinations

Dr. O. H. Horrall (Chairman), Chief Surgeon, Chicago, Burlington & Quincy R. R., Chicago, Ill.

Dr. M. L. Bishoff, Chief Surgeon, Atchison, Topeka & Santa Fe Ry., Topeka, Kansas.

Dr. J. J. Brandabur, Assistant Supervising Surgeon, Chesapeake & Ohio Ry., Huntington, W. Va.

Dr. D. E. Remsburg, Assistant Superintendent & Medical Director, Relief & Pension Department, Norfolk & Western Ry., Roanoke, Va.

Representative from Committee of Direction

Dr. Geo. P. Myers, Medical Director, New York Central System, Detroit, Mich.

Committee on Medical Aspects of Air Conditioning of Cars

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

Dr. I. S. Cutter, Chief Surgeon, Chicago & North Western Ry., Chicago, Ill.

Dr. R. S. Yancey, Medical Director, Missouri-Kansas-Texas R. R., Dallas, Texas.

Representative from Committee of Direction

Dr. E. V. Milholland, Medical and Surgical Director, Baltimore & Ohio R. R., Baltimore, Md.

ASSOCIATION OF**DIVISION I—OPER****MEDICAL AND****RULE**

1. REPRESENTATION: As representation of member roads in Chief Surgeons or other persons of Express Agency, Inc., and the Pullman Company in this Section.

2. AFFILIATED MEMBERS: collaborating or cooperating with member thereof upon the approval of him. An affiliated member shall have the same voting rights as a road representative, except voting

Officers

3. The officers of the Section shall be a President and Secretary.

(a) As provided in the Bylaws, the **VICE-CHAIRMAN** shall be a member of the Association. Their terms shall not exceed himself.

(b) The **SECRETARY** will be a member of the Division. His salary shall be determined by the approval of the Vice-President.

(c) The **COMMITTEE OF MEMBERS**, territorially representative of the Association in New England and Canada; four from the West—elected to serve for three years.

The terms of office of all members of the Committee of Direction shall expire at the close of the committee membership meeting until the next election.

In addition to the above, the Bureau of Public Health Service, and a representative to the Provincial Health Authorities of the Committee of Direction

Committee of Direction
New York Central System, Detroit,

of Air Conditioning of Cars
Department Sanitation and Surgery,
& North Western Ry., Chicago, Ill.
Missouri-Kansas-Texas R. R., Dallas,

Committee of Direction
Chief Director, Baltimore & Ohio R. R.,

ASSOCIATION OF AMERICAN RAILROADS

DIVISION I—OPERATING—TRANSPORTATION

MEDICAL AND SURGICAL SECTION

RULES OF ORDER

1. **REPRESENTATION:** As provided in the Plan of Organization, the representation of member roads in the Medical and Surgical Section shall be Chief Surgeons or other persons engaged in a similar capacity. The Railway Express Agency, Inc., and the Pullman Company are eligible for membership in this Section.

2. **AFFILIATED MEMBERS:** A representative of an organization collaborating or cooperating with the Section may become an affiliated member thereof upon the approval of his application by the Committee of Direction. An affiliated member shall have the rights and privileges accorded a member road representative, except voting or the holding of office.

Officers and Committees

3. The officers of the Section shall consist of a Chairman, Vice-Chairman and Secretary.

(a) As provided in the Plan of Organization, the **CHAIRMAN** and **VICE-CHAIRMAN** shall be selected by the Committee of Direction from its membership. Their terms of office shall be one year. A Chairman will not succeed himself.

(b) The **SECRETARY** will be appointed by the General Committee of the Division. His salary shall be named by that Committee, subject to the approval of the Vice-President, Operations and Maintenance Department.

(c) The **COMMITTEE OF DIRECTION** will consist of twelve members, territorially representative as far as practicable—one each from New England and Canada; four from the East; two from the South and four from the West—elected as hereinafter prescribed, each of whom shall serve for three years.

The terms of office of all elective members of the Committee of Direction shall expire at the conclusion of the annual meeting. Vacancies in the committee membership shall be filled by appointment of the Committee until the next election.

In addition to the above, 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 shall be honorary members of the Committee of Direction.

The Committee of Direction will select from its elective membership a Chairman and Vice-Chairman of the Section, whose terms of office shall be one year. A Chairman will not succeed himself.

(d) The Standing Committees of the Section will be as follows:

Committee on Disability and Rehabilitation

Committee on Fractures

Committee on Developments Resulting from Physical Examinations

Committee on Medical Aspects of Air Conditioning of Cars

The representation of member roads on these committees will be, so far as is practicable, territorially selected, in approximately the same proportions as that of the Committee of Direction, personnel to be named each year by the Committee of Direction immediately following adjournment of the annual meeting.

Duties of Officers

4. The **CHAIRMAN** shall have general supervision over the affairs of the Section and shall preside at meetings of the Section and at meetings of the Committee of Direction.

5. The **VICE-CHAIRMAN**, in the absence of the Chairman, shall perform the duties of the Chairman and such other duties as may be assigned.

6. (a) The **SECRETARY** shall perform the usual duties of that office and such other duties as may be assigned to him by the Chairman.

(b) He shall receive six weeks in advance of the annual meeting each year the report of the Committee on Nominations, as elsewhere provided for, and will submit to the membership at the annual meeting the nominations contained in that report, to fill the vacancies in the membership of the Committee of Direction. He shall announce the result of the election promptly to the members.

Duties of Committees

7. The **COMMITTEE OF DIRECTION** shall:

(a) Exercise general supervision over the interests and affairs of the Section.

(b) Be empowered to act on behalf of the Section in the interim between meetings and shall submit at each meeting a report covering its actions.

(c) Examine and decide what portion of communications, papers and reports shall be submitted at the meetings. It shall determine which, if any, of the subjects presented by the various committees, shall be referred to the General Committee of the Division.

(d) Appoint two months in advance of the annual meeting each year a Committee on Nominations, consisting of representatives of five member roads, who shall not be members of the Committee of Direction.

(e) Appoint additional committees as required.

(f) Submit to the Chairman, General Committee, detail of contemplated financial requirements for conducting the work of the Section as required or as called for by that official.

(g) Call annual meetings of the Section, subject to the approval of the General Committee of the Division, if in its judgment conditions warrant.

(h) Call meetings of the Section to each member. It must call request, in writing, of a majority of the members.

8. The **COMMITTEE ON NOMINATIONS** shall report to the Secretary at least once of each year, at least two nominations, to place the four members of the Committee of Direction, and to fill any vacancy. The duties of the Standing Committees shall be as follows:

9. **COMMITTEE NO. 1—THE REHABILITATION** shall study and report on such subjects that have to do with the efficiency of railroad employees. It shall make recommendations for the rehabilitation of injured or incapacitated employees.

10. **COMMITTEE NO. 2—THE REHABILITATION** shall study and report on the treatment of (a) Diagnosis of fractures, (b) Fracture report forms, (c) X-ray reports, (d) Similar subjects.

11. **COMMITTEE NO. 3—THE REHABILITATION** shall study and report on the treatment of (a) Diagnosis of fractures, (b) Fracture report forms, (c) X-ray reports, (d) Similar subjects.

12. **COMMITTEE NO. 4—THE REHABILITATION** shall study and report on the treatment of (a) Diagnosis of fractures, (b) Fracture report forms, (c) X-ray reports, (d) Similar subjects.

13. **VOTING AT MEETINGS** shall be by viva voce, by rising, by roll call or by ballot. The vote of each member shall be required to decide any question. (b) Voting for candidates for the Committee of Direction shall be by ballot. (c) The Chairman of the Section will be recognized as the voting officer.

14. **LETTER BALLOTS** may be used by the Committee of Direction and must be used for the election of property. The voting power of the owner of miles of track.

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Section will be as follows:

Rehabilitation

Resulting from Physical Examina-

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Committee of Direction.
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on, subject to the approval of the
its judgment conditions warrant.

(h) Call meetings of the Section, upon not less than thirty days' notice
to each member. It must call special meetings of the Section upon the
request, in writing, of a majority of the member roads.

8. The **COMMITTEE ON NOMINATIONS**, appointed as above prescribed,
shall report to the Secretary at least six weeks in advance of the annual meet-
ing of each year, at least two nominations for each impending vacancy to re-
place the four members of the Committee of Direction whose terms expire that
year, and to fill any vacancy.

The duties of the Standing Committees shall be as follows:

9. **COMMITTEE NO. 1—The COMMITTEE ON DISABILITY AND
REHABILITATION** shall study and report, with suggestions or recommenda-
tions, on such subjects that have to do with the physical efficiency or ineffi-
ciency of railroad employees. It shall also consider ways and means for the
rehabilitation of injured or incapacitated employees and the complete restora-
tion of function.

10. **COMMITTEE NO. 2—The COMMITTEE ON FRACTURES** shall
study and report on the treatment and transportation of fracture cases includ-
ing (a) Diagnosis of fractures, (b) First aid and transportation splints,
(c) Fracture report forms, (d) X-ray work in connection with fractures, and
similar subjects.

11. **COMMITTEE NO. 3—The COMMITTEE ON DEVELOPMENTS
RESULTING FROM PHYSICAL EXAMINATIONS** shall analyze and make
report, with recommendations or suggestions, on data made available by
periodic examinations, etc. It shall study and revise as conditions may
warrant, the recommended standards covering physical examinations as well
as the forms used in connection therewith.

12. **COMMITTEE NO. 4—The COMMITTEE ON MEDICAL ASPECTS
OF AIR CONDITIONING OF CARS** shall study and report on this subject in
its relation to the health and comfort of travelers, cooperating with other de-
partments handling matters relating to air conditioning of equipment.

13. **VOTING AT MEETINGS OF SECTION:** (a) Vote may be taken
viva voce, by rising, by roll call or by ballot. Each member road shall be
entitled to one vote. The vote of the majority of the member roads represented
shall be required to decide any question, motion or resolution, unless otherwise
ordered. (b) Voting for candidates for membership on the Committee of
Direction shall be by ballot. (c) Unless otherwise designated by it, the ranking
officer will be recognized as the voting representative of a road at any meeting.

14. **LETTER BALLOTS** may be taken upon any subject by order of the
Committee of Direction and must be taken on all questions affecting physical
property. The voting power of the member roads shall be proportionate to the
ownership of miles of track.

15. **ORDER OF BUSINESS:** The order of business at meetings of the Section shall, unless otherwise directed by a majority of the members present, be as follows:

Approval of minutes of last meeting
 Reports of Standing Committees
 Reports of Special Committee
 Reports of Tellers
 Unfinished Business
 New Business

16. Robert's Rules of order shall govern the proceedings of this Section, including amendment to these Rules of Order.

MEDICAL

Mount Royal Hotel, M

The following representativ

Members

Atlanta & West Point R. R...

Atlantic Coast Line R. R.....

Baltimore & Ohio R. R.....

Baltimore & Ohio Chicago
 R. R.....

*Bamberger R. R.....

Bessemer & Lake Erie R. R....

Canadian National Rys.....

Canadian Pacific Ry.....

Chesapeake & Ohio Ry.....

Chicago & North Western Ry.

Chicago, Milwaukee, St. Paul &
 R. R.....

Chicago, Rock Island & Pacific

Cincinnati, New Orleans &
 Pacific Ry.....

Denver & Rio Grand Western

Detroit & Toledo Shore Line R.

* Associate Member.

MEDICAL AND SURGICAL SECTION

Mount Royal Hotel, Montreal, Que., Canada, May 27-28, 1941

The following representatives were present:

Members	Representatives
Atlanta & West Point R. R.	J. R. Garner, Chief Surgeon.
Atlantic Coast Line R. R.	W. J. Lancaster, Superintendent and Medical Director, Relief Department.
Baltimore & Ohio R. R.	E. V. Milholland, Medical and Surgical Director.
Baltimore & Ohio Chicago Terminal R. R.	E. V. Milholland, Medical and Surgical Director.
*Bamberger R. R.	Spencer Wright, District Surgeon.
Bessemer & Lake Erie R. R.	R. W. Brown, Chief Surgeon.
Canadian National Rys.	John McCombe, Chief Medical Officer. Aime Chartier, Consultant. Wm. H. Delaney. K. E. Dowd, Assistant Chief Medical Officer. Emmet Duryer A. J. Gilchrist, Medical Officer in Charge of Treatment and Examinations. Keith Hutchison. J. A. Nureault. Harold N. Segall, Consultant. Archibald L. Wilkie.
Canadian Pacific Ry.	H. A. Beatty, Chief Surgeon and Medical Officer.
Chesapeake & Ohio Ry.	J. Frank Dinnen, Supervising Surgeon. J. J. Brandabur, Assistant Supervising Surgeon. Wm. E. Mishler, Assistant to Assistant Supervising Surgeon.
Chicago & North Western Ry.	Alfred J. Brown, Division Surgeon.
Chicago, Milwaukee, St. Paul & Pacific R. R.	A. R. Metz, Chief Surgeon. Alfred J. Brown, Company Surgeon.
Chicago, Rock Island & Pacific Ry.	T. L. Hansen, Chief Surgeon.
Cincinnati, New Orleans & Texas Pacific Ry.	Ralph G. Carothers, Chief Surgeon.
Denver & Rio Grand Western R. R.	Geo. H. Curfman, Chief Surgeon. R. S. Allison, Assistant Chief Surgeon. John J. Galligan, Surgeon.
Detroit & Toledo Shore Line R. R.	B. W. Stockwell, Chief Surgeon.

* Associate Member.

of business at meetings of the majority of the members present,

ing

e proceedings of this Section.

Erie R. R.....	J. Frank Dinnen, Chief Surgeon. Wm. E. Mishler, Assistant to Chief Surgeon.
Georgia R. R.....	J. R. Garner, Chief Surgeon.
Grand Trunk Western R. R.....	B. W. Stockwell, Chief Surgeon.
Gulf, Mobile & Ohio R. R.....	C. H. Ramsay, Acting Chief Surgeon.
Louisville & Nashville R. R.....	L. W. Edwards, Associate Chief Surgeon.
Missouri Pacific R. R.....	Oliver B. Zeinert, Chief Surgeon. Alfred J. Brown, Consulting Surgeon.
Montour R. R.....	Grover C. Weil, Surgeon.
Nashville, Chattanooga & St. Louis Ry.....	L. W. Edwards, Associate Chief Surgeon.
*Newburgh & South Shore Ry.....	James N. Wychael, Surgeon.
New York Central System.....	Geo. P. Myers, Medical Director.
New York, Chicago & St. Louis Ry.....	J. Frank Dinnen, Assistant Chief Surgeon. Wm. E. Mishler, Assistant to Assistant Chief Surgeon.
Norfolk & Western Ry.....	Daniel E. Remsberg, Medical Director. W. R. Whitman, Chief Surgeon. Ralph G. Carothers. R. P. Elder, Medical Examiner. H. G. Mumma, Medical Examiner. B. E. Topham, Medical Examiner.
Pennsylvania R. R.....	Harvey Bartle, Chief Medical Officer. Ralph G. Carothers.
Pere Marquette Ry.....	R. A. Kirkpatrick, General Claim Agent.
Pullman Company.....	T. R. Crowder, Director Department Sanitation and Surgery.
Reading Company.....	F. S. Ferris, Chief Medical Officer. A. Neupauer, Superintendent Philadelphia and Reading Relief Association.
St. Louis-San Francisco Ry.....	R. A. Woolsey, Chief Surgeon.
St. Louis Southwestern Ry.....	William Hibbits, Chief Surgeon.
*Salt Lake & Utah R. R.....	Spencer Wright, District Surgeon.
Seaboard Air Line Ry.....	Joseph D. Collins, Chief Surgeon.
Southern Pacific Co.-Pacific Lines.....	Calvin A. Walker, Chief Surgeon.
Staten Island Rapid Transit Ry.....	E. V. Milholland, Medical and Surgical Director.
Union Pacific R. R.....	John R. Nilsson, Chief Surgeon. Ralph M. Dodson, District Surgeon. J. D. Shingle, Surgeon. Spencer Wright, District Surgeon.
Western Ry. of Alabama.....	J. R. Garner, Chief Surgeon. also
American Association for Surgery of Trauma.....	B. Fraser Gurd, M. D., President.

*Associate Member.

Association of American Railroads

McGill University.....

Railroad Retirement Board.....

Royal Canadian Air Force.....

United States Public Health Service

Utah Ry.....

Dinnen, Chief Surgeon.
 Mishler, Assistant to Chief
 Surgeon.
 Dummer, Chief Surgeon.
 Lockwell, Chief Surgeon.
 Ramsay, Acting Chief Surgeon.
 Edwards, Associate Chief
 Surgeon.
 Zeinert, Chief Surgeon.
 Brown, Consulting Surgeon.
 Weil, Surgeon.
 Edwards, Associate Chief
 Surgeon.
 Wychael, Surgeon.
 Myers, Medical Director.
 Dinnen, Assistant Chief
 Surgeon.
 Mishler, Assistant to Assistant
 Surgeon.
 Remsberg, Medical Director.
 Litman, Chief Surgeon.
 Carothers.
 Dyer, Medical Examiner.
 Emma, Medical Examiner.
 Ham, Medical Examiner.
 Bartle, Chief Medical Officer.
 Carothers.
 Kirkpatrick, General Claim
 Agent.
 Bowder, Director Department
 of Medicine and Surgery.
 Davis, Chief Medical Officer.
 Dwyer, Superintendent Phila-
 delphia and Reading Relief Asso-
 ciation.
 Dwyer, Chief Surgeon.
 Dwyer, Chief Surgeon.
 Wright, District Surgeon.
 Collins, Chief Surgeon.
 Walker, Chief Surgeon.
 Holland, Medical and Surgical
 Director.
 Olsson, Chief Surgeon.
 Dodson, District Surgeon.
 Dwyer, Surgeon.
 Wright, District Surgeon.
 Dwyer, Chief Surgeon.
 Dwyer, M. D., President.

Association of American Railroads.....J. C. Caviston, Secretary, Medical
 and Surgical Section.
 McGill University.....C. F. Martin, B. A., M. D., C. M.,
 LL.D., Emeritus Dean of the Faculty.
 F. H. Mackay, M. D., C. M., F. R.
 C. P., Clinical Professor of
 Neurology.
 F. J. Tees, M. C., B. A., M. D., C. M.,
 F. R. C. S., F. A. C. S., Lecturer in
 Surgery.
 Railroad Retirement Board.....M. E. Lynch, Director, Retirement
 Claims.
 J. W. Callender, Chief Adjudicator.
 Royal Canadian Air Force.....G. Edward Hall, M. D., Wing
 Commander.
 United States Public Health Service.....E. J. Stieglitz, Research Associate—
 National Institute of Health.
 Utah Ry.....Martin C. Lindem, Chief Surgeon.

will be so enjoyable in Montreal that you
want to come here again to give us all the

appreciative of the fine talk that Dr. Martin
g over the hair-singed men's heads in this
ly agree with him as to the fallacy of the
sing hair by singeing the ends. (Laughter.)
e having you with us and we hope you will
meeting.

ort of the Committee on Disability and
Chairman, Chief Surgeon of the Western

(Circular M. & S. 280)

ASSOCIATION OF AMERICAN RAILROADS

MEDICAL AND SURGICAL SECTION

REPORT OF COMMITTEE ON DISABILITY AND REHABILITATION

Dr. J. R. Garner, (Chairman) Chief
Surgeon, Atlanta and West Point
Rail Road, The Western Railway of
Alabama, Georgia Railroad.
Dr. R. A. Woolsey, Chief Surgeon, St.
Louis-San Francisco Railway.
Dr. J. D. Collins, Chief Surgeon, Sea-
board Air Line Railway.

Dr. C. A. Walker, Chief Surgeon, South-
ern Pacific Company.
Dr. J. J. Brandabur, Assistant Super-
vising Surgeon, Chesapeake & Ohio
Railway.
Dr. E. C. Holmblad, Regional Surgeon,
Railway Express Agency.

Representative of Committee of Direction
Dr. Glenn I. Jones, Chief Surgeon, Southern Railway System

NEW YORK, N. Y., April 28, 1941.

TO THE MEDICAL AND SURGICAL SECTION:

The activities of your Committee on Disability and Rehabilitation hav-
ing continued during the fiscal year, a report covering same is herewith
submitted.

Committee meetings have been held as follows:

October 11, 1940, at Washington, D. C.,
February 7, 1941, at Chicago, Ill., and
April 14, 1941, at New York, N. Y.

Much of the data contained in this Report has been compiled by in-
dividual members of the Committee to whom specific subjects have been
assigned, later being reviewed, emended and approved by the Committee
as a whole.

Every year the Committee receives suggestions that it consider certain
topics. Often it is found that the subject has already been fully covered
in previous reports. When this is the case, the member suggesting such
subject is so advised with reference to the transactions of the Section
in which this may be found. Where additional information is available
the Committee reconsiders the subject and again reports thereon. Many
subjects are of such vast and continuing importance to the maintenance
of the Railway man-power that your Committee feels justified in annually
reporting upon such topics.

In this Report attention of the Medical and Surgical Section is invited
to the following:

ALCOHOLISM

Every Railroad occasionally encounters the problem of an employe
who has reported for work while under the influence of alcohol.

en value of the alcoholic content of ly determined as long as 12 hours ositive finding eliminates all doubt after injection of alcohol.

ER, ASTHMA, ETC.

employees often become most dis- lead to at least a temporary dis- se of potassium salts in such cases our Committee feels it appropriate ct.

petent observers and investigators salts (potassium chloride) in the rome, conspicuously in hay fever

to the value of potassium therapy ollowing conclusions quoted from

ucson, Arizona.)

ed from the use of potassium salts r. These salts are also used in hronic allergic sinusitis.

m chloride is apparently ineffec- however, in combination with a t curative.

on of potassium salts is simple; e noted.

s predominantly a disturbance of with some endocrine (possibly

collaborators)

practical therapeutic value in our r and seasonal asthma.

ther allergic conditions is highly

in hay fever should be received r marks of evaluation by * * *

T

potassium chloride in eighteen a.

rable.

financially unable to accommo- reatment with pollen and other

4. In all, there was decided relief from symptoms during their period of pollen exposure and in several the manifestations were reduced from severe to negligible.
5. Potassium chloride properly exhibited is beneficial to sufferers from hay fever and allergic asthma.

CARDIO-VASCULAR-RENAL-DISEASE

The subject of cardio-vascular-renal-disease is so important that it receives consideration at every meeting of your Committee and is annually included in its Report.

Unilateral kidney disease having been found to be exceedingly pro- ductive of a persistent hypertension, it is recommended that in cases where other causes for hypertension are unassignable, each kidney should be studied separately.

Dr. Drew Luten, of St. Louis, Mo., recently read a paper on the subject "The Railroad Employee With Heart Disease." This paper contains so many valuable suggestions that same is presented herewith for your con- sideration.

"In the cases of most patients, the question of the degree of func- tional activity best for disordered organs, is one of very great im- portance. In many diseases, activity must be conspicuously reduced, while in many others, at least in certain stages, it is appropriately increased. In either instance, the proper level of work becomes an important consideration for correct therapy. It is with the problem of the correct level of physical activity in railroad employees with heart disease, that this paper is concerned.

"According to the appropriate degree of physical activity, the **Nomenclature and Criteria for Diagnosis of Diseases of the Heart**, adopted by the American Heart Association, puts a cardiac patient into one of five classes.

"In Class A, are those patients whose physical activity needs no restriction.

"In Class B, are those who need no restriction of ordinary physical activity, but who should be advised against unusually severe effort.

"Class C, is composed of those who need some restriction even of ordinary activity.

"Class D, comprises patients whose ordinary physical activity must be greatly reduced.

"In Class E, are those who should be at complete rest.

"Before deciding into which of these classes a patient belongs, i.e. before reaching a proper 'Therapeutic Classification' so far as ac- tivity is concerned, various data must be taken into account. A very important consideration is the degree of physical activity that can be tolerated without discomfort, i.e. the 'Functional Capacity', as the Criteria calls it. Four classes of patients divided on the basis of functional capacity are given: In Class I are those who experience no discomfort on ordinary physical activity. They have neither pain nor dyspnoea. In Class II are those patients who experience dis- comfort of some sort even on ordinary physical activity. This may take the form of dyspnoea, undue fatigue, or pain. In other words there may be cardiac insufficiency of angina. Class III is comprised

ALLERGY:—HAY FEVER, ASTHMA, ETC.

The attitude of the pros and cons as to the value of potassium therapy in allergy is clearly stated in the following conclusions quoted from monographs on the subject:

Pro (BENSON BLOOM of Tucson, Arizona.)

- “1. Striking benefit was obtained from the use of potassium salts in twenty-nine cases of hay fever. These salts are also used in urticaria, eczema, nasal polyposis, chronic allergic sinusitis.
2. In chronic asthma potassium chloride is apparently ineffective; the use of potassium iodide, however, in combination with a salt-poor diet, seems helpful but not curative.
3. The method of administration of potassium salts is simple; no complication or ‘side effects’ were noted.
4. It is suggested that allergy is predominantly a disturbance of electrolyte metabolism associated with some endocrine (possibly adrenal) dysfunction.”

Con (SIMON S. RUBIN and collaborators)

1. Potassium salts were of no practical therapeutic value in our series of 153 patients with hay fever and seasonal asthma.
2. The effect of such salts in other allergic conditions is highly questionable.
3. Reports of therapeutic results in hay fever should be received with skepticism unless they bear ear marks of evaluation by * * * pollinosis checks and surveys."

COMMENT

1. One carrier surgeon has exhibited potassium chloride in eighteen cases of hay fever and allergic asthma.
2. The results have been uniformly favorable.
3. The cases treated and observed were financially unable to accommodate themselves to allergy tests and treatment with pollen and other extracts.

CARDIO-VASC

Dr. Drew Luten, of St. Louis,
"The Railroad Employee With
many valuable suggestions that
sideration.

"In the cases of most patients, physical activity best for the patient is of importance. In many diseases, the level of activity is decreased while in many others, at least some activity is increased. In either instance, the level of activity is of important consideration for the physician. In the case of the heart disease, that this patient

"According to the approved Nomenclature and Criteria adopted by the American I into one of five classes.

"In Class A, are those p
restriction.

"In Class B, are those who have some activity, but who should be

"Class C, is composed of ordinary activity.

"Class D, comprises pat must be greatly reduced.

"In Class E, are those wh
"Before deciding into wh.

before reaching a proper activity is concerned, various very important considerations can be tolerated without discomfort as the Criteria calls it. For example, the loss of functional capacity are generally not accompanied by discomfort or ordinary dyspnoea. In Class II, however, the loss of functional capacity is accompanied by discomfort of some sort even though it may take the form of dyspnoea, there may be cardiac insufficiency.

of patients who are comfortable at rest, but experience discomfort on less than ordinary activity. Class IV comprises patients who are uncomfortable even at rest.

"It is obvious that this 'functional' classification must depend almost entirely upon the history. It is the extent of the symptoms that determines functional classification, not the presence or absence of physical signs. A patient whose capacity for physical activity is conspicuously limited because of discomfort that arises on less than ordinary activity is put in Functional Capacity Class III, whether he exhibits abnormal physical signs or not.

"It must be kept in mind furthermore that a determination of functional capacity is not the only requisite for correct therapeutic classification. Other considerations, such as the anatomical and the etiological diagnoses, may be very important. A patient convalescing from a recent infectious disease, for example, might experience no symptoms on ordinary activity, and consequently be put in functional capacity class I; but, for a time at least, as a protective measure, his doctor, keeping in mind the etiological diagnosis, might put him in therapeutic class C or D. A man with an aneurysm might be without symptoms of any sort, but this fact would not place him in therapeutic class A. Regard for the anatomical diagnosis would give him a lower classification.

"In the cases of railroad employes, proper advice with respect to activity must take into account also still another factor not considered in the Heart Association's *Criteria for Diagnosis*. It is not enough for the doctor to know the quantity of work involved in the patient's occupation; he must know the quality of it. His advice must consider not only the question of harm to the patient but also the question of injury to others.

"The obligation of the physician in private practice always is primarily to the patient, the doctor-patient relationship being confidential. It is true that the private physician must not offer advice contrary to law, and his advice to the patient must not conflict with the public interest; but such considerations are secondary. His responsibility is to the patient. His advice is for the patient's welfare.

"The public health physician, on the other hand, is concerned with the welfare of the community. Public Welfare comes first, even though it involve some inconvenience to the individual. The physician cannot make or enforce regulations that work undue hardship on the individual, but his regard for the individual is secondary, his primary obligation being to prevent injury to the public.

"In the complexities of modern industry both viewpoints are essential. The industry must not hurt the individual, the individual must not hurt the industry or the public. The advice of the physician to the railroad employe with heart disease regarding his activity must consider the patient's welfare. He must not be allowed to injure himself. This advice, this therapeutic classification of the patient, must keep in mind also the obligation not to allow injury to others. In most instances these viewpoints in no wise conflict.

"In this connection it should be noted that correct therapeutic classification may be influenced by the history of certain clinical

syndromes, with or without out accompanying evidence history of Adams-Stokes attack on himself. If his work is such as to injure to others, he must be fact also in mind. The same dizziness or fainting attack sinus.

"The more common syndrome (congestive heart failure), associated with sudden attacks of cardiac insufficiency, is primarily to the patient himself and dyspnoea of cardiac insufficiency classification because of his such cases there may be real danger to the heart. During a period of such cases there may be a matter of great difficulty in maintaining functional capacity that soon with physical work. Here again the all important item. For heart failure might find his to be relieved of duty. After very few evidences of the impossible for him to continue most cases, would make it therapeutic classification was incapable of maintaining.

"Many patients with anginal, roentgenological, or coronary artery disorder responsible in the cases of patients who are incapacitated, it is my feeling of the patient is served best by occupation, and by helping himself to it, so that, in many effectively as before the onset of physical aspects of disease the psychic and the physical good therapy. Sudden death consideration emphasized since however, should be emphasized of continuing at work indefinitely free.

"In the cases of many syndromes that presuppose the seriousness, the risk of injury to people is but little increased by his usual occupation. If he of the factors which precipitate may well be encouraged to

at rest, but experience discomfort. Class IV comprises patients who are 'functional' classification must depend on the extent of the symptoms, not the presence or absence of capacity for physical activity or discomfort that arises on less than Functional Capacity Class III, or physical signs or not.

Furthermore that a determination of the requisite for correct therapeutic measures, such as the anatomical and the important. A patient convalescing, for example, might experience no discomfort and consequently be put in functional Class I, at least, as a protective measure, his physical diagnosis, might put him in Class II, with an aneurysm might be without discomfort and would not place him in therapeutic Class III. Anatomical diagnosis would give him

proper advice with respect to work, but also still another factor not considered. **Criteria for Diagnosis.** It is not the quantity of work involved in the work, but the quality of it. His advice should be of harm to the patient but also

in private practice always is the patient-physician relationship being considered. The physician must not offer advice that the patient must not conflict with his own. His considerations are secondary. His advice is for the patient's welfare. On the other hand, is concerned with the public welfare comes first, even at the expense of the individual. The physician's duty that work undue hardship for the individual is secondary, but injury to the public.

In industry both viewpoints are present. For the individual, the individual physician. The advice of the physician regarding his activity. He must not be allowed to injure the patient's classification of the patient, but not to allow injury to others. In no wise conflict.

It is noted that correct therapeutic measures depend on the history of certain clinical

syndromes, with or without associated discomfort, and with or without accompanying evidences of heart disease. A patient with a history of Adams-Stokes attacks must be protected from injury to himself. If his work is such that a fainting attack might cause injury to others, he must be given a work classification with that fact also in mind. The same considerations apply to an employee with dizziness or fainting attacks due to hyperirritability of the carotid sinus.

"The more common syndrome of cardiac insufficiency (so-called congestive heart failure), on the other hand, is less likely to be associated with sudden attacks or unconsciousness. In uncomplicated cases of cardiac insufficiency, consideration properly is directed primarily to the patient himself. An employee with the congestion and dyspnoea of cardiac insufficiency must receive a low therapeutic classification because of his very inability to do hard work. In some such cases there may be relatively few signs referable directly to the heart. During a period of improvement from inactivity, it might be a matter of great difficulty to determine the low level of functional capacity that soon would become apparent under the test of physical work. Here again the history of previous failure may be the all important item. For example, a man with early congestive heart failure might find his work too hard for him, and might have to be relieved of duty. After an interval of rest he might present very few evidences of the cardiac insufficiency that had made it impossible for him to continue his work. The history, however, in most cases, would make it very unwise to assign him again to a therapeutic classification which experience already had shown him incapable of maintaining.

"Many patients with angina pectoris present few evidences, physical, roentgenological, or electrocardiographical, of the coronary artery disorder responsible for their symptoms. As a general rule in the cases of patients with angina who are not altogether incapacitated, it is my feeling that, all things considered, the welfare of the patient is served best by encouraging him to continue in his occupation, and by helping him to modify his work and adjust himself to it, so that, in many instances, he is enabled to carry on as effectively as before the onset of symptoms. The psychic and the physical aspects of disease cannot be sharply separated, nor can the psychic and the physical details of therapy. Encouragement is a good therapy. Sudden death in angina is always possible, a consideration emphasized since the time of Heberden. To the patient, however, should be emphasized the other possibility,—the possibility of continuing at work indefinitely and even of becoming symptom free.

"In the cases of many patients with angina, or with other syndromes that presuppose the possibility of sudden death or unconsciousness, the risk of injury to any considerable number of other people is but little increased by allowing the patient to continue at his usual occupation. If his work involves no particular increase of the factors which precipitate his attacks, therefore, the patient may well be encouraged to continue at it. But in the case, for ex-

ample, of a trainman, a dispatcher, or a switchman on the main line, primary obligation to the patient obviously cannot supersede obligation to the public welfare."

CHEMOTHERAPY

There have been many advances in the subject of Chemotherapy since the last annual meeting of this Section. We are particularly interested in the treatment of traumatic conditions by these new drugs.

Dr. Robert W. Johnson, of Baltimore, Md., writing in the American Journal of Surgery, July, 1940, says—"We have used sulfanilamide in a total of 36 very severe, contaminated, compound fractures and have found it a safe and effective drug for the prevention of streptococcus and gas bacillus infections. The use of chemotherapy complements but does not replace necessary surgical procedures." The method of treatment recommended by Dr. Johnson is as follows:

- (1) "No omission or modification of thorough surgical toilet of the wound and debridement of necrotic tissue is to be countenanced."
- (2) "Early and adequate reduction and splinting of the fracture are as important as ever."
- (3) "Antitetanus serum with or without supplemental sera is to be given."
- (4) "A large initial dose of sulfanilamide—60 to 80 gr.—with equal quantity of sodium bicarbonate is to be given as soon as possible. Oral administration is to be preferred, otherwise hypodermoclysis or stomach tube in anesthetized patient after lavage, is used."
- (5) "Subsequent doses are of 10-20 gr. every 4 hours, given with sodium bicarbonate, for 3 to 10 days."
- (6) "A daily check is made by the Marshall colorimetric test of blood sulfanilamide level to assure maintenance of effective level at the lowest dosage. A level of 5 to 8 mg. per 100 cc. is sufficient for prophylactic effect."
- (7) "Quicker absorption is obtained in initial dose from crushed rather than whole commercial tablets. The tablets can be chewed or given powdered in capsules."

CHANGING CONCEPTS IN CHEMOTHERAPY

Since sulfanilamide was discovered, it has undergone many changes and modifications. These modifications have been brought about through chemical manipulations of the molecule, resulting in entirely different synthetic compounds which were given various names. The object in producing these changes in structure was to develop a product more toxic to infecting organisms and less toxic to the host. These new compounds varied in their toxicity, solubility and range of therapeutic effectiveness. These changes direct and limit our use of the new drugs as they appear.

DENTAL DISEASES

Under date of October 31, 1940, your Committee sent out to the Chief Surgeons of member Lines a questionnaire asking for—

- (1) The incidence of dental diseases (caries and periodontal infection) among Railroad employees.

- (2) Your experience as to the

Forty-seven replies to this question of the answers to the first question 19.4% had some form of dental

The answers to question No. 1 disabilities, attributed directly or would be impossible to tabulate. We have noted the detrimental effect on general health of the employees.

It is recommended that closer attention be given to employees' teeth, and that proper care be taken where disease or defects are noted.

DI

With reference to the subject of dental occupations, Dr. W. H. Olmsted has a treatise on this subject which is herewith:

"There is an incidence of diabetes between the ages of 45 to 54 of ages of 55 to 64 the incidence group of workers, particularly there will be many who are frequently found. It is fair to treat diabetes that 80 to 90 insulin for their proper treatment."

"I should first like to speak of the efficiency of workers in hazardous occupations where carbohydrate metabolism does the disease is severe and it is not able to carry on and well involved. It is not so much that interfere with the efficiency of diabetics die of some form of disease 65 years. These complications of apoplexy, coronary sclerosis and diabetes occurs usually late in life of life in this disease is at least diabetes at 50 ought to live to 70 man should probably live to 80 we see arteriosclerosis develop in diabetic population."

"Because arteriosclerosis is caused by a man with arteriosclerosis capped in other ways which is in hazardous occupations, I think those engaged in train service particularly along the following lines: 1. The blood pressure is too high. 2. The urine shows

patcher, or a switchman on the main line. The patient obviously cannot supersede obligations.

CHEMOTHERAPY

in the subject of Chemotherapy since the Medical Section. We are particularly interested in the conditions by these new drugs. Dr. J. H. Baltimore, Md., writing in the American Journal of Hygiene says—"We have used sulfanilamide in the treatment of compound fractures and have found it very useful for the prevention of streptococcus infection. The use of chemotherapy complements but does not supersede the surgical procedures." The method of treatment is as follows:

1. Thorough surgical toilet of the wound. Necrotic tissue is to be removed. Splinting of the fracture is to be done.

2. Without supplemental sera is to be given.

3. Sulfanilamide—60 to 80 gr.—with equal parts of sodium bicarbonate is to be given as soon as possible. If preferred, otherwise hypodermoclysis of 5 per cent sodium bicarbonate solution, is used.

4. 10-20 gr. every 4 hours, given with water, to 10 days."

5. The Marshall colorimetric test of blood is to be maintained at an effective level at the rate of 5 to 8 mg. per 100 cc. is sufficient for the purpose.

6. Tablets in initial dose from crushed rather than whole tablets. The tablets can be chewed or dissolved in water."

RESULTS IN CHEMOTHERAPY

Chemotherapy, it has undergone many changes and has been brought about through chemical synthesis resulting in entirely different synthetic compounds. The object in producing these new compounds is to develop a product more toxic to infection than the host. These new compounds varied in degree of therapeutic effectiveness. These are the new drugs as they appear.

DISEASES

Your Committee sent out to the Chief of the Medical Section a questionnaire asking for—

1. Diseases (caries and periodontal infection)

(2) Your experience as to the effect resulting from these conditions.

Forty-seven replies to this questionnaire were received. A compilation of the answers to the first question showed that of all cases reported, 19.4% had some form of dental disease.

The answers to question No. 2 were so varied and covered so many disabilities, attributed directly or indirectly to dental disease, that it would be impossible to tabulate same in this report. All Lines reporting have noted the detrimental effect produced by dental diseases upon the general health of the employees.

It is recommended that closer attention be paid to the conditions of employees' teeth, and that proper dental care be urged in every case where disease or defects are noted.

DIABETES

With reference to the subject of diabetes in workers engaged in hazardous occupations, Dr. W. H. Olmsted of St. Louis, Mo., recently presented a treatise on this subject which is so forceful that same is incorporated herewith:

"There is an incidence of diabetes in those of the population between the ages of 45 to 54 of 6.6 per thousand in those between the ages of 55 to 64 the incidence is 14 per thousand. Thus in any group of workers, particularly in those where priority is the rule, there will be many who are in the age groups where diabetes is frequently found. It is fairly well agreed among those who are treating diabetes that 80 to 90 per cent of the cases will require insulin for their proper treatment.

"I should first like to speak on the effect of diabetes itself on the efficiency of workers in hazardous occupations. The derangement of carbohydrate metabolism does not in itself handicap workers unless the disease is severe and it is a common experience that diabetics are able to carry on and work even in fields where manual labor is involved. It is not so much diabetes itself but its complications that interfere with the efficiency of workers. Sixty per cent of the diabetics die of some form of arteriosclerosis at the average age of 65 years. These complications are gangrene of the lower limbs, apoplexy, coronary sclerosis and arteriosclerotic nephritis. However, diabetes occurs usually late in middle age and today the expectancy of life in this disease is at least 12 years. Thus the man who acquires diabetes at 50 ought to live to at least 62 years, whereas the normal man should probably live to 70. It is in the younger diabetics that we see arteriosclerosis develop at an earlier age than in the non-diabetic population.

"Because arteriosclerosis is so apt to complicate diabetes and because a man with arteriosclerosis is apt to die suddenly or be handicapped in other ways which interfere with his efficiency particularly in hazardous occupations, I believe that every diabetic, especially those engaged in train service, should have yearly examinations particularly along the following lines: 1. The heart should be examined, the blood pressure taken and a chest film and electrocardiogram made. 2. The urine should be examined for albumin and casts

and the blood examined for non-protein nitrogen. 3. Ophthalmoscopic examination of the eyes should be done to detect the early appearance of diabetic retinitis.

THE USE OF INSULIN BY DIABETICS IN HAZARDOUS OCCUPATIONS

"Dr. Marble in Joslin's book says, 'Insulin reactions constitute one of the major problems in the treatment of diabetes.' There is no doubt of the truth of this statement. Insulin reactions are manifested largely by neurological symptoms but the pattern of reactions is not constant in different individuals nor in the same individual having reactions at different times. Some of the symptoms commonly seen are: hunger, nervous instability, sweating, numbness and tingling of the tongue or lips, double vision, headache, faintness, tremor, unsteady gait, somnolence, unconsciousness, convulsions. In discussing the question of the use of insulin by workers in hazardous occupations, I shall ask a series of questions and then try to answer them.

"Why is the nervous system so susceptible to hypoglycemia? The brain and presumably other nervous tissue depend wholly for their energy needs on sugar. Nervous cells cannot burn protein or fat. In addition to this fact, there is no storage of sugar or glycogen in nervous tissue. Therefore, the brain is dependent on a continuous supply of sugar. This means that when the level of the blood sugar is reduced, the metabolism of nervous tissue almost immediately suffers.

"Is there any correlation between a level of hypoglycemia and the degree or the kind of nervous symptoms? Usually symptoms occur only when the blood sugar falls below 70 mgs. per cent of true sugar. But there is no exact relation between the severity of symptoms and the severity of hypoglycemia. One frequently finds blood sugar levels of from 30 to 50 mgs. per cent without any symptoms at all. But on the other hand, one never observes symptoms without the finding of a low blood sugar. At one time a patient may show severe symptoms with the blood sugar at a level of 50 mgs. per cent while at another time he may show no symptoms with the level at 30 mgs. per cent.

"Is the nature of hypoglycemic symptoms such that the individual is not responsible for his actions? I believe the answer to this question is yes for these reasons: 1. The individual after insulin reactions often has no memory for what he has done or said during the attack. 2. During the attack, he says and does things entirely foreign to his normal state of mind. 3. During a reaction, he lacks control of his muscles and it is a common observation that the diabetic may have in his pocket sugar wafers but he fails to use them because either he forgets to do so or he cannot control his hand sufficiently to take the sugar from his pocket and put it in his mouth.

"Can the diabetic tell when an insulin reaction is approaching? Not always. Perhaps in 4 out of 5 instances, he is aware of the approach of a reaction but the 5th time catches him so unaware

that he is in the reaction without to find that even the most intelligent detect the approach of an insulin come on gradually with nervousness can easily recognize but again it with amazing suddenness.

"Can insulin reactions be total always carries a high blood sugar or takes such a small dose that diabetics are given the best possible insulin and even if the latter be he will, nevertheless, have occasional who is taking insulin and providing blood sugar at a level where occasional reactions cannot be to may cause even the well treated unusual exercise or forgetting to what he eats. Human nature being predispose to a low blood sugar

"Has the use of protamine zinc actions and the severity of the both questions. However, although insulin fewer reactions occur, will be prolonged and there is reaction patient out of the reaction the modified form of insulin does not severe reaction.

CONC

"When an employee of a railroad judgment, his senses, and his nerves in all respects and at all times, mellitus. If employees are allowed viding they do not take insulin result in such diabetics being because he has diabetes, he will postpone often to his own detriment. If tained that once the diagnosis of is transferred from a hazardous there is no reason why his diabetes if such is needed. There is no non-hazardous jobs can be dependent to do work with customary efficiency

EPILEPSY AND EPILEPSY

While epilepsy has long been studied upon in many past reports, has been limited to cases of grand-mal. be of more importance in connection

protein nitrogen. 3. Ophthalmoscopic
be done to detect the early appear-

DIABETICS IN HAZARDOUS POSITIONS

As says, 'Insulin reactions constitute
the treatment of diabetes.' There is
statement. Insulin reactions are mani-
symptoms but the pattern of reactions
individuals nor in the same individual
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ability, sweating, numbness and tin-
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vicious tissue depend wholly for their
cells cannot burn protein or fat.
no storage of sugar or glycogen in
brain is dependent on a continuous
t when the level of the blood sugar
nervous tissue almost immediately

When a level of hypoglycemia and the
symptoms? Usually symptoms occur
below 70 mgs. per cent of true
relation between the severity of
hypoglycemia. One frequently finds
to 50 mgs. per cent without any
other hand, one never observes symp-
blood sugar. At one time a patient
the blood sugar at a level of 50
time he may show no symptoms

If symptoms such that the individual
I believe the answer to this ques-
The individual after insulin re-
what he has done or said during
he says and does things entirely
and. 3. During a reaction, he lacks
a common observation that the
sugar wafers but he fails to use
to do so or he cannot control his
far from his pocket and put it in

insulin reaction is approaching?
5 instances, he is aware of the
the time catches him so unaware

that he is in the reaction without being aware of it. It is interesting
to find that even the most intelligent men and women cannot always
detect the approach of an insulin reaction. Insulin reactions often
come on gradually with nervousness or jitteriness which the patient
can easily recognize but again the patient goes abruptly into coma
with amazing suddenness.

"Can insulin reactions be totally prevented? Yes, if the diabetic
always carries a high blood sugar and if he neither takes insulin
or takes such a small dose that a reaction is not likely. However, if
diabetics are given the best possible treatment with both diet and
insulin and even if the latter be administered with the utmost care,
he will, nevertheless, have occasional insulin reactions. In the patient
who is taking insulin and providing an effort is made to keep the
blood sugar at a level where sugar will not appear in the urine,
occasional reactions cannot be totally excluded. The situations which
may cause even the well treated diabetic to have reactions are;
unusual exercise or forgetting to eat all of his meal or to measure
what he eats. Human nature being what it is, these situations which
predispose to a low blood sugar are bound to occur.

"Has the use of protamine zinc insulin reduced the number of re-
actions and the severity of the reactions? The answer is yes to
both questions. However, although with the use of this modified
insulin fewer reactions occur, when they do they are more apt to
be prolonged and there is really more difficulty in getting the
patient out of the reaction than with regular insulin. The new
modified form of insulin does not guarantee the diabetic against a
severe reaction.

CONCLUSIONS

"When an employe of a railroad occupies a position where his
judgment, his senses, and his neuro-muscular control must be normal
in all respects and at all times, he should not suffer from diabetes
mellitus. If employes are allowed to hold hazardous positions pro-
viding they do not take insulin, such a policy in my opinion will
result in such diabetics being badly treated. If the employe knows
he has diabetes, he will postpone taking insulin as long as possible,
often to his own detriment. If on the other hand, a rule is main-
tained that once the diagnosis of diabetes is established, an employe
is transferred from a hazardous job to some other position, then
there is no reason why his diabetes cannot be treated with insulin
if such is needed. There is no doubt in my mind that diabetics in
non-hazardous jobs can be depended upon, even if they take insulin,
to do work with customary efficiency."

EPILEPSY AND EPILEPTIC EQUIVALENTS

While epilepsy has long been studied by your Committee, and com-
mented upon in many past reports, attention has, heretofore, practically
been limited to cases of grand-mal. It is felt that minor epilepsy may
be of more importance in connection with Railway employes than are

the major seizures. The latter being almost always detected and reported, whereas there are many instances in which an employe momentarily loses consciousness and yet manifests no evidence of a typical epileptic seizure. These momentary inhibitions are probably manifestations of a mild epilepsy and may be classed as "epileptic equivalents." Such conditions create an intense hazard in Railway service.

The following data upon epilepsy and epileptic equivalents are worthy of consideration.

Bates Block in an exhaustive study on epilepsy as reported in "Tices Practice of Medicine" list from work of Leftwich eighty diseases in which convulsions occur.

So-called idiopathic epilepsy; i.e., the convulsive syndrome which we identify by the irregular recurrence of attacks of loss of consciousness of varying duration accompanied by the classical general muscle spasm, the mouth frothing, and tongue biting can be no problem in identification and disposition except that documentary evidence is almost always a necessary and therefore invaluable item in the medico-industrial history. Definitely established grand mal in a railroad employe engaged with operation so convincingly demonstrates intolerance of his continuance on the basis of hazard and insecurity that the one difficulty that harasses a medical supervisor is accurate history of the occurrence of the epileptic convulsive seizure and his indisputable identification of it as epilepsy.

The transiency of petit mal seizures and the fact that epileptic stig-mata are not so commonly encountered among its sufferers as in grand mal makes the establishment of a diagnosis considerably more difficult and hence disposition of the employe more embarrassing and complex.

The epileptic equivalents either as substitutive manifestations for the classical grand or petit mal attacks or as a part of the epileptic constitution are troublesome medical problems particularly when manifested as narcolepsy or as emotional outbursts.

The most common and important sequel of epilepsy is mental deterioration. The degree and progress of deterioration is in almost direct proportion to the frequency of attacks. Mental enfeeblement is more often associated with petit than with grand mal.

In the Lumeleian Lectures for 1928, Collier makes the following observation:

"So far as the so-called 'idiopathic' epilepsy which thus effects man and the animals is concerned, no pathological changes have been found upon which any hypothesis as to the nature of epilepsy can be built up. The findings have been for the most frankly negative, or such changes as have been found in severe and long-standing cases as may be reasonably attributed to long-lasting disorder of function."

Attention has, therefore, turned to the possibility of finding an explanation of epilepsy in some perversion of the chemistry of life. Some metabolic dyscrasia which may lead to the presence of substances within the system which act upon the nervous system as do convulsant poisons and which may further, by depriving the nervous system of its customary activations, cause, in some cases, a progressive impairment of the higher functions of the nervous system.

Epileptiform or epileptoid seizure way with epilepsy as a major or n of diseased conditions, and confusi serious and important symptom of epilepsy must be avoided.

The diseases in which epileptiform mon and alarming episode are:

- a. Para lues.
- b. Anoxemia—physiologic or pa
- c. Diabetes.
- d. Insulin shock.
- e. Uraemia.
- f. Neurologic hyperinsulinism.
- g. Cerebro-arteriosclerosis.

None of these represents a particul surgery with the possible exception Birmingham, Alabama, has studied monographs. He reports, in introdu case reports:

"I desire it distinctly underst insulinism is the cause of epilep etiological factor in any case of a patient with the epileptic, pre ing from hyperinsulinism may b convulsive seizures."

Harris and others have conclusive insulinism in the production of a epileptiform convulsive seizures are studied a number of cases of convu found in all very low blood sugar lev Leon J. Robinson comments on e follows:

"The finding of a hypoglycem 'epilepsy' is not sufficient evide glycemic epilepsy.

"Diagnosis must be based on t tory findings. Outstanding is th the ingestion of food, for the cor the fasting states; at night or been depleted by exercise. Often seizures by ingesting food at fre tory symptoms of hunger, faintn

FOCI OF INFECTION

The subject of focal infection is s road medical supervision that, even i vious reports, a review of the subje

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- e. Uraemia.
- f. Neurologic hyperinsulinism.
- g. Cerebro-arteriosclerosis.

None of these represents a particular problem in industrial medicine and
surgery with the possible exception of hyperinsulinism. Seale Harris of
Birmingham, Alabama, has studied this condition and reported several
monographs. He reports, in introducing a presentation of patients and
case reports:

"I desire it distinctly understood that I do not believe that hyper-
insulinism is the cause of epilepsy. Nor do I think that it is the sole
etiological factor in any case of epilepsy. I believe, however, that in
a patient with the epileptic, predisposition, the hypoglycemia result-
ing from hyperinsulinism may be a precipitating factor in producing
convulsive seizures."

Harris and others have conclusively established the influence of hyper-
insulinism in the production of a characteristic syndrome in which
epileptiform convulsive seizures are a prominent symptom. Harris has
studied a number of cases of convulsive seizures in hyperinsulinism and
found in all very low blood sugar levels.

Leon J. Robinson comments on epilepsy of hypoglycemic genesis as
follows:

"The finding of a hypoglycemic blood sugar level in a case of
'epilepsy' is not sufficient evidence to justify a diagnosis of hypo-
glycemic epilepsy.

"Diagnosis must be based on the whole clinical picture plus labora-
tory findings. Outstanding is the time relationship of symptoms to
the ingestion of food, for the convulsions occur predominantly during
the fasting states; at night or when the carbohydrate stores have
been depleted by exercise. Often the patient learns that he can abort
seizures by ingesting food at frequent intervals or when the premoni-
tory symptoms of hunger, faintness or sweating appear."

FOCI OF INFECTION

The subject of focal infection is so important in connection with rail-
road medical supervision that, even though included in a number of pre-
vious reports, a review of the subject is deemed essential at this time.

Foci of infection should be considered primary and secondary. Of the
former, colon, teeth, tonsils and nasal accessory sinuses are most impor-
tant in the order named. Of the latter, which just as surely produce simi-

lar changes are the genito-urinary tract, biliary tract, etc. These are usually of hematogenous origin and are secondary to the primary infections. While the genito-urinary system may be a primary focus in specific infections, it is secondary in 65% of the cases and directly traceable to the colon.

We believe the colon to be one of the most common yet least suspected foci of infection that exists in the human body and think it worthwhile to discuss briefly the various conditions found to exist therein. We must assume that the most important function of a sound organ is its ability to properly eliminate and that a great percentage of human ailments is due directly or indirectly to a cessation or impairment of this function. Physiologically speaking the colon has two distinct functions and it may be said that it is divided into two distant segments for the purpose of these functions. From the cecum to the splenic flexure or highest portion, the function of the colon is highly absorptive. While from the splenic flexure to the rectum its function is principally eliminatory. The first segment may be termed the absorptive colon; the second segment may be termed the motor colon. When liquefied food matter leaves the small intestine and enters the cecum, the colon immediately commences to absorb the greater portion of the liquid so that when the feces arrive at the motor colon it is semi-solid in character. In this human sewer there are countless millions of bacteria and an immense amount of toxins bathing large areas. The cecum is the site of the greatest bacteriological activity that takes place in the intestinal canal and nearly all of the bacteria are found viable. Absorption of these toxins and bacteria are greater when normal elimination is interfered with, in such instances as cecal or colonic stasis or when the normal defensive power is lessened as in enteritis.

Focus of infection may truly be present but not the cause of the disease of which the patient complains. It may be the cause of the disease and yet be removed too late to affect an already firmly seated disease, and the misplaced zeal on the part of the profession might cause the theory of focal infection as the cause of disease to become discredited. The fact that one finds bad teeth or tonsils in looking for foci of infection does not mean that they are responsible for certain arthritic changes since their removal may not influence the arthritis. These focal infections, however, if possible should be eradicated when and if the patient's condition permits regardless of the question of the cause and effect. Given two patients with chronic arthritis of equal intensity a better clinical result is to be expected from removal of the virulent focus in an individual with good resistance than for the removal of mild infection in the individual of low resistance. From the standpoint of prevention the favorable time for removal is before the appearance of its results. Structural changes may be prevented but may not be returned to normal by elimination of the focus.

Haden has proven that thousands of teeth that are symptom free and that are roentgenographically negative are found in the laboratories to be infected. He also has proven that the teeth and their surrounding tissues play a much greater part in the adult life than do the tonsils.

Head has shown that nerve fibres ending in the prostate and seminal vesicles arise from the 10th dorsal to the 3rd sacral segments, hence pain

in the back in which there are we find due to lack of drainage relieved by proper treatment.

Nearly all cases of acute articular standing exceptions are those of the joint symptoms are seeming.

The subject is broad. Conditions, for example, are many and varied in many cases of hyperinfection. The incidence of such instances of pernicious anemia, are proven results of focal infection produces total disability of the system. Conclusions:

1. Remediable foci of infection
2. Programs of education and aid in the improvement of general efficiency, and reduce the incidence
3. Practically all railroad occupational nervous capacity to perceive and conclude, in action, effectual expenditure of nervous energy, autonomic nervous system and display. Foci of infection may changes in the heart and blood system accentuate and hasten

Attention directed toward the future to the end that October may be happy and contented reduced by focal infection.

The subject of hernia has again Nothing novel has developed but that hernia is an incident to—operations.

MAN-FAILURE IN CO

In the 1940 Report, a study was made by the I.C.C. within a period of of these accidents were found to be while the remaining 16 were a and resulted in 15 deaths and 15

Since that Report, a total of Reports of investigated accidents able causes, and 61 were direct

The 9 accidents due to unavailing injuries; whereas, the 61 accidents deaths and 836 personal injuries

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in the back in which there are roentgenologically no arthritic changes, we find due to lack of drainage of these glands. The referred pain is relieved by proper treatment.

Nearly all cases of acute arthritis are due to micro-organisms. Outstanding exceptions are those of serum disease and acute gout in which the joint symptoms are seemingly entirely chemical in origin.

The subject is broad. Conditions other than arthritis, which is used as an example, are many and varied. For instance the incident of focal infection in many cases of hyperthyroidism has been proven beyond question. The incidence of such an infection is easily proven in many instances of pernicious anemia. Innumerable general systemic conditions are proven results of focal infection and it either lessens the efficiency or produces total disability of the employee.

Conclusions:

1. Remediable foci of infection are common among railroad workers.
2. Programs of education and periodic physical examinations would aid in the improvement of general health, increase work capacity and efficiency, and reduce the incidence of crippling cardio-vascular disease.
3. Practically all railroad occupations require a cultivated mental and nervous capacity to perceive quickly and accurately, to reason logically and conclude, in action, effectually and without expense to the body by the expenditure of nervous energy through unwarranted excitation of the autonomic nervous system and stress and strain effects of hyperemotional display. Foci of infection may be responsible for organic degenerative changes in the heart and blood vessels and by their effect on the nervous system accentuate and hasten crippling disabilities.

Attention directed toward the above enumerated factors may be conducive to the end that October's period in the life of railroad workers may be happy and contented through freedom from the disabilities produced by focal infection.

HERNIA

The subject of hernia has again been considered by your Committee. Nothing novel has developed but stress should be placed upon the point that hernia is an incident to—and not an accident in—industrial occupations.

MAN-FAILURE IN CONNECTION WITH ACCIDENTS

In the 1940 Report, a study was made of 20 train accidents investigated by the I.C.C. within a period of 60 days immediately preceding. Only 4 of these accidents were found to have been due to unpreventable causes, while the remaining 16 were attributable to some form of man-failure and resulted in 15 deaths and 150 personal injuries.

Since that Report, a total of 70 train accidents studied from I.C.C. Reports of investigated accidents, show that only 9 were due to unavoidable causes, and 61 were directly traceable to some form of man-failure.

The 9 accidents due to unavoidable causes resulted in 4 deaths and 160 injuries; whereas, the 61 accidents due to man-failure resulted in 211 deaths and 836 personal injuries.

Your attention is again directed to the recommendation which has been approved by the Association of American Railroads as a recommended Standard Practice:

"Whenever investigation of any train or train service accident indicates man-failure as a causative factor—such as disregard of signal indication; disregard of or misinterpretation of train orders or rules—and suggests an impaired physical condition as a contributing cause of the failure, a medical examination directed by the Company of the employee or employees so involved is recommended."

Your Committee cannot too strongly urge adoption of this recommendation by all member Lines, feeling confident that such adoption will undoubtedly lead to a great reduction in the number of accidents, the elimination of much pain and suffering, as well as preserving many lives.

DISQUALIFYING OCULAR DEFECTS

Disqualifying ocular defects among employees in train and engine service, particularly the latter, has been given much consideration. Such defects may arise as to render the employee absolutely unfit for the class of work in which he has been engaged, and the inability of the railroads to transfer these men from one craft to another operates against the possibility of placing them at work which they could do.

OVERWEIGHT

Obesity is a problem that is exceedingly complex, and takes into consideration a wide variety of factors. The physician's first concern, naturally, is the ruling out of fundamental physiological disturbances. With this in mind, it is necessary that a variety of fundamental disturbances must always be considered and excluded.

Congenital factors may be concerned so that the family history needs evaluation. Abnormal regulative hypothalamic centers may be disturbed. Disturbances in appetite and demand for excessive food and drink, dislike of physical exercise, or abnormal fatigability, may be present with or without the many endocrine disturbances, which may be active. Among the endocrine possibilities, one must always rule out lower basal metabolism, or other specific dynamic action of foods. All these, however, are relatively rare conditions, and the majority of obese patients do not show such manifestations. Most cases are due to the fact that more food is consumed than is necessary for energy requirements.

In a survey carried out by this Committee through a circular on obesity, it was found that only fifteen out of fifty-one railroads kept records. There were no statistics or information available regarding any of the fundamental disturbances as outlined above.

There was no consistency in the reports of those roads maintaining records. For example, one railroad had 43.22% cases of obesity which appears to be a rather high incidence, while the lowest report or incidence was 0.1% which again is an extreme in the other direction. The average of all roads maintaining records was 13%.

The type of occupation was not listed; therefore, we have no information in this regard. Those of us who are most familiar with railroad

employees, however, have probably among our section laborers who but on the other hand, we do occupation is more or less sedentary.

The crucial importance of the calories expended determines that is accomplished by any temporary thyroid or other drugs, without patient habitually consumes, it weight he has lost as soon as the and permanent treatment for obesity is the substitution of a new and overeating.

Our analyses show that all of keep statistics or not, realize the matter, since all of these cases proper handling, and management regulations.

PNEUM

Upon the subject of pneumonia (dread conditions) your Committee of presentation.

REHA

The technical structural inhibitory measures and policies in Railroadation. It is felt that this subject is The subject is presented, at this discussion and suggestions from the

SY

While no additional data has been importance of the disease is by no to the advances in the treatment Chief Surgeon should acquaint himself these is the oral administration of

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Tetanus Toxoid has been developed believed that the use of this Toxoid a dual purpose:—First, the Toxoid toxin formerly used; and second, immunization. Another feature in is the economic one, the Toxoid co toxin. It is understood that the U doing use of Antitoxin and relying against tetanus is required.

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employes, however, have probably noted that obesity is rarely found
among our section laborers who burn up their calories in their activity,
but on the other hand, we do find obesity predominant in those whose
occupation is more or less sedentary.

The crucial importance of the balance between calories taken in and
calories expended determines the answer to obesity. If weight reduction
is accomplished by any temporary expedient; for example, by the use of
thyroid or other drugs, without effecting the amount of food which the
patient habitually consumes, it is obvious that he will gain back all the
weight he has lost as soon as the treatment is suspended. The only real
and permanent treatment for obesity when a patient is otherwise normal,
is the substitution of a new and better food habit for the old habit of
overeating.

Our analyses show that all of the railroads regardless of whether they
keep statistics or not, realize the importance of medical advice in this
matter, since all of these cases are referred back to the physician for
proper handling, and management, rather than setting up any dogmatic
regulations.

PNEUMONOCOONOSIS

Upon the subject of pneumonocoonosis, (silicosis, anthracosis and kin
dred conditions) your Committee has had practically no new data worthy
of presentation.

REHABILITATION

The technical structural inhibitions of applicants for rehabilitation
measures and policies in Railroad occupations has been given considera
tion. It is felt that this subject will require much detailed investigation.
The subject is presented, at this time in hopes that it will stimulate dis
cussion and suggestions from the Chief Surgeons of member Lines.

SYPHILIS

While no additional data has been compiled on the subject of syphilis,
importance of the disease is by no means lessened. Attention is directed
to the advances in the treatment of syphilis with which every member
Chief Surgeon should acquaint himself. Probably the most important of
these is the oral administration of bismuth preparations.

TETANUS

Tetanus Toxoid has been developed as an immunizing agent. It is be
lieved that the use of this Toxoid instead of Antitoxin will accomplish
a dual purpose:—First, the Toxoid will be just as preventive as the Anti
toxin formerly used; and second, the Toxoid will give a more lasting
immunization. Another feature in favor of Toxoid as against Antitoxin
is the economic one, the Toxoid costing only about half as much as Anti
toxin. It is understood that the United States Army is practically abandon
ing use of Antitoxin and relying upon Toxoid wherever immunization
against tetanus is required.

A member of the Committee has compiled a short monograph entitled—"Immunization vs. Tetanus," which contains so much constructive data that same is quoted herewith in full:

"This is an old subject. Its inclusion is justified for statistical reflection and because of the work which has recently been accomplished in the active immunization of individuals by the use of toxoid.

"Reports of cases of tetanus are unreliable. However, reports of deaths are quite reliable in that they are consolidated from State mortality records by the United States Census and United States Public Health Service. Deaths from tetanus were as follows:

Year	Deaths	Assumed cases based on average mortality rate
1925	1,503	2,500
1926	1,377	2,300
1927	1,437	2,400
1928	1,489	2,400
1929	1,360	2,300
1930	1,287	2,280
1931	1,116	1,860
1932	1,119	1,860
1933	1,253	2,270
1934	1,226	2,265
1935	1,057	1,765
1936	1,088	1,770
1937	930	1,550
1938	930	1,550

"Tetanus is one of the most serious complications of trauma and traumatic surgery. It is an event which must be considered as a possibility in any perforating or penetrating wound.

"The high mortality rate (over 50%) that, unfortunately, experience has shown to accompany tetanus statistics has developed, as a routine practice in civil as well as in military work, the administration of prophylactic doses of tetanus antitoxin.

"Immunization against tetanus by the use of tetanus toxoid is in vogue in several European armies. In the French Army it is compulsory. French medical journals reported some months ago that 1,500,000 individuals had been given the immunization with entirely satisfactory results.

"While the prophylactic administration of tetanus antitoxin has been generally effective, it has disadvantages. Anaphylactic reactions of varying degrees of manifestation from mild urticaria and asthma to severe shock are among the conspicuous disadvantages. With the increasing use of immune sera (antitoxin) in this country in the active treatment of pneumonia, diphtheria, scarlet fever, erysipelas, gas gangrene and other infections, and in the prophylaxis against tetanus, any group of adults will include a considerable proportion of individuals who have, in the past, received for one condition or another antitoxin prepared from horse serum. The subsequent admini-

stration of antitoxin to those tion to constitutionally allergic

"The protection produced by toxin is very transient. Labo- bodies transmitted in the an blood in four to not more than some patients with badly mae- cially if they have not been cl tetanus, notwithstanding the been administered promptly af

"Recent studies and actual injection of small amounts of of tetanus cultures previously the individual an active prot antitoxin in his own blood. Th is greatly increased by one or "It has been demonstrated:

1. That under favorable immu of the blood is much higher of 1,500 units of tetanus an
2. Its formation is sufficientl dividual against tetanus if exhibited within the first t
3. That after a second or su toxin titer of the blood re several months or years, r the case after prophylactic "The Army plans to limit ti
1. To patients presenting evic
2. To individuals who incur w sitate their protection aga ously completed the initial

CONCLUSION

"For application to railro tetanus by use of two or mor in the present state of mind ever, it would unquestionabl where exposure to condition: contamination may contact m

"Toxoid immunization has or more—susceptibility to th to tetanus toxin by the exhi

In conclusion, your Committee valuable assistance rendered by t the Medical Profession, and othe of this support and cooperation : as a Progress Report from a C endless.

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930	1,550

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over 50%) that, unfortunately, experience tetanus statistics has developed, as all as in military work, the administration tetanus antitoxin.

nus by the use of tetanus toxoid is in nies. In the French Army it is compulsory reported some months ago that given the immunization with entirely

ministration of tetanus antitoxin has as disadvantages. Anaphylactic reaction manifestation from mild urticaria and among the conspicuous disadvantages. une sera (antitoxin) in this country in onia, diphtheria, scarlet fever, erysip infections, and in the prophylaxis against ll include a considerable proportion of ast, received for one condition or an horse serum. The subsequent admini-

stration of antitoxin to those individuals and its initial administration to constitutionally allergic persons are attended with danger.

"The protection produced by a prophylactic dose of tetanus antitoxin is very transient. Laboratory tests show the protective antibodies transmitted in the antitoxin disappear from the patient's blood in four to not more than ten days. Because of this transiency, some patients with badly macerated and contaminated wounds, especially if they have not been cleared of foreign material, still develop tetanus, notwithstanding the fact that prophylactic antitoxin has been administered promptly after the injury.

Recent studies and actual experience have shown that parenteral injection of small amounts of tetanus toxoid; i.e., the broth filtrate of tetanus cultures previously detoxified with formalin, produce in the individual an active protective response by the production of antitoxin in his own blood. The antitoxin concentration of the blood is greatly increased by one or more subsequent injections of toxoid.

"It has been demonstrated:

1. That under favorable immunological conditions the antitoxic titer of the blood is much higher than the customary prophylactic dose of 1,500 units of tetanus antitoxin.
2. Its formation is sufficiently prompt to protect the wounded individual against tetanus if the readministration of the toxoid is exhibited within the first twenty-four hours.
3. That after a second or subsequent injection of toxoid the antitoxin titer of the blood remains relatively high for a period of several months or years, rather than for only a few days as is the case after prophylactic injection of antitoxin.

"The Army plans to limit the use of tetanus antitoxin as follows:

1. To patients presenting evidence of clinical tetanus.
2. To individuals who incur wounds or other conditions which necessitate their protection against tetanus, but who have not previously completed the initial vaccination with tetanus toxoid.

CONCLUSION

"For application to railroad employees, immunization against tetanus by use of two or more injections of toxoid is impracticable in the present state of mind toward preventative procedures. However, it would unquestionably be of value in special occupations where exposure to conditions where filth containing animal fecal contamination may contact minor or major wounds.

"Toxoid immunization has the advantage of prolonged—one year or more—susceptibility to the immediate reactivation of antibodies to tetanus toxin by the exhibition of antibody stimulating toxoid."

In conclusion, your Committee expresses its sincere appreciation of valuable assistance rendered by the member Lines, their Chief Surgeons, the Medical Profession, and others. We earnestly solicit a continuance of this support and cooperation and request that this be accepted only as a Progress Report from a Committee whose duties are obviously endless.

Respectfully submitted,

COMMITTEE ON DISABILITY AND REHABILITATION,
J. R. GARNER, M.D., Chairman.

J. R. GARNER, M. D.: Mr. Chairman, Members of the Section, Guests: The Committee on Disability and Rehabilitation has continued its activities. This is one of the oldest committees in this Section, having been appointed, I think, at the first meeting and it has continued to function since then.

Our report has been printed, and each of you has a copy. We are not going to read this report. It would be rather tiresome to you, probably, and we feel that just a brief synopsis of the report is all that is essential here, with some remarks from members of the committee and others on certain subjects embraced in it.

The committee has had three meetings since the last session of the Section. A great deal of our work has been carried on through correspondence both with and by members of the committee and other members of the Section who have very graciously given us their support and aided in our efforts.

The arrangement of the program is somewhat different from the arrangement of the report of the committee, so in carrying it out I am going to try to follow the program as nearly as I can, skipping about in this report.

We have given a great deal of consideration to alcoholism in connection with employees of the railways in train and engine service. We are all familiar with a recent ruling and what it means, and some method of proving the presence of alcohol has been sought.

We have asked Dr. Brandabur, a member of our committee and Assistant Supervising Surgeon of the Chesapeake & Ohio Railway to present this part of our program. I believe Dr. Brandabur is not here at the moment; if he comes in later we will ask him to speak.

If not, I will make mention of the fact that an examination of the urine shows the presence of alcohol as late as twelve hours after it has been imbibed. Of course, the closer the test to the taking of the alcohol, the larger your percentage of alcohol.

We will pass this part of the report and come back to it later when Dr. Brandabur will present the subject.

Chemotherapy is a subject that has been very much before us of late. The new drugs that have come out have been discussed by all of us and used by many of us, and we are very deeply interested in them.

On page 6 of the report, where we have presented chemotherapy, is a little résumé of Dr. Robert W. Johnson's statement in the Journal of Surgery in July, 1940. We merely call your attention to this. We think it is well worth knowing. There have been many changing concepts in the problem of chemotherapy, and on this subject we have asked Dr. C. A. Walker, of San Francisco, Chief Surgeon and Manager of the Hospital Department of the Southern Pacific Company and a member of our committee, to present this to you. Dr. Walker!

CHANGING CONCEPTS IN CHEMOTHERAPY

Dr. C. A. WALKER (Southern Pacific Co.): Since sulfanilamide was discovered, it has undergone many changes and modifications. These modifications have been brought about through chemical manipulation of the molecule, resulting in entirely different synthetic compounds which were given various names. The object in producing these changes in structure was to develop a product more toxic to infecting organisms and less toxic to the host. These

new compounds varied in their effectiveness. These changes did appear.

Ending with the year 1940, the parts of the world: Sulfanilamide (sulfanilamide), Sulfapyridine, Disulfanilthiazole, Promine, Uleron, and o

Disulfanilamides are used with their effectiveness. They have i Sulfones have been too toxic for extensively at the Mayo Clinic a While it was effective for staphy too narrow for general use. Pr disagreeable side reactions, parti from use, but it has been revived in England in 1938 and 1939 but

Sulfanilamide and neoprontos widely used but no new drugs have as these four.

There are several new sulfon therapeutic agents. One of these have been along the line of determ drugs, as well as combining them hance their therapeutic effect.

Sulfanilamide has been used w Given by mouth, it has been four It has been found effective in a fe occasionally in meningococcus inf Bang's bacillus infections, urinary effects in typhoid fever. Sezary re in chancroid infections and certa results of local and systemic use o vincingly told by H. R. Bohlman,

Many workers sprinkle the powe fragments of compound fractures a and wounds. If lightly used, it is f healing. Cohen and Schulenberg i shot wounds were treated at Dunkl ly, combined with the Orr-Truetta of wounds there were no deaths, amputation. One of the reasons w locally is that is has a low toxicity believed that in certain concentra bacteriostatic.

Sulfapyridine. The use of this dr past eight months, with a wider use part of the United States and in Car and has been used longer than here, of sulfapyridine. Many reports rev and the meningitides are more pro

Chairman, Members of the Section, Guest and Rehabilitation has continued its activities. Committees in this Section, having been appointed, it has continued to function since then.

and each of you has a copy. We are not going to make a rather tiresome report to you, probably, and we feel that the report is all that is essential here, with some of the committee and others on certain subjects.

meetings since the last session of the Section. It has been carried on through correspondence both with the committee and other members of the Section who have supported and aided in our efforts.

Our method is somewhat different from the arrangement of the last year in carrying it out. I am going to try to follow a more direct line, skipping about in this report.

Our consideration to alcoholism in connection with the engine service. We are all familiar with the fact, and some method of proving the presence of

it, a member of our committee and Assistant Surgeon General of the Cape & Ohio Railway to present this part of the report. He is not here at the moment; if he comes, we will hear him.

the fact that an examination of the urine shows the presence of alcohol twelve hours after it has been imbibed. On the taking of the alcohol, the larger your per-

centage of alcohol in the report and come back to it later when Dr. B. J. B. speaks.

It has been very much before us of late. The fact that it has been discussed by all of us and used by many of us is very interesting in them.

As we have presented chemotherapy, is a little different from the statement in the Journal of Surgery in the attention to this. We think it is well worth while to change concepts in the problem of chemotherapy. We have asked Dr. C. A. Walker, of San Francisco, to present the Hospital Department of the Southern Railway, of our committee, to present this to you.

TOPICS IN CHEMOTHERAPY

Pacific Co.): Since sulfanilamide was discovered, there have been changes and modifications. These modifications have been through chemical manipulation of the molecule, and synthetic compounds which were given various names. These changes in structure were to develop a drug which was more effective and less toxic to the host. These

new compounds varied in their toxicity, solubility and range of therapeutic effectiveness. These changes direct and limit our use of the new drugs as they appear.

Ending with the year 1940, the following drugs have been used in various parts of the world: Sulfanilamide, Neosulfanilamide or neoprontosil (azosulfanilamide), Sulfapyridine, Disulfanilamide, Sulfones, Sulfamethylthiazole, Sulfathiazole, Promine, Uleron, and others less known.

Disulfanilamides are used widely in Germany but we have no reports on their effectiveness. They have never been used much in this country. The Sulfones have been too toxic for general use. Sulfamethylthiazole was used extensively at the Mayo Clinic and other places when it was first introduced. While it was effective for staphylococcal infections, its margin of safety was too narrow for general use. Promine was found (1939) to produce many disagreeable side reactions, particularly peripheral neuritis. It was dropped from use, but it has been revived lately for use again. Uleron was used widely in England in 1938 and 1939 but was proved to be too toxic for general use.

Sulfanilamide and neoprontosil, sulfapyridine and sulfathiazole are still widely used but no new drugs have been added recently to gain as wide favor as these four.

There are several new sulfonamides looming on the horizon as effective therapeutic agents. One of these is sulfaguanidine. The newer developments have been along the line of determining various methods of application of these drugs, as well as combining them with certain other drugs and agents to enhance their therapeutic effect.

Sulfanilamide has been used widely for many different forms of infection. Given by mouth, it has been found most effective in streptococcal infections. It has been found effective in a few types of pneumococcus, gonococcus, and occasionally in meningococcus infections. It has been found effective against Bang's bacillus infections, urinary infections, and some workers claim beneficial effects in typhoid fever. Sezary reports that powdered sulfanilamide is specific in chancroid infections and certain tropical pyoderms and trachoma. The results of local and systemic use of the drug in gas gangrene infections is convincingly told by H. R. Bohlman, of Johns Hopkins Hospital.

Many workers sprinkle the powder into infected wounds or between the bone fragments of compound fractures and between the muscle layers of infected cuts and wounds. If lightly used, it is found to be non-irritating and does not delay healing. Cohen and Schulenberg reported in the British Lancet that 266 gunshot wounds were treated at Dunkirk by sulfanilamide, externally and internally, combined with the Orr-Truett closed plaster method. Out of this number of wounds there were no deaths, no tetanus, no gas gangrene and only one amputation. One of the reasons why the drug is so effective when employed locally is that it has a low toxicity and a differential killing power. It is now believed that in certain concentrations it is actually bactericidal as well as bacteriostatic.

Sulfapyridine. The use of this drug on the West Coast has waned during the past eight months, with a wider use of sulfathiazole. However, in the Eastern part of the United States and in Canada and England where the drug originated and has been used longer than here, there has been a backward trend to the use of sulfapyridine. Many reports revealed that the responses in the pneumonias and the meningitides are more prompt and lasting than with sulfathiazole.

Sulfathiazole is the most popular of the sulfonamide drugs. Its therapeutic effectiveness is said to include streptococci, staphylococci, pneumococci, gonococci and meningococci. It is more soluble than sulfapyridine and so a blood concentration is more rapidly obtained. It has gained great favor with the urologists in the treatment of gonococcal infections. Compared with sulfamethylthiazole it cured less cases of gonorrhea but was favored in the long run for its lesser toxicity. (Mahoney-Van Slyke. *Am. J. of Syphilis and Gon.* 24:613, 1940).

A new drug to come to our attention lately is sulfaguanidine. This drug is not yet reported on extensively but is said to be effective in partial sterilization of the colon. It is said by workers at Stanford University Hospital to reduce the intestinal bacterial counts to ten per cent of the normal count. Its greatest drawback is its great insolubility and, such being the case, enormous doses must be given to be effective.

Combinations of certain drugs with physiological substances to enhance their action has been accomplished by Osgood, of the University of Oregon. The reports have not yet appeared in the literature extensively but the method has been to put a solution of sulfapyridine into a quantity of the patient's own blood. This mixture is then used in a prolonged lavage of the antra of Highmore. Results are said to be surprisingly good even in chronic cases. Osgood has also combined sulfonamide drugs with arsenicals in the same patient. The sulfonamide drug is given by mouth in full dosage and, when a blood concentration has been reached, the patient is given neoarsphenamine intravenously.

The combined effect of this therapy is said to be effective against the staphylococcus in furunculosis and other affections. (Osgood, *Surg. Gyn. and Obs.* 71:445-450, 1940). (Osgood, *J. Pediat.* 17:740-746).

In discussing the use of physically induced pyrexia and chemotherapy, Bierman and Baehr in conclusion state, "Our experience would indicate that physically induced pyrexia enhances the value of chemotherapy in the treatment of subacute bacterial endocarditis." (Bierman and Baehr, *J. A. M. A.*, 116:292, 1941).

In discussing sulfanilamide in the therapy of actinomycosis, Dobson, Holman and Cutting in conclusion state, "Three cases of actinomycosis, one of the jaw, one of the lungs and rib cage, and one of the abdomen, have been apparently completely cured. Therapy included the use of sulfanilamide, iodides and roentgen rays. In view of the serious nature of this infection and the apparent value of sulfanilamide, this or a related drug should be included in the treatment of actinomycosis." (Dobson, Holman and Cutting, *J. A. M. A.*, 116:272, 1941).

In an article on the treatment of septicemia, results before and since the advent of sulfamido compounds, Herrell and Brown call attention to adequate versus inadequate treatment. "We believe at present that the most significant feature in recovery is the adequacy of treatment. We mean by adequate treatment that a patient has received one or several of the sulfamido drugs in dosages which would produce concentrations in the blood stream which we feel are indicated for treatment of septicemia and that the treatment has been continued over a period sufficient to account for the clinical response." (Herrell and Brown, *J. A. M. A.*, 116:179, 1941).

It follows that adequate treatment is indicated in all cases where sulfonamide drugs are used, for it may be that unless the drug is administered adequately at the outset, the bacteria may become "fast" and may become resistant to even an increased amount of the drug given later on.

In discussing sulfonamide inhibitors Stanford University, says, "It is currently feller Institute for Medical Research, th contain active or potential chemical f therapeutic effects of sulfonamide drugs. blood serum and sterile human pleural p usually free from sulfonamide inhibitor. arthritic fluids thus far tested have shov parently, in normal tissues the inhibitor jugated form from which it is freed by a This chemically bound inhibitor is, appar rapidly freed in active form in autolysing tissue degeneration. It was only after c extract and bacteriophage had proved dis or cellular inhibitors were suspected a therefore, may tend to prevent unwarra commercial claims for the new sulfonai California and Western Medicine, 54:105

REFEREN

1. Jensen, Nelson *Surgery*, 6:1, July 193
2. Sezary. (1939) *Presse Med.* 47:1408,
3. Key and Lembeck. *Industr. Med.* 9:
4. Bricker and Graham. (1939) *J. Am*
5. Herrell and Brown. (1940) *Proc. Staff*
6. Spind and Paine. (1940) *Minn. Med*
7. MacKenna. (1940) *Brit. Med. J.* 2:9
8. Cosgrove. (1940) *Amer. J. of Oph.* 2
9. Rein and Tibbets (1939) *J.A.M.A.* 1
10. Mahoney and Wolcott and Van Sly *Ven. Disease*, 24:613, 1940.
11. MacLeod, Colin M.; *J. Exp. Med.*

DR. GARNER: Our next subject is one so forth- as treated with potassium salts our investigation on page 2, giving the p Rubin on the subject, and then our comm read:

"1. One carrier surgeon has exhib cases of hay fever and allergic asthma:

"2. The results have been uniform

"3. The cases treated and observe modate themselves to allergy tests a extracts.

"4. In all, there was decided relief of pollen exposure and in several the severe to negligible.

"5. Potassium chloride properly ex hay fever and allergic asthma."

This is the subject that was called to th we have tried to develop something for y

The next subject that we take up is shown on page 28, Dental Diseases. Under the date of October 31, 1940, our Committee sent out to Chief Surgeons of member lines, a questionnaire asking the incidence of dental disease, caries and periodontal infections among railway employees, seeking experience as to the effect resulting from these conditions.

Forty-seven replies to the questionnaire were received. A compilation of the answers to the first question showed that of all cases reported, 19.4 per cent had some form of dental disease.

The answers to question No. 2 were so varied and covered so many disabilities attributed directly or indirectly to dental disease, that it would be impossible to tabulate same in this report. All railroads reporting have noted the detrimental effect produced by dental diseases upon the general health of the employees.

It is recommended that closer attention be paid to the condition of employees' teeth, and that proper dental care be urged in every case where disease or defects are noted.

Our next subject is that of Diabetes. We call attention to an article which we have published, beginning on page 29, which was an address delivered by Dr. W. H. Olmsted, of St. Louis. It is quite interesting and has a great deal of instructive data. We ask you to read that. We are not going to read it now.

Then, the use of insulin in diabetes, on page 30, is also something that we want to call to your attention, and we suggest your careful study of it without presentation at this time.

Our conclusions are on page 31: "When an employee of a railroad occupies a position where his judgment, his senses, and his neuro-muscular control must be normal in all respects and at all times, he should not suffer from diabetes mellitus. If employees are allowed to hold hazardous positions providing they do not take insulin, such a policy in my opinion will result in such diabetics being badly treated.

"If the employee knows he has diabetes, he will postpone taking insulin as long as possible, often to his own detriment. If on the other hand, a rule is maintained that once the diagnosis of diabetes is established, an employee is transferred from a hazardous job to some other position, then there is no reason why his diabetes cannot be treated with insulin if such is needed.

"There is no doubt in my mind that diabetics in non-hazardous jobs can be depended upon, even if they take insulin, to do work with customary efficiency."

That is not the opinion or, rather, the conclusion of the Committee, but of Dr. Marble in Joslin's book. We think that it is very well worded, and good information is contained therein.

Our next subject, Foci of Infection, is a very important one in connection with the work of railroads, and we have Dr. R. A. Woolsey, Chief Surgeon of the St. Louis-San Francisco Railway, also a member of this Committee, to present the subject to you. Dr. Woolsey!

DR. R. A. WOOLSEY (St. Louis-San Francisco Railway): Mr. Chairman, Gentlemen: This subject is written up in this report, and I do not know that there is very much additional to be said.

We have always figured that in the child, the tonsils were the real focus of infection of ear troubles. In grown people, the teeth, and when the doctor figured that 19.4 per cent of focal infections in the teeth were found in railway employees, I think that is about half as high a percentage as it should be.

There are many employees whose teeth look at all of them, you would find, I believe listed for infected teeth.

If the thing is studied carefully, in the satisfactory you will frequently find, if there are infections even though they are

Hayden worked this up some years ago where nothing was shown by examination

In a careful study of the foci of infect more arthritic changes, and so forth, in the place in the body, and of course this has

Some of the sulfathiazole preparations that may be of benefit. In fact, there may be of benefit. We found quite a number of conditions were different in Bulgaria than was found that this was because of the cattle in Bulgaria. So that Bulgarian b

Acidophilus is a little better, and in use better result if you put some sugar of mill

I do not think there is anything more but I want to make it clear that the colon in the adult.

DR. GARNER: Thank you, Dr. Woolsey.

Dr. Woolsey called a very important colon; it is very frequently overlooked.

Our next subject is hernia. The Committee, but we feel that we want to stress it—and not an accident in—industrial important subject to bear in mind and to this condition. As long as we have railroading of hernia.

Man-Failure in Connection with Accidents. 1940 report, a study was made of twenty I.C.C. within a period of sixty days in these accidents were found to have been due to remaining sixteen were attributable to some fifteen deaths and one hundred and fifty

Since that report, a total of seventy reports of investigated accidents show the causes, and sixty-one were directly traceable

The nine accidents due to unavoidable one hundred and sixty injuries, whereas six resulted in two hundred and eleven deaths and personal injuries.

Your attention is again directed to the report by the Association of American Railroad quite some years ago:

is shown on page 28, Dental Disease. The Committee sent out to Chief Surgeon the incidence of dental disease, carrying employees, seeking experience as dentists. Letters were received. A compilation of the data of all cases reported, 19.4 per cent.

It varied and covered so many disabilities in dental disease, that it would be impossible to report.

All railroads reporting have noted the diseases upon the general health of the employees.

It is paid to the condition of employees and urged in every case where disease or disability is noted.

We call attention to an article which appeared on page 29, which was an address delivered by Dr. Woolsey, which is quite interesting and has a great deal of value. We are not going to read it now, but on page 30, is also something that we would suggest your careful study of it.

When an employee of a railroad occupies a position, and his neuro-muscular control must be maintained, he should not suffer from diabetes and hazardous positions providing they are not. In my opinion will result in such diabetes.

As he will postpone taking insulin as long as possible. If on the other hand, a rule is established, that if diabetes is established, an employee is not in a position, then there is no reason for not taking insulin if such is needed.

Diabetics in non-hazardous jobs can be allowed to do work with customary restrictions.

The conclusion of the Committee, but of course that it is very well worded, and good.

It is a very important one in connection with the report of Dr. R. A. Woolsey, Chief Surgeon of the Association of American Railroads, to the Committee, to the Association of American Railroads.

(San Francisco Railway): Mr. Chairman, I have read this report, and I do not know that it is a very important one.

As to the tonsils, the real focus of infection is the teeth, and when the doctor examines the teeth were found in railway employees a percentage as it should be.

There are many employees whose teeth you never look at, but if you were to look at all of them, you would find, I believe, a percentage twice as high as that listed for infected teeth.

If the thing is studied carefully, in the average mouth where the teeth look satisfactory you will frequently find, if the teeth are examined carefully, that there are infections even though they are not shown by X-ray.

Hayden worked this up some years ago and found infections among the teeth where nothing was shown by examination, X-ray or otherwise.

In a careful study of the foci of infection, it is found that they really cause more arthritic changes, and so forth, in the adult, in the colon, than any other place in the body, and of course this has to be treated accordingly.

Some of the sulfathiazole preparations may be of benefit, and there are diets that may be of benefit. In fact, there are a good many different things that may be of benefit. We found quite a number of years ago that the intestinal conditions were different in Bulgaria than any place else in the world, and it was found that this was because of the bacillus that was in the milk of the cattle in Bulgaria. So that Bulgarian buttermilk is quite frequently given.

Acidophilus is a little better, and in using them you will get four or five times better result if you put some sugar of milk in the buttermilk. It is more active.

I do not think there is anything more to be said about the foci of infection, but I want to make it clear that the colon is really "top" in the foci of infection in the adult.

DR. GARNER: Thank you, Dr. Woolsey!

Dr. Woolsey called a very important topic to your attention—that is, the colon; it is very frequently overlooked.

Our next subject is hernia. The Committee has developed nothing new in hernia, but we feel that we want to stress the point that hernia is incidental to—and not an accident in—industrial occupations. We feel that is a very important subject to bear in mind and to consider at all times in dealing with this condition. As long as we have railroads, we are going to have men complaining of hernia.

Man-Failure in Connection with Accidents we have again studied. In the 1940 report, a study was made of twenty train accidents investigated by the I.C.C. within a period of sixty days immediately preceding. Only four of these accidents were found to have been due to unpreventable causes, while the remaining sixteen were attributable to some form of man-failure and resulted in fifteen deaths and one hundred and fifty personal injuries.

Since that report, a total of seventy train accidents studied from I.C.C. reports of investigated accidents show that only nine were due to unavoidable causes, and sixty-one were directly traceable to some form of man-failure.

The nine accidents due to unavoidable causes resulted in four deaths and one hundred and sixty injuries, whereas sixty-one accidents due to man-failure resulted in two hundred and eleven deaths and eight hundred and thirty-six personal injuries.

Your attention is again directed to the recommendation which was approved by the Association of American Railroads as recommended standard practice quite some years ago:

"Whenever investigation of any train or train service accident indicates man-failure as a causative factor—such as disregard of signal indication; disregard of or misinterpretation of train orders or rules—and suggests an impaired physical condition as a contributing cause of the failure, a medical examination directed by the company of the employe or employes so involved is recommended."

Your Committee cannot too strongly urge adoption of this recommendation by all member Lines, feeling confident that such adoption will undoubtedly lead to a great reduction in the number of accidents, the elimination of much pain and suffering, as well as preserving many lives.

You Committee was also asked to consider Disqualifying Ocular Defects. Disqualifying ocular defects among employes in train and engine service, particularly the latter, has been given much consideration. Such defects may arise as to render the employe absolutely unfit for the class of work in which he has been engaged, and the inability of the railroads to transfer such men from one craft to another operates against the possibility of placing them at work which they could do.

The subject of overweight was discussed by your Committee, and we have given you a brief résumé of our work this year. We call your attention to it on page 36.

The subject of Pneumonoconosis is also referred to. We have nothing new to present on this subject. Your Chairman attended a meeting of the Air Hygiene Foundation of America where this subject was discussed at length but found nothing of particular interest to railroads at this time.

Rehabilitation is discussed on page 37. The technical structural inhibitions of applicants for rehabilitation measures and policies in railroad occupations has been given consideration. It is felt that this subject will require much detailed investigation. The subject is presented at this time in hopes that it will stimulate discussion and suggestions from the Chief Surgeons of member Lines.

The old subject of Syphilis has been with us and will be through time immemorial. It is very important. We have nothing particular to present at this time; there is nothing new that has been developed. We feel that probably the most important thing that we could present is the oral administration of the bismuth preparations, which now seems to be growing in favor with the profession.

Then we come to the subject of Tetanus, and this is one that we have asked Dr. J. D. Collins, Chief Surgeon of Seaboard Air Line Railway, Norfolk, Virginia, also a member of our Committee, to handle for us. Dr. Collins!

THE PREVENTION OF TETANUS; THE USE OF TOXOID

DR. J. D. COLLINS (Seaboard Air Line Railway): We are often confronted with a problem in trying to decide whether or not it is necessary to use tetanus antitoxin following certain wounds. Especially has this been so in minor or so-called trivial injuries. This hesitation is the result of the fear of possible anaphylactic reaction, shock or serum sickness. In past years when unrefined horse serum was used there was obviously real grounds for this fear, but, with our purified products today, greatly reduced volume, tests for sensitivity and the use of epinephrine, this fear is much decreased. On the other hand we should not administer serum without testing for sensitivity. Although one should be cautious, he should not do so to the extent of neglecting entirely the

administration of serum because it will not develop. If not administered until the period of incubation elapses, the immediate reaction there is a serum sickness obviously warranting destruction.

We frequently see wounds contaminated with toxin and yet they may cause no trouble. Burns, electrical burns, effects of frost, and even pin pricks or slight abrasions more than 70 per cent of the time in an additional 6 per cent of injuries may and do occur off the body. A problem in tetanus prevention with increasing sensitivity among these wounds may not be required tetanus may develop.

Certain individuals because of tetanus infection. Frequently of a physician because of the cattlemen, poultrymen, and the frequent occurrence of the disease contaminated with tetanus in the body and are extremely resistant to pathogenic bacteria. There have been received have a known high immunity; also those engaged in making repeated injections of tetanus antitoxin in railroad and industrial work problem because they are prone to it.

Most tetanus, as it is seen, arises from wounds which are often the mother are not correctly reported by Dietrich; there is infection might be blamed. In wounds, and blisters were all concluded that 1,500 units of tetanus antitoxin compound fracture, as he found was a compound fracture as seen, all developed tetanus as a result.

Another problem we are faced with is too late to administer serum if the serum is delayed. It may be that antitoxin efficacy occurs when blood serum. This takes place in the administration of tetanus antitoxin 0.1 to 0.25 unit per cc. of blood. It gradually declines to a level accepted that the period of incubation is in days, and the severity is directly