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Association of American Railroads

PROCEEDINGS
OF THE
FIFTEENTH ANNUAL MEETING
OF THE
MEDICAL AND SURGICAL SECTION



CHALFONTE-HADDON HALL
ATLANTIC CITY, N. J.
JUNE 10, 11, 1935

PROCEEDINGS
OF THE
FIFTEENTH ANNUAL MEETING
OF THE
Association of American Railroads
MEDICAL AND SURGICAL SECTION



HELD AT
CHALFONTE—HADDON HALL, ATLANTIC CITY, N. J.
JUNE 10, 11, 1935

EASTERN PRINTING CORPORATION
NEW YORK, N. Y.
1935

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ASSOCIATION OF AMERICAN RAILROADS

Officers

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

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L. W. Baldwin, Trustee, Missouri Pacific Lines.
J. J. Bernet, President, Chesapeake & Ohio Railway, New York, Chicago & St. Louis Railroad and Pere Marquette Railway.
Ralph Budd, President, Chicago, Burlington & Quincy Railroad.
M. W. Clement, President, Pennsylvania Railroad.
L. A. Downs, President, Illinois Central System.
Geo. B. Elliott, President, Atlantic Coast Line Railroad.
E. S. French, President, Boston & Maine Railroad and Maine Central Railroad.
Carl R. Gray, President, Union Pacific System.
Fairfax Harrison, President, Southern Railway System.
Hale Holden, Chairman, Southern Pacific Company.
Fred W. Sargent, President, Chicago & North Western Railway.
H. A. Seandrett, President, Chicago, Milwaukee, St. Paul & Pacific Railroad.
Daniel Willard, President, Baltimore & Ohio Railroad.
F. E. Williamson, President, New York Central System.

OPERATIONS AND MAINTENANCE DEPARTMENT

J. R. Downes, Vice-President

DIVISION I—OPERATING

Officers

C. E. Denney, Chairman

J. Cannon, Vice-Chairman

J. C. Caviston, Secretary

MEDICAL AND SURGICAL SECTION

Officers

Dr. J. R. Garner, Chairman

Dr. D. B. Moss, First Vice-Chairman

Dr. Duncan Eve, Jr., Second Vice-Chairman

J. C. Caviston, Secretary

MEMBERS OF COMMITTEES

Committee of Direction

(Term expires June, 1936)

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

Dr. D. B. Moss (First Vice-Chairman), Chief Medical Officer, Chicago, Burlington & Quincy Railroad, Chicago, Ill.

Dr. Duncan Eve, Jr. (Second Vice-Chairman), Chief Surgeon, Nashville, Chattanooga & St. Louis Railway, Nashville, Tenn.

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

Dr. John McCombe, Chief Medical Officer, Canadian National Railway, Montreal, Canada.

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

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

(Term expires June, 1937)

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

Dr. S. B. Taylor, Chief Surgeon, New York Central Railroad, Columbus, Ohio.

Dr. F. C. Warring, Chief Resident Surgeon, Western Maryland Railway, Baltimore, Md.

Dr. A. J. Chesle
Health Auth
Dr. H. S. Cannon
Health ServDr. O. B. Zeinert
Louis, Mo.
Dr. L. A. Easman
Louis Railway
Dr. A. M. Hume
Dr. S. C. Plummer
Chicago, Ill.
Dr. R. A. Woods
Louis, Mo.Dr. J. D. Collins
Va.
Dr. J. G. Frost, C
Dr. R. J. Graves, C
Dr. W. J. Lancaster
Wilmington, D
Dr. J. E. Pulver, CDr. John McCombe
Canada.Dr. R. C. Webb (Ch
Minn.
Dr. Bradley L. Cob
N. Y.
Dr. G. G. Davis, C
Dr. G. G. Dowdall
Dr. O. B. Zeinert, CRep
Dr. John R. Nilsson

Honorary Members

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

Committee on Nominations

- Dr. O. B. Zeinert (Chairman), Chief Surgeon, Missouri Pacific Railroad, St. Louis, Mo.
Dr. L. A. Ensminger, Chief Surgeon, Cleveland, Cincinnati, Chicago & St. Louis Railway, Indianapolis, Ind.
Dr. A. M. Hume, Chief Surgeon, Ann Arbor Railroad, Owosso, Mich.
Dr. S. C. Plummer, Chief Surgeon, Chicago, Rock Island & Pacific Railway, Chicago, Ill.
Dr. R. A. Woolsey, Chief Surgeon, St. Louis-San Francisco Railway, St. Louis, Mo.

Committee on Disability and Rehabilitation

- Dr. J. D. Collins (Chairman), Chief Surgeon, Seaboard Air Line Ry., Norfolk, Va.
Dr. J. G. Frost, Chief Surgeon, Chicago & Eastern Illinois Ry., Chicago, Ill.
Dr. R. J. Graves, Chief Surgeon, Boston & Maine R. R., Concord, N. H.
Dr. W. J. Lancaster, Supt. & Med. Dir. Rel. Dept., Atlantic Coast Line R. R., Wilmington, N. C.
Dr. J. E. Pulver, Chief Surgeon, Chicago & North Western Ry., Chicago, Ill.

Representative from Committee of Direction

- Dr. John McCombe, Chief Medical Officer, Canadian National Rys., Montreal, Canada.

Committee on Fractures

- Dr. R. C. Webb (Chairman), Chief Surgeon, Great Northern Ry., Minneapolis, Minn.
Dr. Bradley L. Coley, Chief Surgeon, New York Central R. R., New York, N. Y.
Dr. G. G. Davis, Chief Surgeon, Elgin, Joliet & Eastern Ry., Chicago, Ill.
Dr. G. G. Dowdall, Chief Surgeon, Illinois Central System, Chicago, Ill.
Dr. O. B. Zeinert, Chief Surgeon, Missouri Pacific R. R., St. Louis, Mo.

Representative from Committee of Direction

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

Committee on Developments Resulting from Physical Examination

Dr. S. C. Plummer (Chairman), Chief Surgeon, Chic., Rock Isld. & Pac. Ry., Chicago, Ill.
 Dr. H. A. Beatty, Chief Surgeon, Canadian Pacific Ry., Toronto, Canada.
 Dr. W. N. Blount, Chief Surgeon, Gulf, Mobile & Northern R. R., Laurel, Miss.
 Dr. W. L. Hartman, Medical Director, New York Central Lines, Detroit, Mich.
 Dr. A. M. Hume, Chief Surgeon, Ann Arbor R. R., Owosso, Mich.

Representative from Committee of Direction

Dr. D. B. Moss, Chief Medical Officer, Chic., Burl. & Quincy R. R., Chicago, Ill.

Special Committee on Medical Aspects of Air Conditioning of Cars

Dr. T. R. Crowder (Chairman), Dir., Dept. of San. & Surg., The Pullman Co., Chicago, Ill.
 Dr. G. G. Dowdall, 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. E. V. Milholland, Med. & Surg. Dir., Baltimore & Ohio R. R., Baltimore, Md.

1. Representatives or other persons designated by the Association.
 2. Affiliate

3. The official and a Second

4. There shall be representatives of the Association, the Chairman, the past Chairman, the Committee General of the Association, the Executive Committee to be designated by the Conference of

5. The Conference shall authorize, order, or direct such committee Section.

6. Regularly, annually, the meetings of the Committee

7. The Chairman of the Committee of Direction shall be elected upon the First of January, the First Vice-Chairman shall be elected by the Chairman pro

8. There shall be representatives of members

9. As candidates for the Committee of Direction shall

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DIVISION I—OPERATING

MEDICAL AND SURGICAL SECTION

REGULATIONS

Representatives

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

Officers

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

Committee of Direction

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

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

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

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

Committee on Nominations

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

9. As candidates for the Committee on Nominations, the Committee of Direction shall select the names of ten representatives, five of whom shall be

elected. The candidate receiving the greatest number of votes for membership on the Committee on Nominations shall act as Chairman of that Committee.

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

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

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

Election

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

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

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

Meetings of Committees

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

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

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

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

General

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

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

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

MEDICAL AND SURGICAL SECTION

Chalfonte-Haddon Hall, Atlantic City, N. J., June 10-11, 1935

The following representatives were present:

Members	Representatives
Alton R. R.....	E. V. Milholland, Medical and Surgical Director.
Atlanta & West Point R. R.....	J. R. Garner, Chief Surgeon.
Baltimore & Eastern R. R.....	Harvey Bartle, Chief Medical Examiner.
Baltimore & Ohio Chicago Terminal R. R.....	E. V. Milholland, Medical and Surgical Director.
Baltimore & Ohio R. R.....	E. V. Milholland, Medical and Surgical Director.
Belt Ry. Co. of Chicago.....	B. C. Cushway, Radiologist.
Canadian National Railways.....	John McCombe, Chief Medical Officer.
Central Vermont Ry.....	L. E. Sample, Chief Surgeon.
Chesapeake & Ohio Ry.....	W. T. Oppenheimer, Chief Surgeon.
	J. J. Brandabur, Asst. Supervising Surgeon.
Chicago & Eastern Illinois Ry.....	J. G. Frost, Chief Surgeon.
	B. C. Cushway, Radiologist.
Chicago & North Western Ry.....	J. E. Pulver, Chief Surgeon.
Chicago & Western Indiana R. R.....	J. G. Frost, Chief Surgeon.
Chicago, Burlington & Quincy R. R.....	D. B. Moss, Chief Medical Officer.
Chicago, Milwaukee, St. Paul & Pacific R. R.....	A. R. Metz, Chief Surgeon.
Chicago, Rock Island & Pacific Ry.....	S. C. Plummer, Chief Surgeon.
Chicago, Rock Island & Gulf Ry.....	S. C. Plummer, Chief Surgeon.
Delaware & Hudson R. R. Corp.....	J. W. Ghormley, Company Surgeon.
Delaware, Lackawanna & Western R. R.....	J. N. White, Chief Surgeon.
Denver & Rio Grande Western R. R.....	M. D. Currigan, Acting Chief Surgeon.
Erie R. R.....	W. E. Mishler, Asst. to Chief Surgeon.
Georgia R. R.....	J. R. Garner, Chief Surgeon.
Grand Trunk Western R. R.....	G. W. Stockwell, Asst., Western Lines.
Great Northern Ry.....	R. C. Webb, Chief Surgeon.
Louisiana & Arkansas Ry.....	A. A. Herold, Chief Surgeon.
Missouri Pacific R. R.....	O. B. Zeinert, Chief Surgeon.
Montour R. R.....	G. C. Weil, Chief Surgeon.

New York

New York

Pennsylvania

Long Island

Pennsylvania

Pennsylvania

Pekin & U.

Pullman Co.

Reading Co.

Richmond, I.

R. R.....

Rutland R. R.

St. Louis-San

Seaboard Air

Union Pacific

St. Joseph & C.

Virginian Ry.

Wabash Ry....

Western Maryland

Western Ry. of

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June 10-11, 1935

representatives

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Chief Surgeon.

s, Chief Medical Exami-

nd, Medical and Surgical

nd, Medical and Surgical

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be, Chief Medical Officer.

Chief Surgeon.

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abur, Asst. Supervising

Chief Surgeon.

iv, Radiologist.

Chief Surgeon.

Chief Surgeon.

Chief Medical Officer.

Chief Surgeon.

er, Chief Surgeon.

er, Chief Surgeon.

ley, Company Surgeon.

Chief Surgeon.

gan, Acting Chief Surgeon.

er, Asst. to Chief Surgeon.

, Chief Surgeon.

vell, Asst., Western Lines.

Chief Surgeon.

l, Chief Surgeon.

t, Chief Surgeon.

Chief Surgeon.

New York Central System.....	F. V. Whiting, General Claims Attorney.
	W. L. Hartman, Medical Director.
New York Central R. R.....	S. B. Taylor, Chief Surgeon.
	N. L. Higinbotham, Company Surgeon.
Pennsylvania R. R.....	Harvey Bartle, Chief Medical Examiner.
Long Island R. R.....	Walter Aye, Medical Examiner.
	J. W. Harper, Medical Examiner.
	A. P. Isenberg, Medical Examiner.
Pennsylvania R. R. (cont'd)	T. B. L. Jordon, Medical Examiner and Company Surgeon.
	H. E. Heston, Medical Examiner.
	R. C. Kell, Neurologist.
	J. S. Moses, Medical Examiner and Company Surgeon.
	J. E. Nickel, Medical Examiner.
	S. W. Thust, Medical Examiner.
	J. A. White, Medical Examiner.
Pennsylvania-Reading Seashore Lines	A. P. Isenberg, Medical Examiner.
Pekin & Union Railway.....	J. E. Meloy, Chief Surgeon.
Pullman Co.....	T. R. Crowder, Director, Department Sanitation and Surgery.
Reading Co.....	F. S. Ferris, Chief Medical Examiner and Chief Medical Officer.
	C. Detweiler, Medical Examiner.
	C. M. Glassmire, Medical Examiner.
	H. E. Klase, Medical Examiner.
	M. J. Murphy, Medical Examiner.
	Adolph Neupauer, Medical Examiner.
	J. H. Orff, Medical Examiner.
Richmond, Fredericksburg & Potomac R. R.....	W. T. Oppenheimer, Chief Surgeon.
Rutland R. R.....	S. W. Hammond, Chief Surgeon.
St. Louis-San Francisco Ry.....	R. A. Woolsey, Chief Surgeon.
Seaboard Air Line Ry.....	J. D. Collins, Chief Surgeon.
Union Pacific R. R.....	J. R. Nilsson, Chief Surgeon.
St. Joseph & Grand Island R. R.....	M. L. Crandall, Surgeon.
Virginian Ry.....	Southgate Leigh, Chief Surgeon.
Wabash Ry.....	D. A. Pence, Surgeon-in-Charge.
	W. E. Gollings, Superintendent.
Western Maryland Ry.....	F. C. Warring, Chief Resident Surgeon.
Western Ry. of Alabama.....	J. R. Garner, Chief Surgeon.
	also
Association of American Railroads.....	J. C. Caviston, Secretary. (M. & S. Section).

Conference of State and Provincial Health Authorities of North America	A. J. Chesley, Secretary.
International Journal of Medicine and Surgery	F. C. Lewis, Editor and Publisher.
Mayo Clinic	C. H. Mayo, M. D. W. J. Mayo, M. D. F. A. Willius, Cardiologist.
The Johns Hopkins University, School of Medicine	Dean Lewis, Professor of Surgery.
United States Navy	Rear Admiral P. S. Rossiter, Surgeon General.
Wheeling Clinic	W. S. Fulton, M. D.
and	
Guests	E. H. Shields, M. D. F. L. VanSickle, M. D.

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ASSOCIATION OF AMERICAN RAILROADS

MEDICAL AND SURGICAL SECTION

REPORT OF COMMITTEE ON DISABILITY
AND REHABILITATION

Dr. G. W. Gale, Jr. (Chairman), Chief Surgeon, St. Louis Southwestern Railway, Texarkana, Ark. (Deceased—March 24, 1935.)

Dr. A. R. Kilgore, Chief Surgeon, Western Pacific Railroad, San Francisco, California.

Dr. A. R. Metz (Acting Chairman), Chief Surgeon, Chicago, Milwaukee, St. Paul & Pacific Railroad, Chicago, Illinois.

Dr. F. C. Warring, Chief Resident Surgeon, Western Maryland Railway, Baltimore, Maryland.

Dr. J. G. Frost, Chief Surgeon, Chicago & Eastern Illinois Railway, Chicago, Illinois.

Representative from Committee of Direction
Dr. J. R. Garner, Chief Surgeon, Western Railway of Alabama, Atlanta, Georgia

NEW YORK, N. Y., May 1, 1935.

TO THE MEDICAL AND SURGICAL SECTION:

Since the organization of this Committee, which has functioned under several names, practically all of the important subjects coming within its purview have been discussed—some of them almost annually. A number of them are and always will be of paramount interest and we feel should be kept constantly before this body.

As we become more careful and painstaking in our physical examinations, both with and without the use of scientific instruments, such important diseases as syphilis of the central nervous system, diabetes, nephritis, focal infections, hypertension, coronary diseases of the heart, aortitis and aneurysm of the aorta and others mentioned in the list given below seem to occur with increasing frequency and all are of the gravest concern when occurring in train service employees and more particularly with those in engine service.

In a measure this report is somewhat in the nature of a recapitulation as well as one to lay emphasis on the important matters that have been discussed in past years.

The question of disability has prime importance to the railroad industry as may be incomprehensibly readily recognized by those who have been described from time to time. These examinations, in the visual acuity of the employees of various classes of service in the present ophthalmologic practice.

Essentially we are concerned with the question of visual acuity, although in any satisfactory report in an extract from The Transactions of the American Medical Association, 1934, report. This table, giving visual acuity used in ordinary test card perception in percent. The twenty feet allows us to use there is marked discrepancy for near and distant vision. The reader is referred to the regulations, American Medical Association, 1934, for the formula is given for central vision.

(Percentage near vision)

TABLE FOR DETERMINING VISUAL PERCEPTION

Snellen Notations at 14 inches A.M.A.	"Diopter" or Meter	Jaeger
14/14	0.37 D.	No. 1
14/21	0.50 D.	No. 2
14/24	0.62 D.	No. 3
14/28	0.75 D.	No. 4
14/35	0.87 D.	No. 6
14/42	1.00 D.	No. 8
14/49	1.25 D.	No. 9
14/56	1.50 D.	No. 10
14/70	1.75 D.	No. 11
14/84	2.00 D.	No. 12
14/98	2.50 D.	No. 14
14/112	3.00 D.	No. 16
14/140	3.50 D.	No. 17
14/168	4.00 D.	No. 18
14/224	6.00 D.	No. 19
14/336	8.00 D.	No. 20

Vision

The question of disability and rehabilitation as concerns vision is of evident prime importance to the railway surgeon. The recognition of such defects of vision as may be incompatible with the working efficiency of the employee can readily be recognized by certain simple eye examinations that have already been described from time to time by the Committee on Physical Examination. These examinations, in the majority of cases, give us sufficient evidence of the visual acuity of the employee to enable us to determine his capacity for various classes of service in the operation of a railroad. A certain few cases will present ophthalmologic problems that are best referred to the specialist.

Essentially we are concerned with two requisites: ACUITY and COLOR PERCEPTION. Acuity, although in itself a quantitative thing, is rather difficult to grade in any satisfactory numerical form. An attempt to do this is set forth in an extract from The Transactions of the Section on Ophthalmology, American Medical Association, 1927. The table below is reproduced from this report. This table, giving the corresponding size of letters and visual angles used in ordinary test cards, enables the examiner to express loss of macular perception in percent. The column giving corresponding Snellen notations at twenty feet allows us to use the same determination for distant vision. Where there is marked discrepancy between the percentage central visual perception for near and distant vision, certain ratio calculations are necessary. The reader is referred to the reprint from The Proceedings of the House of Delegates, American Medical Association, 1925, Report of Committee on Eye Injuries (printed together with the extract described above) in which the formula is given for central visual efficiency of the eye in question as:

$$(\text{Percentage near vision} \times 2) + (\text{Percentage distant vision} \times 1)$$

3

TABLE FOR DETERMINING PERCENTAGE LOSS OF MACULAR PERCEPTION FOR THE DISTANT AND NEAR TESTS

Snellen Notations at 14 inches A.M.A.	"Diopter" or Meter	Jaeger	Size in Mm. of Letters at 14 Inches	Visual Angle for all Notations	Corresponding Snellen Notations at 20 Feet	Percentage Central Visual Perception	Percentage Loss in Visual Efficiency
14/14	0.37 D.	No. 1	0.502	5	20/20	100.0	0
14/21	0.50 D.	No. 2	0.735	7.5	20/30	91.4	8.6
14/24	0.62 D.	No. 3	0.853	8.5	20/33	89.5	10.5
14/28	0.75 D.	No. 4	1.004	10	20/40	83.6	16.4
14/35	0.87 D.	No. 6	1.255	12.5	20/50	76.5	23.5
14/42	1.00 D.	No. 8	1.506	15	20/60	70.0	30.0
14/49	1.25 D.	No. 9	1.757	17.5	20/70	63.9	36.1
14/56	1.50 D.	No. 10	2.008	20	20/80	58.5	41.5
14/70	1.75 D.	No. 11	2.510	25	20/100	48.9	51.1
14/84	2.00 D.	No. 12	3.012	30	20/120	40.9	59.1
14/98	2.50 D.	No. 14	3.514	35	20/140	34.2	65.8
14/112	3.00 D.	No. 16	4.016	40	20/160	28.6	71.4
14/140	3.50 D.	No. 17	5.030	50	20/200	20.0	80.0
14/168	4.00 D.	No. 18	6.024	60	20/240	13.0	87.0
14/224	6.00 D.	No. 19	8.032	80	20/320	7.2	92.8
14/336	8.00 D.	No. 20	12.048	120	20/480	2.0	98.0

Having a means of expressing percentage efficiency for macular perception, it is necessary to define limits of disability. For entrance into service in all classes, the applicant should present 100% C.V.P. (Central Visual Perception) in each eye, tested separately, without glasses. After acceptance in service, acuteness of vision should be tested at regular intervals. As regards employees in service, to determine defects of visual acuity and to establish rehabilitation in cases where such defects exist requires classification of various occupations and definition of the percentage limits for each. These limits are best ascertained by the Individual Chief Medical Officer. Only general limitations are recommended in this presentation. Employees in engine and train crews, eligible for promotion, should present 91.4% C.V.P., or better, in each eye, with or without glasses. For re-examination, the same group of employees only need evidence a C.V.P. of 83.6%, or better, in each eye, with or without glasses. If at any time such employee's C.V.P. tests 76.5% or lower in either eye, with or without glasses, he should be excluded from active train service and be rehabilitated in some occupation in which visual requirement is less exacting. Employees in other branches of service should show at least 58.5% C.V.P., or better, each eye tested separately, with or without glasses. Below this figure the employee should be excluded entirely from any service concerned with the active operation of trains and be assigned to an occupation where visual acuity is not an important factor. This assumes, of course, that the employee is wearing, at the time of examination, glasses that correct any refractive error he may have. If there is any doubt that his present lenses are satisfactory, he should be re-examined after having new glasses prescribed by an ophthalmologist.

COLOR PERCEPTION can be examined by any of the devices marketed by reliable supply houses. Of these the Ishihara test for color blindness, based on the principle of figures traced in dots on contrasting colors, permits a quick, easy and satisfactory test of color vision. Even illiterates can trace the figures, and malingering is next to impossible in this method. Color blindness is of two types—Complete and Partial (Red, Green and Blue). Either type constitutes a disability that necessitates removal of the employee from active train service, or any other occupation where color perception must be unimpaired. It should be borne in mind that color blindness can be acquired as well as congenital and for this reason it is just as important in re-examinations to test the color sense as to test the visual acuity.

There are two other defects for which we must constantly be on the alert, which may be overlooked in examining only for acuity and color perception. These are (1) limitation of extraocular movements, and (2) reduction of the size of the field of vision. Gross tests, using the fingers, give hint to any impairment and this can be confirmed by an experienced ophthalmologist. His recommendation should be considered in those instances where there is a question as to the fitness of an employee for his occupation.

Eye Changes in Diabetes

Visual disturbances are rarely found in diabetes insipidus and in most instances are associated with the cerebral complications of this disease, although

several cases of cataracts have been reported.

In diabetes mellitus optic neuritis and optic atrophy are common. Accommodative and refractive errors, and bulbar optic neuritis is much alcohol and tobacco so is usually a sign of

Bernardo Romazzini Diseases and brought on prevalent in employees present are being brought surgeon for systematic

Pneumoconiosis (pneumoconiosis) caused by any kind of dust undoubtedly more intense

Silicosis is caused by breathing fine dust particles of silicon dioxide. Asbestos pulmonary fibrosis and Anthracosis, which is due to coal dust, as serious in causing death as silicosis. Fine dust particles of silicon dioxide, minute and microscopic

Silicosis, the most common of the railroad diseases, develops slowly. However, this changes in the lung at severe types are found in are, however, cases called after exposure of from 1 in individuals that are free alkali as is found in

It should be understood that amounts of silica produced to tuberculosis. There with silicosis but are tuberculosis.

According to McNamara tissue averages 1.13 mg. of silica per gm. of dried atmosphere. Assuming silicosis is present or no

several cases of cataract, retinitis, paralysis of the external rectus muscle have been reported.

In diabetes mellitus inflammation of the cornea, iritis, cataract, retinitis, optic neuritis and optic atrophy, especially retinitis, are not uncommon. Accommodative and refractive changes are of frequent occurrence. Retrobulbar optic neuritis is often noted in those having diabetes who also use much alcohol and tobacco. In diabetic coma, the eyeball may be soft and if so is usually a sign of a bad prognosis.

Pneumoconiosis

Bernardo Romazzini in 1717 published a classical book on Occupational Diseases and brought out in detail, that pulmonary disorders were especially prevalent in employees engaged in dusty occupations. These conditions at present are being brought more and more to the attention of the industrial surgeon for systematic studies.

Pneumoconiosis (pneumon—lung; konis—dust) is a condition that may be caused by any kind of dust entering the lung; but we as railroad surgeons are undoubtedly more interested in silicosis and asbestosis than in the other types.

Silicosis is caused by breathing free silica into the lungs; asbestosis is caused by breathing fine fibres of asbestos which consists of magnesium calcium silicate. Asbestosis is not a common condition but it causes extensive pulmonary fibrosis and takes on a more rapid course than does silicosis. Anthracosis, which is due to coal dust, and siderosis, due to iron dust, are not as serious in causing complications as the other two just mentioned. These fine dust particles which produce these irritative lung conditions are very minute and microscopic in size.

Silicosis, the most common dust disease and which is brought to the attention of the railroad surgeon the most frequently, in general develops very slowly. However, this disease takes from ten to twelve years before the changes in the lung are sufficient to produce clinical findings. The most severe types are found in cases after exposure of from 32 to 42 years. There are, however, cases called "Acute Silicosis" that have been known to develop after exposure of from four months to two years. The acute cases are found in individuals that are exposed to air containing silica which is mixed with free alkali as is found in powder plants where scouring powder is manufactured.

It should be understood that silica is found in the normal lung, but excessive amounts of silica produce connective tissue and this predisposes the individual to tuberculosis. There are many cases of tuberculosis that are not associated with silicosis but are diagnosed as silicosis. This is the miliary type of tuberculosis.

According to McNally, the silicon dioxide content of the normal dried lung tissue averages 1.13 mg. per gm. Any lung containing over 2 mgs. of silicon dioxide per gm. of dried lung tissue indicates undue exposure to a dusty atmosphere. Assuming that these findings are true, the decision of whether silicosis is present or not must be made by the pathologist and not left to the

chemist since the anatomical changes of silicosis are characteristic of the disease and only the anatomical changes determine disability and death.

The clinical picture of the patient, with shortness of breath, must always be considered seriously. The X-ray findings, although very difficult to diagnose accurately, are of great benefit. The history of the patient is probably of the most importance in making an early diagnosis. In dealing with employees on entrance to service our suggestions would be:

- (1) For the physician to take a complete history and make a careful physical examination.
- (2) To take an X-ray film of the chest for lung tissue for diagnosis and future record.

In old employees with a history of working in dust and having the classical clinical symptoms we suggest:

- (1) To make a change in his occupation.
- (2) To take an X-ray of his chest for lung tissue.

In the way of prevention it becomes necessary

- (1) To educate all concerned.
- (2) Get rid of dust.
- (3) Sprinkle the working area with water.
- (4) Have employees wear inhalers.
- (5) Have frequent analyses made of the dust content of the air at different times during the working hours.

Amoebic Dysentery

The subject of Amoebic Dysentery has been previously covered quite thoroughly by this Section. We still recommend the maintenance of meticulous care in the preparations of all foods and strict adherence of the previous instructions to dining car employees. We further recommend in the treatment the use of Chipparo Amargosa (bitter root), a preparation that can be taken both by mouth and by enema. This preparation is non-toxic and can be given in large doses without any toxic effects. Further, this preparation is very efficacious in any type of dysentery. The fluid extract can be obtained from Eli Lilly and Company or Sharpe & Dohme. In some instances the infusion made by boiling the actual Chipparo Amargosa (bitter roots) have given by far the best results.

If results are not satisfactorily obtained by the administration of the fluid extract we advise the use of the infusion. The actual Chipparo Amargosa (bitter roots) can be obtained usually through any large drug concern.

By using either the fluid extract or infusion we overcome the extreme hazard of probably producing a permanent neuritis that so often follows the administration of arsenical preparations. When this does happen many times the neuritis proves to be worse than the amoebic dysentery.

"Pain in the back after recent trauma or a fall has become a classic symptom. The exact cause is not encountered that diagnosis, when physical tests, X-rays and roentgen at a loss to account

Probably the most common conditions or anatomical of the proliferative process not be found until small embedded in the pillar is very characteristic cause of severe arthritis that their importance cause of this condition arthritis.

Influenza is also its bad after effects different types of articular cartilages means but are pro arthritis and tuberculous cases of pain in the examinations and

Spondylolisthesis was formerly suspected thrown out of its the bodies of the vertebrae

Curvature of the spine also causes

In spondylolisthesis lumbar vertebra, the spine is limited, theogram with the ilium must be taken to by the heavy crest interpreted and the Roentgen in spondylolisthesis

Lumbo-sacral conditions one might cervical rib, sixth rib the thorax and pelvis mulbar vertebrae

Pain in the Back

"Pain in the back" in its various anatomical locations not associated with recent trauma or vertebral fracture or dislocation is one of the "worries" that has become a classic to the industrial surgeon. Under so many conditions, the exact cause is so difficult to determine and discouragement is so often encountered that untiring effort must be put forth to arrive at a correct diagnosis, when possible. Although all our diagnostic means, as laboratory tests, X-rays and physical findings, be carried out we must still admit we are at a loss to account for this pain in a vast number of cases.

Probably the most difficult and most frequent of the many pathological conditions or anatomical anomalies causing this pain is arthritis, especially of the proliferative type. The foci of infection are so hard to find and many not be found until great permanent damage has already been done. The small embedded tonsil with the scarlet red line on the margin of the anterior pillar is very characteristic of a diseased tonsil which, in many cases, is the cause of severe arthritis. The tonsil is usually so small in these types of cases that their importance is easily overlooked and unappreciated as the direct cause of this condition. It is advisable to remove the tonsils in all forms of arthritis.

Influenza is also another type of infection that on many occasions leaves its bad after effects in the back, especially in the sacro-iliac region. These different types of infection many times produce osteophytes in the vertebral articular cartilages that cannot be determined by means of X-ray of other means but are present, causing aggravating symptoms. Low grade meningitis and tuberculosis are also types of infection producing back pain. In all cases of pain in the back, the teeth, tonsils, sinuses, chest and gastro-intestinal examinations and studies must be carefully made.

Spondylolisthesis (or sub-luxation) is a much more common condition than was formerly suspected. The weight bearing direction of the body being thrown out of its proper alignment, stretching the ligament attachment of the bodies of the vertebrae, causing severe back pain.

Curvature of the spine due either to postural or by absorption as in tuberculosis also causes pain in the back.

In spondylolisthesis there occurs the depression over the area of the fifth lumbar vertebra, the shortened torso and broadened pelvis. Flexion of the spine is limited, especially in the forward excursion. A lateral Roentgenogram with the ilium slightly angled is essential to make the diagnosis. Care must be taken to throw the ilium out of the direct line or the shadow made by the heavy crest may be so great that the X-ray film may be wrongly interpreted and the Roentgenologist thereby confused in making a correct diagnosis in spondylolisthesis.

Lumbo-sacral neuritis, lumbar muscular spasm, are also quite common conditions one might encounter. Anomalies are quite prone to cause pain, as cervical rib, sixth lumbar vertebrae, thereby increasing the distance between the thorax and pelvis, making a natural weakness. Spinous processes of the lumbar vertebrae being too short for proper muscular attachment of the

lumbar muscles. Many other conditions may be found, as spinal cord tumors, metastatic tumors, tumors of the kidney, stone in the kidney or ureter, enlarged prostate, advanced varicocele and especially pendulous abdomen, calcification of the ilio lumbar ligament and sacralization of the fifth lumbar vertebra.

Trichinosis is a more common condition than is suspected and a blood microscopical examination for eosinophilia is helpful to make a diagnosis.

We wish to repeat and advise that in conditions causing back pain, it is essential to remove the causative factor. It is necessary to have complete laboratory and X-ray studies, in the X-ray studies special attention to the lateral views.

In regard to treatment the following procedures may be necessary: rest in bed with slight hyperextension of the spine, with a double Buck's extension and traction on the legs; application of body casts and body splints; removal of all foci of infection; injection of some foreign protein; manipulation under anesthesia for sacral region pain; immobilization either by fusion of the lower lumbar and sacral articulations; patient should receive salicylates and iodides by mouth; his diet should be carefully watched and his general physical condition thoroughly cared for.

The condition of "pain in back" is so serious and of such an economic value that too much stress cannot be put upon the importance of its proper management and treatment.

Cardio-Vascular-Renal Disease

An employee in train service who after 40 years of age should at the periodic examination be examined minutely for evidences of early, as well as advanced, cardio-vascular-renal disease.

Blood pressure readings where the systolic is over 170 and the diastolic over 100 should be repeatedly checked. Often after a rest, such as lying down for 15 to 30 minutes, the pressure may be found to be 20 to 30 millimeters lower. If the systolic exceeds 200, the employee should be removed from active service.

Urinalysis should be made a routine part of the examination in all cases of hypertension and if albumin appears constantly in amounts in excess of a 1-millimeter ring in a freshly voided morning specimen, regardless of the systolic pressure, the individual should be given the advantage of complete rest. In borderline cases, examination of the eye-grounds may prove of great value.

In those where a history of dyspnea, oedema, precordial pain and tachycardia, especially after exertion, is given, even though clinical findings are insignificant, an electrocardiogram is invaluable.

On the other hand, cardiac irregularity or enlargement, or evidences of valvular disease may be found in individuals who deny any symptomatology. The danger of allowing such to continue in active train service must not be minimized. Again the electrocardiogram is of value determining the true character of an irregularity of the pulse or the apex beat.

Fluoroscopic examination of the heart, but in some individuals with diffuse widening of the aorta or the pre-vertebral space with patting that "an aortic knob" may not be course, constitutes a definite hazard to the public and cannot be allowed to remain.

Coronary disease without definite positive electrocardiographic evidence. Suspects should be subject to no electrocardiogram should be resorted to for

In summarization, the rule that cardiovascular-renal disease should be checked preferably every three months should

At these examination, the following procedure where indicated:

- (1) Condition of heart and blood
- (2) Electrocardiogram.
- (3) Repeated blood pressure readings
- (4) Urinalysis.
- (5) X-ray of chest.
- (6) Examination of eye-grounds

Nothing new can be added on the importance of careful observation, physical examinations and routine already in service.

Would also recommend the adoption for all applicants for employment a should be rejected.

Obesity is one of our most important railroad employees. This is evidenced by examinations made of 7,500 employees show that 16% of the men examined list of physical defects, the first being

Employees who carry an excess physical and mental activities which dependability and predisposes to

It is a medical observation that individuals who are overweight.

Fluoroscopic examination of the chest often reveals not only an enlarged heart, but in some individuals where cardiac enlargement was suspected a diffuse widening of the aorta or even definite indications of an aneurysm. The pre-vertebral space with patient in lateral position should be used so that "an aortic knob" may not be thought to be aneurysm. The latter, of course, constitutes a definite hazard to self, fellow-employees and general public and cannot be allowed to remain in active service.

Coronary disease without definite history of anginal attack or absence of positive electrocardiographic evidence may be suspected but not diagnosed. Suspects should be subject to more frequent examination and the electrocardiogram should be resorted to freely.

In summarization, the rule that individuals presenting evidence of cardiovascular-renal disease should be examined at least every six months and preferably every three months should be followed.

At these examination, the following should form a rigid part of the procedure where indicated:

- (1) Condition of heart and blood vessels.
- (2) Electrocardiogram.
- (3) Repeated blood pressure readings.
- (4) Urinalysis.
- (5) X-ray of chest.
- (6) Examination of eye-grounds.

Syphilis

Nothing new can be added on this subject other than to again emphasize the importance of careful observation for evidence of syphilis in routine physical examinations and routine use of Wassermann tests on employees already in service.

Would also recommend the adoption of universal rule of blood examination for all applicants for employment and those with positive blood Wassermanns should be rejected.

Obesity

Obesity is one of our most important and frequent physical defects among railroad employees. This is evident by figures obtained in careful physical examinations made of 7,500 employees in operating service where the findings show that 16% of the men examined were overweight. This is second in a list of physical defects, the first being defective vision.

Employees who carry an excess of weight tend to become sluggish in their physical and mental activities which in turn lessen their physical and mental dependability and predisposes to slow cerebration.

It is a medical observation that diabetes occurs more frequently in individuals who are overweight.

The carrying of excess fat puts extra work on the heart and kidneys, which tends to exhaust prematurely the life of these two vital organs.

Overweight is of a special concern in engineers, who after living an active life as a fireman become accustomed to eating large amounts of food which is necessary for their work. When these men are promoted to engineers and carry on the duties of an easier occupation, they continue overeating, which results in a gradual increase in weight. In more recent years, it has been necessary for a number of these men who are overweight as engineers to return to firing due to reduction of forces, with result that they are easily exhausted and unable to carry on the harder work due to weakened heart muscle and other general disturbances.

It is important that the employees' attention be repeatedly called to the dangers of overweight and that they be given some specific directions of how to correct the condition. With this in view, the Committee is submitting the accompanying folder, which contains the essential information that the men can follow. (Note: Folder follows page 115).

Respectfully submitted,
COMMITTEE ON DISABILITY AND REHABILITATION,
A. R. METZ, Acting Chairman.

DR. A. R. METZ (Chicago, Milwaukee, St. Paul & Pacific Railroad): "Since the organization of this Committee, which has functioned under several names, practically all of the important subjects coming within its purview have been discussed—some of them almost annually. A number of them are and always will be of paramount interest and we feel should be kept constantly before this body.

"As we become more careful and painstaking in our physical examinations, both with and without the use of scientific instruments, such important diseases as syphilis of the central nervous system, diabetes, nephritis, focal infections, hypertension, coronary diseases of the heart, aortitis and aneurysm of the aorta and others mentioned in the list given below seem to occur with increasing frequency and all are of the gravest concern when occurring in train service employees and more particularly with those in engine service.

"In a measure this report is somewhat in the nature of a recapitulation as well as one to lay emphasis on the important matters that have been discussed in past years."

I read this introduction in memory of the Chairman of the Committee, Dr. Cale, as he had written the introduction and had sent out questionnaires to the Chief Surgeons for suggestions. Before having time to complete the work, he had written his introduction and gone to a hospital where he was operated upon and died. It was while he was in the hospital that he sent me this much of the report and the remainder of the Committee carried on and compiled the rest of the report. This is Dr. Cale's final contribution to this Association.

Acuity of vision has been particularly interested in this but will merely state that the Surgeons or the Medical Centage of loss of the acuity

There were some requests and I requested Dr. Virgil road to give a short report rated in the report.

Pneumoconiosis, as we importance. Dr. Frost, was alert on the literature upon summarized in an article the which if observed will be accomplish to avoid pneumo

Last year amoebic dysentery Dr. Frost told us about C we felt that for the sake of write a few paragraphs on:

Pain in the back has been that has been appointed has nobody is going to solve it produces pain in the back:

There was also a question committees have reported have asked Dr. S. R. Sh renal disease in Rush Med on all our cardio-vascular summary of his observation result of his observation and repeatedly and, of course, in

Syphilis is also a problem working on this problem with local conditions.

Obesity is a more frequent amounting to about 16 per

In order to treat this condition have devised a special diet table and is headed "Time

When an employee is following instructions to follow carefully

With the means of this outline of instructions that produce the desired results, if

This time table for reduction Association for whatever use can be altered or changed

Acuity of vision has been very well gone into by Dr. Warring who is particularly interested in this subject, and will not attempt to read all of this, but will merely state that it is gotten up with the object of helping the Chief Surgeons or the Medical Officers to have a means of determining the percentage of loss of the acuity of vision.

There were some requests for something on the eye changes in diabetes, and I requested Dr. Virgil Wescott, who is oculist for the Milwaukee Railroad to give a short report on the eye changes in diabetes, which is incorporated in the report.

Pneumoconiosis, as we discussed it in the last meeting, is of increasing importance. Dr. Frost, who has been very much interested and has been alert on the literature up to the present time on pneumoconiosis, has summarized in an article the essential facts that we have, with recommendations which if observed will be all the protection that we can possibly hope to accomplish to avoid pneumoconiosis troubles.

Last year amoebic dysentery received a certain amount of discussion, and Dr. Frost told us about Chipparo Amargosa and some made notes on it, but we felt that for the sake of the permanent record it would be well for him to write a few paragraphs on amoebic dysentery.

Pain in the back has been discussed repeatedly. I think every committee that has been appointed has had an article on pain in the back. Apparently nobody is going to solve it very soon. There are many views as to what produces pain in the back and this is another contribution.

There was also a questionnaire about cardiovascular-renal disease. Former committees have reported on this—and as a result of this questionnaire I have asked Dr. S. R. Slaymaker, who has been teaching cardiovascular-renal disease in Rush Medical College for forty years and has been checking on all our cardio-vascular disease on the Milwaukee Railroad, to put down a summary of his observations, and this article on cardio-vascular disease is a result of his observation and his summary of following the men that he sees repeatedly and, of course, in line with his teachings over many years.

Syphilis is also a problem that is with us and the various railroads are working on this problem which will have to be solved in a way that meets their local conditions.

Obesity is a more frequent physical defect than is ordinarily suspected, amounting to about 16 per cent in a series of 8,000 examinations.

In order to treat this condition effectively on the Milwaukee Railroad, we have devised a special diet list which is printed on a folder similar to a time table and is headed "Time Table for Reducing and Regulating Weight."

When an employee is found who is overweight, he is given this diet with instructions to follow carefully for three weeks and to report his progress.

With the means of this special diet, we are able to give the employee an outline of instructions that he can take home and follow and which will produce the desired results, if observed in a conscientious way.

This time table for reducing and regulating weight is submitted to the Association for whatever use the various roads may see fit to make of it. It can be altered or changed in any way that the various surgeons see fit.

DR. F. C. WARRING (Western Maryland Railway): Mr. Chairman and Members of the Section: I should like to say a few words in connection with this vision article that is written in this report. I have heard that the impression has been gained by a number of the members of this Section that the idea is to change our records from 20/20, or 20/30 or 20/40, whatever the test may be, to this percentage business that is listed in this report. That is not the wish of the Committee nor the object of the article that is written here.

What this percentage is intended to do is to give the Chief Medical Officer of the railway company, the Chief Surgeon, or Medical Director, or whatever his title is, an idea of the approximate percentage of acuteness of vision of an employee so that he can convey it to his management. In quite a number of instances, especially where a man is aging and refractive error cannot be corrected, it is a nice thing to be able to tell your management that this man has only 50 per cent of acuteness of vision and to tell the employee that he has only 40, 50 or 70 per cent efficiency and induce him to get better glasses to correct this low percentage of efficiency that he has.

I have brought with me one of each of the charts of the distant vision. On our railroad we make our medical examiner make the notation whether the man reads 20/20, which is 100 per cent, or whether he reads 20/60, which is 70 per cent. We don't have him handle the percentage. That is all done in the office of the Chief Surgeon. The chart is arranged in the same way with the Snellen notations, with your 14/14 and your 14/21 which is 100 per cent and 91.4 per cent, respectively. In this pamphlet you will note how to attain the percentage of efficiency in one eye. This information is mostly gathered from the Ophthalmology Section of the American Medical Association. They submitted a report along this line to guide the different compensation commissions in developing the percentage of loss of vision on account of injury, but we can use the same thing in our test for acuteness of vision.

As I say, this percentage is for one eye. It says, "Percentage near vision." We will take, for instance, a man who reads 14/28 on the Snellen Notation. That is 83.6 per cent efficiency. To make it easier to calculate in the mind, we will say that a man has a near vision efficiency of 80 per cent. We multiply that by two, that is a two-fold value, and then we add his distant percentage of efficiency. We will say his distant vision efficiency is 90 per cent. In other words he would have a total percentage then of 250 and we divide that by 3. That would give him 83.3 per cent efficiency of vision in that one eye. If you get the visual efficiency in both eyes, the good eye has a three-fold value. In other words, we will take a man who has lost one eye. His other eye is 100 per cent. Naturally you would think that he has only 50 per cent efficiency with just one eye, the other one being enucleated, but that is not the case. You give a three-fold value to the good eye which is 100 per cent. That means 300 per cent and you divide by four the three-fold value for the good eye and that gives the man a visual efficiency of 75 per cent, which is a little more than 50 per cent.

That is my idea in bringing this report to you. This is all American Medical Association work that has been developed, as I said, by their Ophthalmology Section, and I think it will be a great help to us men.

THE CHAIRMAN

DR. WEBB: reports and the diabetes, but just what

I recently : Department C on diabetic pa for the address surgeons I got look them over get the benefit patients are all to railway em instances, but regimes. He studying these

The time is transactions, if you, just as you

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THE CHAIRMAN: conclusions. I here for ten years the handling of the Committee of . . . Up that the report Dr. Cardie's

THE CHAIRMAN

THE CHAIRMAN: mittee on Medical make this report they seemed to has no business-cized for it, but a great deal to

Dr. Dowdall at the Pullman

DR. CROWDER: time ago Dr. D report and I told

THE CHAIRMAN: Is there any further discussion on this?

DR. WEBB: The question of diabetes has been brought up in the last two reports and this problem has caused me a good deal of worry. I do not treat diabetes, but I read the reports of the committees and I am constantly wondering just what to tell our management about the diabetic cases.

I recently asked Dr. A. E. Cardle, who is the director of the Outpatient Department Clinic of the Minneapolis General Hospital, to talk to our surgeons on diabetic problems among railway employees, and in order to prepare him for the address and in order to give him something of the problems of railroad surgeons I gave him our transactions for the last ten years and asked him to look them over and incorporate them in his paper, so that our doctors might get the benefit of the transactions and his special knowledge of diabetes. His patients are all charity patients and in consequence are somewhat comparable to railway employees who are on duty. They may be more difficult in some instances, but the railroad employee also has difficulty in following diabetic regimes. He recently wrote me a letter expressing his ideas as the result of studying these transactions and also his recommendations.

The time is growing late. I should be glad simply to place this in the transactions, in order to let the rest of you have the benefit of it or read it to you, just as you desire.

. . . Dr. Webb read Dr. Cardle's conclusions. . . .

THE CHAIRMAN: Members of the Section: You have heard Dr. Cardle's conclusions. He has summarized all the work that we have done on diabetes here for ten years, and his opinion is so different from most of our opinions in the handling of these railroad men that I believe this should go before the Committee of Direction before we incorporate it in the minutes of our meeting.

. . . Upon motion regularly moved, seconded and carried, it was voted that the report of the Committee be received as a Progress Report and that Dr. Cardle's conclusions be referred to the Committee of Direction. . . .

THE CHAIRMAN: Is there any further discussion on this subject?

THE CHAIRMAN: The next item on the program is the report of the Committee on Medical Aspects of Air Conditioning of Cars. Just before they make this report I want to say that when I appointed this committee last fall they seemed to object to it, they seemed to think that the Medical Section has no business to look into this air conditioning of cars. I was rather criticized for it, but I insisted on appointing a committee because I think we have a great deal to learn about air conditioning.

Dr. Dowdall is not here. Dr. Crowder will tell us about the research work at the Pullman plant.

DR. CROWDER: I had no knowledge that I was to furnish a report. Some time ago Dr. Dowdall called me up and asked me if I could help him with this report and I told him I would be glad to do that. We discussed in what way