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**ACCIDENTS TO RAILROAD EMPLOYEES IN NEW JERSEY,  
1888 TO 1907.**

BY FREDERICK S. CRUM, PH. D.

INTRODUCTION.

Industrial accident statistics to be of the most value should relate to specific employments. This is especially important in large industries such as the railroad industry, the mining industry, the iron and steel industry, etc., in each of which there is a large variety of particular employments more or less well defined and often with very different exposure of employees to accident liability. For certain purposes it is interesting and often important to know how many railway or mine employees are killed or nonfatally injured per annum; but such aggregate returns are of little practical value unless statistics are also available in detail by specific employments, by causes of accidents, and by nature or extent of injury, when the injuries are nonfatal. For illustration, the annual fatal accident rate for all railway employees in the United States has varied during the ten years, 1898 to 1907, from 2.24 per 1,000 employees in 1898 to 2.80 in 1904. For the last year of the period (1907) the rate was 2.71 per 1,000. If, however, only the group of employees designated as trainmen is considered, the fatal accident rate has varied in the United States during the same ten-year period from 6.46 in 1899 to 8.33 in 1904. Again, when a still more specific calculation is made and the accident liability of brakemen alone is considered, we find from data available in the report of the bureau of statistics of labor of New Jersey that the average fatal accident rate for this class of railway employees was 11.4 per 1,000 employed during the period 1900 to 1908, inclusive.

A considerable proportion of railroad employees are not exposed to exceptional liability to fatal or nonfatal accidents, and there is a gradation of exposure in the various railroad employments, which

is readily apparent when the statistics are properly compiled. In some of the employments the annual fatal accident rate is as high as 4 or more per 1,000 employees, and in others it is only a fraction of 1 per 1,000. Probably the rates for the majority of the various railroad employments are between these two extremes.

For certain of the larger groups of railroad employees, such as enginemen, firemen, trackmen, shopmen, etc., excellent data are available in the annual reports of the Interstate Commerce Commission and in the reports for certain of the state railway commissions. Readily available and reliable data, however, are almost entirely lacking for such important groups of railway employees as conductors, baggagemen on trains, signalmen, track patrollers, etc. The important distinction between baggagemen at stations and baggagemen on trains is seldom if ever made in the accident returns, and the equally important distinction of conductors employed on passenger trains, conductors employed on freight trains, and conductors employed on yard trains is seldom or never made, although the exposure to accident in the different classes of employees is widely different, judging from certain more or less fragmentary information. The fact requires to be emphasized that fatal accident rates based upon large groups of railway employees composed of very different elements are likely to be not only unscientific but often misleading.

The main purpose of this article is to contribute some facts which may throw light on the subject of accidents to railway employees in the smaller branches of the railway service. The data upon which the study is based have been derived principally from the annual reports of the State of New Jersey entitled Railroad and Canal Reports, for the twenty-year period, 1888 to 1907. As early as 1852 a law was enacted in New Jersey requiring the railroads operating in that State to report annually the railway accidents in which any person, employee or other, should meet with injury. This act was approved February 24, 1852, and the specific provision relating to the reporting of accidents was as follows:

That every railroad company in this State [New Jersey] shall, on the fourth Tuesday of January, in each and every year, make to the legislature a report, under oath or affirmation of the president of said company, containing an account of \* \* \* the accidents that have occurred during the year on the road, and the cause of the same, with the names of the persons injured, and the nature and extent of their injuries; also, the names of the engineers and conductors under whose management such accidents have occurred, and whether such engineers and conductors are still retained in the employ of said companies.

A supplement to this act was enacted March 11, 1853, by the provisions of which the reports were to be transmitted to the secretary

of state before the first Tuesday of January of each and every year, and by him to be transmitted to the legislature on the first Tuesday of February of each year. This law of 1852, as supplemented in 1853, remained in force without change until April 3, 1873, when a further supplement provided that the annual reports by the railroads should be made to the state comptroller, that official to cause printed copies of the reports to be laid before the legislature.<sup>(a)</sup>

When, in 1903, the legislature revised the railroad laws of the State, there were embodied in the general act concerning railroads the provisions of the law of 1852 and of the supplements of 1853 and 1873.<sup>(a)</sup>

It is important to note that the act of 1852 did not require the railroads to report the specific occupation of the employee injured. As a matter of fact, however, this information has been reported by the majority of the railroads, and during the twenty years 1888 to 1907 the specific occupations of about 13,000 employees injured fatally or nonfatally have been reported. On the other hand, the law provided that the nature and extent of the injuries should be reported, but as a matter of fact this item has frequently been omitted in the returns.

The accident returns of the various railroads operating in New Jersey are printed in the annual reports entitled Railroad and Canal Reports, and each particular accident is, as a rule, given a separate paragraph. The accident data are not tabulated in the reports and can not, therefore, be used to any advantage until compiled by the investigator, and, for the first time, this has been attempted in the pages which follow. It may be mentioned, however, that in the annual report of the bureau of statistics of labor of New Jersey for 1888 there is a summary of the accidents for the period 1852 to 1888, but of the various railway employments only trainmen as a group were considered. The summary was therefore of little value except as indicating the general trend of the railroad accidents in New Jersey for a long period of years.

In this investigation the numbers exposed to the risk of injury are not definitely known, and fatal or nonfatal accident rates can not, for that reason, be calculated. Nevertheless, the presentation of the statistics under the specific occupations is of value, because this method gives information concerning several railway employments which is not available elsewhere. The defect in the data compiled from the railroad and canal reports that the corresponding numbers employed are not known has been remedied in part by the statistics of injuries to railway employees in New Jersey which have been published in the annual reports of the bureau of statistics of labor and industries of New Jersey during the period 1900 to 1908.

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<sup>a</sup> For the text of the law see appendix, p. 287.

These returns have been made voluntarily by the railroads, and for this reason all of the roads have not reported the accidents to their employees during the whole period. The statistics, however, for such of the roads and for such of the years as are available have been compiled in the following table, and these data have the advantage of making distinction of several specific employments in which the number of employees actually exposed is known. From these data, therefore, fairly accurate average annual fatal and nonfatal accident rates have been calculated for such employments as have been separately returned.

NUMBER OF RAILROAD EMPLOYEES FATALLY INJURED AND NUMBER NON-FATALLY INJURED IN ACCIDENTS IN NEW JERSEY, WITH RATE PER 1,000 EMPLOYEES, BY OCCUPATIONS, 1900 TO 1908.

[From annual reports of the bureau of statistics of labor and industries of New Jersey.]

Occupation.	Number of employees.	Railroad employees injured—			
		Fatally.		Nonfatally.	
		Number.	Rate per 1,000 employees.	Number.	Rate per 1,000 employees.
General and other officers.....	176			1	5.68
Agents.....	4,332	1	0.23	10	2.31
Assistant agents.....	799				
Agents and assistant agents.....	408			4	9.80
Clerks.....	11,605	2	.17	23	1.98
Station men (not specified) (a).....	17,471	6	.34	548	31.37
Telegraph operators and dispatchers.....	4,998	2	.40	21	4.20
Division superintendent's office.....	737			14	19.00
Supply department.....	422				
Baggagemen.....	2,527	1	.40	34	13.45
Enginemen.....	9,628	24	2.49	348	36.14
Firemen.....	9,940	39	3.92	532	53.52
Conductors.....	6,389	28	4.38	439	68.71
Brakemen.....	10,594	121	11.42	1,994	188.22
Switchmen.....	2,424	8	3.30	84	34.65
Flagmen.....	5,680	18	3.16	78	13.71
Engine wipers, etc.....	3,066	1	.33	84	27.40
Yardmen.....	10,836	12	1.11	210	19.38
Trackmen (not specified).....	36,337	155	4.27	984	27.08
Section foremen.....	820				
Trackmen (exclusive of section foremen).....	8,630	14	1.62	50	5.70
Construction gangs.....	2,350	2	.85	68	28.94
Carpenters.....	2,522	3	1.19	74	29.34
Carpenters and bridge builders.....	7,350	11	1.50	443	60.27
Machinists and helpers.....	8,332	1	.12	571	68.53
Blacksmiths and helpers.....	1,965	1	.51	101	51.40
Boilermakers and helpers.....	1,942			132	67.97
Car builders and repairers.....	11,592	10	.86	267	23.03
Shopmen (not specified).....	8,636	3	.35	235	27.21
Floating equipment.....	1,977				
Employees (not specified).....	75,976	128	1.68	3,182	41.88
Total.....	270,419	591	2.19	10,531	38.94

a Exclusive of station agents and assistants.

There will be occasion to refer to this table again, but at present it is worth while to note that it quite clearly shows that in any discussion of the accident liability of railroad employees it is necessary to make careful distinction of particular employments and to carry the analysis as far as possible in that direction. From these returns it appears that the average fatal accident rate to railroad employees

in New Jersey during the nine-year period 1900 to 1908 has varied from 0.12 for machinists and helpers to 11.42 per 1,000 for brakemen. In 8 of the occupations there were no fatal accidents. The fatal accident rate for enginemen was 2.49, for all trackmen it was 3.69, for locomotive firemen 3.92, and for conductors 4.38 per 1,000. The variations in the nonfatal rates have been even more marked, ranging from 1.98 per 1,000 for clerks to 188.22 for brakemen.

The importance of these variations is further emphasized by the following table which shows the distribution of railroad employees by such specific occupations as are reported in the Statistics of Railways in the United States, under the heading, "Comparative summary of employees, by class." The table shows the distribution, by occupations, for the United States and for the division designated by the Interstate Commerce Commission for statistical purposes as Group II, which embraces the States of New York, New Jersey, Pennsylvania, Delaware, and Maryland. In the United States as a whole there were 307,427 railway employees in 1907, including general officers, other officers, general office clerks, station agents, other station men, and telegraphers and dispatchers, or 18.4 per cent of the total, who were not exposed to exceptional fatal accident liability as compared with occupied males generally. In Group II the corresponding number of railway employees not exceptionally exposed to fatal accident liability was 79,644, or 19.8 per cent of the total.

NUMBER AND PER CENT OF RAILROAD EMPLOYEES IN THE UNITED STATES AND IN A CERTAIN GROUP OF STATES, BY OCCUPATIONS, JUNE 30, 1907.

[From the Twentieth Annual Report of the Interstate Commerce Commission on the Statistics of Railways in the United States.]

Occupation.	Railroad employees in—			
	United States.		Group II.(a)	
	Number.	Per cent of total.	Number.	Per cent of total.
General officers.....	6,407	0.38	1,289	0.32
Other officers.....	7,549	.45	2,089	.52
General office clerks.....	65,700	3.93	17,152	4.27
Station agents.....	35,649	2.13	7,015	1.75
Other station men.....	152,929	9.15	42,355	10.54
Enginemen.....	65,298	3.91	16,002	3.98
Firemen.....	69,384	4.15	17,034	4.24
Conductors.....	48,869	2.92	11,957	2.98
Other trainmen.....	134,257	8.03	35,491	8.83
Machinists.....	55,244	3.30	20,616	5.13
Carpenters.....	70,394	4.21	19,554	4.87
Other shopmen.....	221,656	13.26	49,251	12.26
Section foremen.....	41,391	2.48	6,162	1.53
Other trackmen.....	367,277	21.97	63,967	15.92
Switch tenders, crossing tenders, and watchmen.....	53,414	3.19	18,479	4.60
Telegraph operators and dispatchers.....	39,193	2.34	9,764	2.43
Employees on account of floating equipment.....	9,139	.55	5,537	1.38
All other employees and laborers.....	228,324	13.65	58,031	14.45
Total.....	1,672,074	100.00	401,725	100.00

(a) Comprising the States of New York, New Jersey, Pennsylvania, Delaware, and Maryland.

During the period 1888 to 1907 there was a marked improvement in the character of both the rolling stock and the permanent ways of the railroads of the United States. This improvement has perhaps been most noticeable in New Jersey, because that State furnishes the terminal points of several of the transcontinental trunk lines and is very important as a freight and passenger carrying area. Along with the general improvement in the railway equipment, such as is indicated by the marked development in the size and construction of the locomotives, larger and better constructed and equipped cars, and the betterment in the permanent ways with the more extended use of the steel rail, better ballast, etc., there has been a vast improvement also in the devices intended primarily to prevent accidents. These include a large variety of equipment, the most important of which are the interlocking switch, the block-signal system, the train air brake, and the automatic coupler.

The following facts will suffice to illustrate the progress in some of these directions during the last two decades. In 1890 only 64.8 per cent of the locomotives in the statistical division of the Interstate Commerce Commission, known as Group II (comprising the States of New York, New Jersey, Pennsylvania, Delaware, and Maryland), were equipped with train air brakes, against 98.7 per cent in 1907; and in 1890 only 2.2 per cent of the locomotives were equipped with the automatic coupler, against 99.7 per cent in 1907. Similarly, in 1890, only 4.9 per cent of the cars in Group II were equipped with the train air brake, against 95.0 per cent in 1907; and only 12.2 per cent of the cars were equipped with the automatic coupler in 1890, against 99.4 per cent in 1907. The following summary statistics for 1890 and 1907 are of interest in this connection:

NUMBER AND PER CENT OF LOCOMOTIVES AND CARS PROVIDED WITH THE TRAIN AIR BRAKE AND THE AUTOMATIC COUPLER IN GROUP II (NEW YORK, NEW JERSEY, PENNSYLVANIA, DELAWARE, AND MARYLAND), 1890 AND 1907.

[From annual reports of the Interstate Commerce Commission on the Statistics of Railways, 1890 and 1907.]

	Total number.	With train air brake.		With automatic coupler.	
		Number.	Per cent of total.	Number	Per cent of total.
Locomotives, 1890.....	7,872	5,100	64.8	170	2.2
Locomotives, 1907.....	13,422	13,247	98.7	13,386	99.7
Cars, 1890.....	395,378	19,528	4.9	48,209	12.2
Cars, 1907.....	528,683	502,136	95.0	525,426	99.4

To indicate the progress in railway development in another direction in New Jersey and contiguous States between 1890 and 1907, the following data relating to classified track mileage are presented:

CLASSIFIED TRACK MILEAGE IN GROUP II (NEW YORK, NEW JERSEY, PENNSYLVANIA, DELAWARE, AND MARYLAND), 1890 AND 1907.

[From annual reports of the Interstate Commerce Commission on the Statistics of Railways, 1890 and 1907.]

Classification.	1890.		1907.		Increase in 17 years.	
	Mileage.	Per cent of total.	Mileage.	Per cent of total.	Number of miles.	Per cent of increase.
Single track.....	17,237	55.8	23,886	49.4	6,649	38.6
Second track.....	4,949	16.0	7,158	14.8	2,209	44.6
Third track.....	664	2.2	1,254	2.6	590	88.9
Fourth track.....	507	1.6	894	1.8	387	76.3
Yard track and sidings.....	7,533	24.4	15,193	31.4	7,660	101.7
Total.....	30,890	100.0	48,385	100.0	17,495	56.6

These figures show that there has been a remarkable increase in the development of the permanent ways of railroads in this group of States. In 1890, 55.8 per cent of the total mileage was single track, and in 1907, although the single track had increased by 38.6 per cent it formed only 49.4 per cent of the total track mileage. On the other hand, the second track mileage increased during the period 44.6 per cent, the third track mileage increased 88.9 per cent, and the fourth track mileage 76.3 per cent. This group of States, and particularly New Jersey, is very important as a terminal section for trunk lines, and this means that a large proportion of the track mileage is made up of yard tracks and sidings. The increase in this class of railroad mileage was 101.7 per cent, or the mileage of this class more than doubled during the seventeen-year period. The classified mileage of New Jersey was determined by the state board of assessors in 1906 and was found to be as follows:

CLASSIFIED TRACK MILEAGE IN NEW JERSEY IN 1906.

[From report of New Jersey state board of assessors.]

Classification.	Mileage.	Per cent of total.
First track.....	2,340.0	42.8
Second track.....	907.7	16.6
Third and fourth track.....	241.0	4.4
Sidings.....	1,982.7	36.2
Total.....	5,471.4	100.0

Under sidings are included yard tracks, but it must always be kept in mind that sidings are of two principal kinds—running sidings and other. A running siding is an additional track on which a freight

train can be switched in such manner as to get out of the way of a faster freight train or of a passenger train and yet make progress. These sidings are sometimes 5 or more miles in length. New Jersey has a very large proportion of multiple track in one class or another, or to be specific, 57.2 per cent of the total track mileage.

In any discussion of railroad accidents, or of accidents to railroad employees, it is important to take into consideration the proportion of yard tracks and sidings, because employees working in yards are specially exposed to certain kinds of accidents, as will be clearly shown under the discussion of accidents to that class of employees. The accident statistics of railway employees in New Jersey, as shown in the table on page 186, indicate the important bearing of this fact on the accident problem. The fatal accident rate of conductors is shown by that table to have averaged 4.38 per 1,000 during the period 1900 to 1908, or a higher rate than is shown for either enginemen or firemen, although under normal conditions conductors would experience a lower fatal accident rate than either enginemen or firemen. A large proportion of the conductors in New Jersey are employed in yards on drill (or shifting) trains and when so employed they are more exposed to the danger of fatal accident than are enginemen, since their duties are more closely allied to those of yard brakemen and switchmen or drillers. In other words, in any comparison of fatal accident rates to employees in different countries, or in different sections of the same country, it is important to take into account certain important differences which may materially affect the accident liability. This is one of the reasons, also, why in all accident statistics of railroad employees careful distinction should be made between men employed on trains in yards and men employed principally on other trains, with the further separation, if possible, of those employed on passenger trains and those employed on freight trains. The accident liability of a brakeman on a passenger train is widely different from the accident liability of a brakeman on a freight train, and this statement is equally true of conductors and possibly also of enginemen and of firemen.

The following table gives a summary of the injuries to railroad employees of New Jersey while in service on the railroads of that State during the twenty-year period 1888 to 1907:

**ACCIDENTS TO RAILROAD EMPLOYEES IN NEW JERSEY. 191**

**NUMBER OF RAILROAD EMPLOYEES FATALLY INJURED AND NUMBER NONFATALLY INJURED IN ACCIDENTS IN NEW JERSEY, BY YEARS, 1888 TO 1907.**

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Year ending Dec. 31—	Railroad employees injured.		
	Fatally.	Non-fatally.	Total.
1888.....	101	694	795
1889.....	83	686	769
1890.....	107	729	836
1891.....	93	756	849
1892.....	106	894	1,000
1893.....	85	950	1,035
1894.....	56	654	710
1895.....	75	737	812
1896.....	72	697	769
1897.....	85	825	910
1898.....	87	738	825
1899.....	95	832	927
1900.....	97	850	947
1901.....	120	872	992
1902.....	126	1,123	1,249
1903.....	109	1,105	1,214
1904.....	104	903	1,007
1905.....	93	927	1,020
1906.....	100	795	895
1907.....	130	864	994
Total.....	1,924	16,631	18,555

These statistics show a remarkable evenness for the period, considering the fact that so many changes have been wrought both in the matter of safety appliances and in the increase in traffic and in the number of employees during the two decades. The returns indicate that the one class of changes has offset the other, to a considerable extent at least. Unfortunately, accurate statistics of the number of men employed in the service of the railroads of New Jersey during this period are not available. The figures for the seven principal railroads operating in the State are available, however, for the period 1898 to 1907, and those returns as made to the bureau of statistics of labor and industries of New Jersey are presented in the following table:

**NUMBER OF PERSONS EMPLOYED ON THE SEVEN PRINCIPAL RAILROADS OF NEW JERSEY, BY YEARS, 1898 TO 1907.**

[From annual reports of the bureau of statistics of labor and industries of New Jersey.]

Year ending Dec. 31—	Persons employed.	Year ending Dec. 31—	Persons employed.
1898.....	30,863	1903.....	38,363
1899.....	33,121	1904.....	37,654
1900.....	31,245	1905.....	37,953
1901.....	32,405	1906.....	42,702
1902.....	34,809	1907.....	45,810

These statistics show that during the ten-year period there was an increase of 14,947, or 48.4 per cent, in the number of persons employed in New Jersey by the seven principal railroads operating in that State.

The summary statistics of injuries to railway employees in New Jersey indicate that approximately 100 railway employees are killed in that State every year, and from 700 to 1,100 are nonfatally injured every year. This basis of fact, in spite of many imperfections both of commission and omission, is therefore sufficient to make the following analysis of value.

For convenience it has been deemed advisable to group the employees under general headings, a logical grouping being followed so far as possible. In many cases, however, the placing of an employment in a group or class has been arbitrary, because it might almost equally well have been considered with another group.

The groups or divisional classes in the order considered are as follows:

1. Station men, general officers, etc.
2. Trainmen, or men generally employed on trains.
3. Shopmen.
4. Roundhouse men.
5. Yard men, exclusive of trackmen, roundhouse men, and yard trainmen.
6. Maintenance-of-way employees.
7. Employees in connection with floating equipment.
8. Miscellaneous and unclassified employees.

Each division or group of employees is prefaced with a brief descriptive account of the employments in the group and this is followed by the summary tables for such employments as were of sufficient numerical importance to warrant the tabulation of the injuries. Accompanying the tables are brief analytical comments.

Finally, in the appendix, and in the same order as in the text, the details of all fatal accidents are presented in chronological order under the various occupation titles. The nonfatal injuries are also presented in detail in the appendix for all of the minor employments. These have also been arranged chronologically. The appendix is intended to supplement the tables in the text portion of the report and to furnish a more complete picture of the various occupations than is possible in a summary table or tables.

## ACCIDENTS TO STATION MEN.

The higher officials in the main offices of railways and the men employed as station agents, station agents' assistants, telegraph operators and dispatchers, and clerical labor generally in terminal offices and stations of railways are of all railroad employees the least exposed to injury by accidents resulting from their occupations. While the heads of the various railway departments must necessarily go over the lines more or less frequently to keep in touch with the

general organization of the service and to perform the higher supervisory functions necessary in the proper management of the system, this work usually does not involve any considerable personal danger. Division superintendents, for example, go over their line frequently to note what occurs on trains and at stations, and to keep in touch with the employees, generally. They also supervise wrecking operations. The larger part of the duties of the higher officials, however, is of an office nature, or at least the greater part of their time is spent in the main offices.

Station agents and their assistants are also, as a rule, quite free from exposure to accident liability while in the discharge of their duties. The term station agent as used in this connection is applied to men employed practically all of their time at stations or depots, and is exclusive of men employed in warehouses and as freight handlers, who are, as a rule, more or less continuously in and about railroad yards. At small stations the agent is both ticket agent and telegraph operator, when an operator is necessary.

Telegraph operators and dispatchers are likewise practically free from exposure to injury by accident while in the discharge of their duties. The term telegraph operator, however, is a somewhat general one as used in the railroad service. The telegraph operators may be at terminal points, at along-the-road stations, or in towers. The majority of these men, however, are employed in stations, either at terminals or along the road.

Another important occupation in this class is that of baggagemen at stations. This occupation is very different, from the viewpoint of accident exposure, from that of baggage masters or baggagemen on trains. The accident liability in the one case is practically confined to the comparatively slight chances of injury from the handling of baggage, while in the latter case there is exposure to injury from the handling of baggage and to the more important hazards incident to all men employed on trains. In the returns of the railroads of New Jersey to the state comptroller the distinction between baggage masters or baggagemen at stations and baggagemen on trains is not made, and therefore it has been impossible to separate the two employments. In this review of railway accidents it has been deemed advisable to consider the baggage masters or baggagemen, so specified in the returns, in the group of trainmen. The details of the accidents clearly indicate that the majority of the baggage masters injured were employed in train service. However, in this group are included all injuries to men returned as baggage porters, for these men are employed mostly at stations or at terminal points, as is indicated in the returns as reported in detail in the appendix, page 292.

The following table is a summary of the number of persons injured in this group of occupations during the period 1888 to 1907, with distinction of whether the accidents were fatal or nonfatal:

**STATION MEN, ETC., FATALLY AND NONFATALLY INJURED IN ACCIDENTS IN NEW JERSEY, BY OCCUPATIONS, 1888 TO 1907.**

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Occupation.	Station men, etc., injured.			Per cent killed of total injured.
	Fatally.	Non-fatally.	Total.	
Treasurer.....	1		1	100.0
Station agents.....	7	15	22	31.8
Telegraph operators.....	4	12	16	25.0
Ferry-ticket collectors.....	1	2	3	33.3
Train caller.....		1	1	
Special policemen or officers.....	2	2	4	50.0
Janitors.....		2	2	
Baggage porters.....		32	32	
Total.....	15	66	81	18.5

The numbers of employees injured in this group are too small for individual employments to warrant tabulating the returns by specified occupations. Nevertheless, for completeness, the details of all the accidents, fatal and nonfatal, to persons injured in this class are presented under each occupation title and in chronological order in the appendix on pages 291 and 292.

The following table is a summary of the number of persons injured in this group of railroad employees during the period 1888 to 1907, classified by causes of accidents. The accidents to which this table relates numbered 81, of which 15, or 18.5 per cent, were fatal and 66, or 81.5 per cent, were nonfatal. The table is self-explanatory and requires no further comment.

**CAUSES OF ACCIDENTS TO STATION MEN, ETC., FATALLY AND NONFATALLY INJURED IN NEW JERSEY, WITH PER CENT FROM EACH CAUSE, 1888 TO 1907.**

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Station men, etc., injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....			1	1.5	1	1.2
Collisions.....			1	1.5	1	1.2
Falls from trains, locomotives, or cars.....			1	1.5	1	1.2
Getting on or off trains, locomotives, or cars.....	2	13.3	2	3.0	4	4.9
Caught between trains, locomotives, or cars.....	1	6.7	1	1.5	2	2.5
Struck by trains, locomotives, or cars.....	12	80.0	8	12.2	20	24.7
Injured by car doors.....			2	3.0	2	2.5
Handling baggage.....			29	44.0	29	35.8
Struck by objects from passing trains.....			2	3.0	2	2.5
Falls, miscellaneous and not specified.....			6	9.1	6	7.5
Objects thrown.....			3	4.6	3	3.7
Shot.....			2	3.0	2	2.5
Injured by switch lever.....			1	1.5	1	1.2
Injured by station gate.....			1	1.5	1	1.2
Injured by horses or wagons.....			2	3.0	2	2.5
Other miscellaneous and not specified causes.....			4	6.1	4	4.9
Total.....	15	100.0	66	100.0	81	100.0

In the next table the number of persons nonfatally injured in this class of employees is shown by nature and extent of injuries. This table also is self-explanatory.

NATURE AND EXTENT OF NONFATAL INJURIES TO STATION MEN, ETC., INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Station men, etc., injured.			
	Bruises, cuts, sprains, etc.	Crushed.	Fractures.	Total.
Head.....	7		1	8
Face.....	3			3
Arm.....			1	1
Hand.....	3			3
Finger.....	5	4		9
Collar bone.....			1	1
Ribs.....			1	1
Trunk.....	4			4
Leg.....	4		2	6
Ankle.....	1			1
Foot.....	6	1		7
Toe.....		1		1
Toes.....	2			2
Other specified combinations.....	4			4
Injuries unclassified.....	(a)	(a)	(a)	3
Slight injuries unclassified.....	(a)	(a)	(a)	11
Severe injuries unclassified.....	(a)	(a)	(a)	1
<b>Total nonfatal injuries.....</b>	<b>39</b>	<b>6</b>	<b>6</b>	<b>b 66</b>

<sup>a</sup> Not separately reported.

<sup>b</sup> Including 15 injuries not classified.

SUMMARY OF NONFATAL INJURIES TO STATION MEN, ETC., BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	39	59.1
Part or parts crushed.....	6	9.1
Fractures.....	6	9.1
Injuries unclassified.....	15	22.7
<b>Total.....</b>	<b>66</b>	<b>100.0</b>

According to the returns for the employees in the service of one of the largest railroads operating in New Jersey the average hours of labor per day during the five years, 1903 to 1907, were as follows: Agents, 10; assistant agents, 11; baggagemen, 10; clerks, 9; other depot men, 10.

The average number of days that the various employees in this class were at work, according to the returns of this same railroad during the period 1903 to 1907, was, for agents, 340 days; for assistant agents, 333; for baggagemen, 332; for clerks, 320; and for other depot men, 312. In other words, the average number of days in the calendar year during which these employees were not at work was, for agents, 25; for assistant agents, 32; baggagemen, 33; clerks, 45; and other depot men, 53.

These statistics indicate that men employed as agents and assistant agents, or in other station service, are required to report for duty

nearly every day in the working year, and the agents proper do not have, on an average, more than 25 days off duty in the year, including Sundays.<sup>(a)</sup> This class of employees constituted 15.2 per cent of the total number of persons employed by the same railroad in New Jersey, during the five-year period, 1903 to 1907.

### ACCIDENTS TO TRAINMEN.

No group of railway employees is so important either from the viewpoint of mere numbers or from the viewpoint of accident liability as trainmen. By trainman is meant any person directly engaged in the movement of traffic and more or less continuously employed on trains while performing his duties. Trainmen are composed of several different classes of employees, each having quite different exposure to accident liability, and it is important, therefore, that the elements of the group be considered rather than the group as a whole in any discussion of their accident liability.

Conductors have general charge of trains. They are responsible, with the engineman, for the safety of the train and for keeping to the time schedule as nearly as possible. The engineman must carry out the conductor's instructions under all ordinary circumstances. Sometimes, however, the engineman will find it necessary either to disobey instructions or to use his own judgment in an emergency of which he has first cognizance. Conductors usually begin their railroad careers as brakemen and are promoted through the various grades, the highest being that of conductor on one of the first-class express trains. Some railroads promote freight conductors to be passenger conductors. Sometimes also brakemen are promoted to be baggagemen, and baggagemen are advanced to be passenger conductors. Freight conductors are also in line of promotion for the position of yardmaster. According to an investigation made by the bureau of statistics of labor and industries of New Jersey in 1892, of the 368 railway conductors considered, 360 began service as brakemen and 8 as engine wipers. The work of the freight conductor is quite different from that of the passenger conductor. In the former case the conductor is exposed to hazards practically never encountered by the passenger conductor. Freight trains must be broken, cars switched from them to sidings, and more or less coupling, switching, etc., done. What are known as "way freights" are local freight trains which drop cars at various stations, or deliver freight at small stations from a car or cars. The freight brakemen do the larger part of this work, but the conductor often lends a hand and is frequently injured while thus employed, as the accident returns clearly indicate.

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<sup>a</sup> A tower-man and operator on one of the large roads is allowed one day off per month, with pay, but gets no other vacation time.

Yard conductors, sometimes termed drillmasters, do work differing from that of either passenger or freight conductors. Yard conductors have charge of the so-called yard engine which switches or "drills" cars. These trains are continually engaged in shifting cars from point to point in the yards. The crew of the yard engine consists of an engineman, a fireman, a conductor, and at least one brakeman, and the work is so specialized that the exposure to accident of all four classes of employees on these engines is probably different from that of employees on trains engaged principally in local or through traffic.

Freight conductors and yard conductors report to the yardmasters, and passenger conductors make their reports at terminal points, and in case of accident they report to the division superintendent, usually by wire, then in writing on special printed forms. All conductors must obey the orders of the division superintendent and the trainmaster, and when in a yard they are subject to the orders of the yardmaster. Terminal station masters also have certain authority.

Conductors, in common with other trainmen, work on an average from ten to twelve hours per day. The hours vary with the kind of train and other circumstances, such as volume of traffic. In New Jersey the average working period of all conductors is about eleven hours.<sup>(a)</sup>

Enginemen, or locomotive engineers, are responsible for the manipulation and care of the engines while on duty. They start, stop, shift, and make up trains subject to the conductors' orders, but are not compelled to obey orders which would endanger the safety of trains or involve a violation of rules. They report to the conductor. The duties of the engineman are those demanding intelligent action at all times and the exercise of quick and sound judgment in case of emergency. Besides operating the mechanism necessary to run the engine, the engineman must watch his boiler and lubricator, see that the train air brakes work properly, keep a sharp lookout for signals, blow the whistle at the proper points, and keep as nearly as possible to schedule time, if his train is a passenger train, regulating the speed according to long experience and a thorough knowledge of the road. These various duties require the strictest attention, especially on a fast train, where a momentary lapse of attention might mean a disastrous accident. At stopping points the engineman oils the engine and does more or less wiping of the same. The engineman also directs the work of his fireman.

Enginemen work long hours as a rule, especially on freight trains. On the fast trains the strain is too great to make long hours possible

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<sup>a</sup> By the federal act of March 4, 1907, the hours of service of railway employees engaged in interstate traffic are defined and limited. This law, however, did not go into effect until March 4, 1908.

without disaster, because of the dulling effect on the attention faculties.<sup>(a)</sup> Usually on the fast trains the enginemen either have short daily runs, or if they have long runs they are given intervals off, with pay, every other day, or if the run is unusually long one day's work is followed by two days off. In New Jersey the average hours per day for all enginemen has been about eleven.<sup>(b)</sup>

The duties of the engineman are so arduous and responsible that promotion to the position of even a freight engineman is through a long series of promotions in the lower grades of the railway service. According to the investigation made by the New Jersey bureau of statistics of labor and industries in 1892, of 448 enginemen considered, 202, or 45.1 per cent, began service as firemen; 160, or 35.7 per cent, as brakemen; 79, or 17.6 per cent, as engine wipers; and 7, or 1.6 per cent, as switchmen. The direct promotion, however, is always from fireman.

Enginemen, like conductors, are differently exposed to accident liability according to the kind of trains which they haul. Just what the difference is it is difficult to determine, since the accident data are not usually obtainable with distinction of kind of trains—passenger, freight, yard, work, wreck, etc. Such data are difficult to secure because among other reasons there are many mixed trains, made up of both passenger and freight cars, and enginemen may be called to take out extra trains, freight or passenger, especially in rush seasons or days. Conductors and enginemen must report all defects of train or track noticed and any observed neglect of duty by watchmen, signalmen, switchmen, or other employees.

Locomotive firemen are under orders from the enginemen, who are their superiors in grade. The principal duty of the fireman is to regulate the fire so that there will always be enough steam pressure to make the engine perform the service required of it. He also wipes the engine, at stopping points, and in general acts as a helper to the engineman. The work is arduous and apparently somewhat more hazardous than that of the engineman. The work of the fireman is physically more exhausting than that of the engineman, but mentally it is considerably less so.

The fireman works on an average the same number of hours as the engineman, or, in New Jersey, about eleven hours per day, according to the returns of one of the largest railroads operating in the State.<sup>(b)</sup> Firemen sometimes reach their positions by promotion from brakemen, engine wipers, hostlers, etc.; some have had shop experience as

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<sup>a</sup> By the federal act of March 4, 1907, the hours of service of railway employees engaged in interstate traffic are defined and limited. This law, however, did not go into effect until March 4, 1908.

<sup>b</sup> From returns of the Pennsylvania Railroad Company to the New Jersey bureau of statistics of labor, 1903 to 1907.

mechanics. According to the investigation made by the New Jersey bureau of statistics of labor in 1892, of the 411 firemen considered, 85 began as wipers, 155 as brakemen, and 171 as firemen. This last figure must have been an error or the result of a misunderstanding of the question, for firemen must have preliminary training before taking up the work of firing a locomotive. They might, however, have had experience firing on railroads of another State.

Brakemen, while on duty, are subject to the orders of the conductor. Their duties are probably less hazardous now than in the earlier days of railroad service, principally because of the two great improvements—train air brakes and automatic couplers. That the dangers are still very real, particularly in yards and on freight trains, is apparent from the most casual survey of the data published by the Interstate Commerce Commission in *Statistics of Railways*. As the term implies, brakemen apply hand brakes to cars to assist in bringing a train to a stop. They also couple or connect, and uncouple or cut, cars. They signal the enginemen when to start and when to stop in shifting cars, and when on the main track are often required to throw or turn switches and protect their trains by going back a specified distance with the necessary signals in case of a stop at any given point.

The hazards of a brakeman's life vary according to the kind of train on which he is employed. Freight brakemen, yard brakemen, and passenger brakemen are very differently exposed to accident liability. Nowadays the passenger brakeman as a rule is exposed to comparatively little danger, for with the train air brake and the automatic coupler his duties are principally those of assistant to the conductor. In fact on some roads passenger brakemen are now designated trainmen, and in the West are sometimes termed ticket collectors. On the other hand, brakemen on freight and yard trains are still required to brake and couple, walk over trains while in motion, and perform other hazardous service. Brakemen may begin railroad service as brakemen and are promoted according to years of service and ability, first to flagmen, then to conductors. In New Jersey their average working day is about eleven hours.

Switchmen are responsible for the safe condition of the switches under their charge. They throw the switches in such manner that the trains or cars may pass safely over them and on the proper tracks. They must also see that the switches are kept in good repair and are oiled and kept free from obstructions, such as ice, snow, or stones. The term switchmen is used in a different sense by different roads. Some roads apply the term switchman to a yard brakeman or a man engaged in shifting, shunting, running, or drilling or switching cars, particularly in yards. This work is really braking and the more proper term to apply to a person engaged in it is brakeman or yard brakeman. There appear to be two kinds of switchmen, more or less generally

recognized, however, and these are ground switchmen or switch tenders and train switchmen, more properly designated as yard brakemen. Yard brakemen are also termed drillers by one of the principal railroads in New Jersey.

Flagmen on trains are required to protect the train by going a certain distance in front or behind it with a flag, fusee, torpedo, lantern, or other required signal when for some reason the train is required to stop between stations on the main line of track. Brakemen perform this service in large part, but on some trains the term flagman is perhaps more properly descriptive of the duties performed. Every road or track gang, however, must have a member who is designated a flagman.

Baggagemen on trains have charge of the baggage which is carried in the baggage car. They are exposed to train accidents and to dangers incidental to the handling of baggage.

This brief outline of the general duties of trainmen is followed by a consideration of the accidents reported in New Jersey during the period 1888 to 1907, inclusive, under the various occupation titles in this group of railroad employees. In the following table is presented a summary of the trainmen reported injured fatally or nonfatally in New Jersey from 1888 to 1907:

**TRAINMEN FATALLY AND NONFATALLY INJURED IN ACCIDENTS IN NEW JERSEY, BY OCCUPATIONS, 1888 TO 1907.**

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Occupation.	Trainmen injured.			Per cent killed of total injured.
	Fatally.	Non-fatally.	Total.	
Passenger conductors.....	2	6	8	25.0
Freight conductors.....	13	145	158	8.2
Yard conductors.....	12	82	94	12.8
Drillmasters.....	5	69	74	6.8
Conductors (not specified).....	62	747	809	7.7
Enginemen.....	70	601	671	10.4
Firemen.....	69	669	738	9.3
Passenger brakemen.....	.....	33	33	.....
Freight brakemen.....	103	859	962	10.7
Yard brakemen and drillers.....	49	732	781	6.3
Brakemen (not specified).....	265	2,808	3,133	8.5
Switchmen.....	41	414	455	9.0
Flagmen.....	26	103	129	20.2
Baggagemen.....	5	80	85	5.9
Trainmen (not specified).....	8	485	493	1.6
Total.....	730	7,893	8,623	8.5

These statistics constitute 46.5 per cent of the 18,555 accidents considered in this investigation. They do not include all trainmen, however, because many trainmen were injured and reported under the indefinite term "employee." If such persons could be definitely assigned to this group, it is probable that at least 50 per cent of all the injured railway employees were of this group. This assumption is supported by the statistics of the Interstate Commerce Commission

and by other data. The percentage of fatal accidents is high for this group, averaging 8.5, or 1 fatal injury to every 11 nonfatal injuries.

**PASSENGER CONDUCTORS.**

There were only 8 passenger conductors reported as having been injured in New Jersey during the period 1888 to 1907 under that specific title. It is probable, of course, that the actual number was considerably larger, many of the injuries having been reported under the general title of "conductor" without it being specified whether the person injured was a passenger, freight, or yard conductor. Of the 8 passenger conductors injured 2 were killed. The details of the injuries, fatal and nonfatal, to passenger conductors are given in the appendix, page 293.

As previously stated, passenger conductors are much less liable to accidental injury than conductors on other trains. Of course, in the comparatively rare cases of derailment or collision they, like all other persons on the train affected, are liable to injury; but aside from these causes passenger conductors are, generally speaking, exposed to only slight injuries, due to the closing of windows, doors, etc.

**FREIGHT CONDUCTORS.**

In the following table are given the causes of accidents to persons reported under [the occupation title of "freight conductors" during the period 1888 to 1907:

CAUSES OF ACCIDENTS TO **FREIGHT CONDUCTORS** FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Freight conductors injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	2	15.4	26	17.9	28	17.7
Collisions.....	2	15.4	9	6.2	11	7.0
Derailments.....			2	1.4	2	1.3
Breaking of parts of cars or engines.....			2	1.4	2	1.3
Falls from trains, locomotives, or cars.....	3	23.1	20	13.8	23	14.5
Falls on or in trains, locomotives, or cars.....			20	13.8	20	12.7
Getting on or off trains, locomotives, or cars.....			13	9.0	13	8.2
Caught between trains, locomotives, or cars.....			2	1.4	2	1.3
Struck by trains, locomotives, or cars.....	1	7.7	5	3.4	6	3.8
Injured by car doors.....			3	2.1	3	1.9
Injured drilling.....			1	.7	1	.6
Striking overhead or other obstructions.....	5	38.4	8	5.5	13	8.2
Handling switches.....			2	1.4	2	1.3
Handling tools or machinery.....			1	.7	1	.6
Handling freight.....			9	6.2	9	5.7
Falls, miscellaneous and not specified.....			16	11.0	16	10.1
Objects thrown.....			2	1.4	2	1.3
Other miscellaneous and not specified causes.....			4	2.7	4	2.5
<b>Total.....</b>	<b>13</b>	<b>100.0</b>	<b>145</b>	<b>100.0</b>	<b>158</b>	<b>100.0</b>

The figures presented in the above table indicate that the great majority of accidents to freight conductors are to be classed as train accidents. In fact, all of the fatal accidents were due to train accidents of one kind or another. Of the 158 accidents to freight conductors 13, or 8.2 per cent, were fatal and 145, or 91.8 per cent, were nonfatal. Of the freight conductors killed, 5 struck overhead or other obstructions; 3 fell from trains, locomotives, or cars; and 1 was struck by a moving train. Two were killed while coupling or uncoupling, and 2 were killed in collisions. The causes of the nonfatal injuries to freight conductors are interesting as indicating the more or less general nature of the duties of this class of railroad employees. Coupling or uncoupling was the most important single cause of nonfatal injuries to freight conductors, 17.9 per cent of the total being charged against that cause. The other relatively important causes, in the order of their importance, were falls from trains, locomotives, or cars; falls on or in trains, locomotives, or cars; falls, miscellaneous and not specified; and getting on or off trains, locomotives, or cars.

The next table summarizes the nonfatal accidents to freight conductors during the period 1888 to 1907, classified by the nature and extent of the injuries:

**NATURE AND EXTENT OF NONFATAL INJURIES TO FREIGHT CONDUCTORS  
INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.**

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Freight conductors injured.				
	Bruises, cuts, sprains, etc.	Crushed.	Fractures.	Loss of part.	Total.
Head.....	8				8
Face.....	4				4
Nose.....			1		1
Jaw.....			1		1
Arm.....	5		3	1	9
Wrist.....	2				2
Hand.....	5	1			6
Finger.....	3	1			4
Fingers.....	2	1			3
Collar bone.....			2		2
Ribs.....			4		4
Trunk.....	25				25
Hip.....	2				2
Leg.....	4		1		5
Knee.....	2				2
Ankle.....	9				9
Foot.....	6				6
Toe.....	1				1
Other specified combinations.....	23				23
Injuries unclassified.....	(a)	(a)	(a)	(a)	14
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	11
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	3
<b>Total nonfatal injuries.....</b>	<b>101</b>	<b>3</b>	<b>12</b>	<b>1</b>	<b>145</b>

<sup>a</sup> Not separately reported.

<sup>b</sup> Including 28 injuries not classified.

SUMMARY OF NONFATAL INJURIES TO FREIGHT CONDUCTORS, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains etc.....	101	69.6
Part or parts crushed.....	3	2.1
Fractures.....	12	8.3
Loss of part or parts.....	1	.7
Injuries unclassified.....	28	19.3
Total.....	145	100.0

The figures in the above table clearly indicate that the nonfatal injuries to freight conductors are often serious and frequently involve permanent disability. Twelve, or 8.3 per cent of all the nonfatal injuries, were fractures and all of the fractures involved serious injury. One of the nonfatal injuries involved the loss of an arm.

YARD CONDUCTORS.

Yard conductors, like freight conductors, are exposed to various hazards, as is clearly indicated in the statistics presented in the two tables which follow:

CAUSES OF ACCIDENTS TO YARD CONDUCTORS FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Yard conductors injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	5	41.7	38	46.4	43	45.7
Collisions.....	2	2.4	2	2.4	2	2.1
Falls from trains, locomotives, or cars.....	1	8.3	6	7.3	7	7.5
Falls on or in trains, locomotives, or cars.....	2	2.4	2	2.4	2	2.1
Getting on or off trains, locomotives, or cars.....	5	6.1	5	6.1	5	5.3
Caught between trains, locomotives, or cars.....	2	2.4	2	2.4	2	2.1
Struck by trains, locomotives, or cars.....	6	50.0	8	9.8	14	14.9
Striking overhead or other obstructions.....	3	3.7	3	3.7	3	3.2
Handling tools or machinery.....	9	11.0	9	11.0	9	9.6
Shifting of lading.....	1	1.2	1	1.2	1	1.1
Falls, miscellaneous and not specified.....	1	1.2	1	1.2	1	1.1
Objects thrown.....	2	2.4	2	2.4	2	2.1
Other miscellaneous and not specified injuries.....	3	3.7	3	3.7	3	3.2
Total.....	12	100.0	82	100.0	94	100.0

The figures in the above table indicate that yard conductors, like freight conductors, are specially liable to train accidents. Of the 94 accidents to yard conductors 12, or 12.8 per cent, were fatal and 82, or 87.2 per cent, were nonfatal. Of the 12 yard conductors killed all were killed in train accidents; 6 were struck by trains, locomotives, or cars; 5 were killed while coupling or uncoupling; and 1 by a fall

from a train. Of the nonfatal injuries, coupling or uncoupling was by far the most serious cause. Of the 82 nonfatal injuries 38, or 46.4 per cent, were charged to that cause. Another relatively important cause of nonfatal injuries was that of being struck by trains, locomotives, or cars.

In the next table the nonfatal accidents to yard conductors during the period 1888 to 1907 are classified by the nature and extent of the injuries:

NATURE AND EXTENT OF NONFATAL INJURIES TO YARD CONDUCTORS INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Yard conductors injured.				
	Bruises, cuts, sprains, etc.	Crushed.	Fractures.	Loss of part.	Total.
Head.....	4				4
Face.....	1				1
Arm.....	5	2	2	1	10
Hand.....	7	3			10
Finger.....	5	5	1	4	15
Fingers.....	3	2			5
Collar bone.....			1		1
Ribs.....			1		1
Trunk.....	6				6
Hip.....	1				1
Leg.....	1				1
Knee.....	2				2
Ankle.....	5				5
Foot.....	1			1	2
Other specified combinations.....	7				7
Injuries unclassified.....	(a)	(c)	(a)	(a)	9
Slight injuries unclassified.....	(a)	(c)	(a)	(a)	2
Total nonfatal injuries.....	48	12	5	6	82

<sup>a</sup> Not separately reported.

<sup>b</sup> Including 11 injuries not classified.

SUMMARY OF NONFATAL INJURIES TO YARD CONDUCTORS, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises cuts, sprains, etc.....	48	58.6
Part or parts crushed.....	12	14.6
Fractures.....	5	6.1
Loss of part or parts.....	6	7.3
Injuries unclassified.....	11	13.4
Total.....	82	100.0

The figures indicate that a considerable proportion, at least 30 per cent of all the nonfatal injuries, involved more or less severe or serious injury. One represented the loss of an arm and 1 the loss of a foot; there were 5 fractures, 2 of which were of an arm, 1 of a collar bone, and 1 of two or more ribs.

## DRILLMASTERS.

Some railroads in New Jersey report employees who apparently do about the same work as yard conductors under the title of drillmasters. By this term is meant, as nearly as can be determined, the men who have charge of yard or drill trains. The drillmaster has charge of what some roads call drill crews, or what are usually termed switching or yard-train crews. The injuries to this class of employees, during the period 1888 to 1907 have been kept separate and are presented in the following tables. The tables are self-explanatory and require no comment, for the reason that the general nature of the statistics is similar to that of those presented under the heading yard conductors. The percentage of fatal injuries in this occupation was considerably smaller than for men specified as yard conductors. Of the 74 accidents to drillmasters, 5, or 6.8 per cent, were fatal, and 69, or 93.2 per cent, were nonfatal, against 12.8 per cent fatal and 87.2 per cent nonfatal injuries for yard conductors.

CAUSES OF ACCIDENTS TO DRILLMASTERS FATALLY AND NONFATALLY INJURED  
IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Drillmasters injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	1	20.0	30	43.5	31	41.9
Collisions.....			3	4.3	3	4.1
Deraillments.....			5	7.2	5	6.8
Falls from trains, locomotives, or cars.....	3	60.0	8	11.6	11	14.9
Getting on or off trains, locomotives, or cars.....			4	5.8	4	5.4
Struck by trains, locomotives, or cars.....	1	20.0	3	4.3	4	5.4
Injured by car door.....			1	1.5	1	1.3
Striking overhead or other obstructions.....			2	2.9	2	2.7
Shifting of lading.....			1	1.5	1	1.3
Falls, miscellaneous and not specified.....			2	2.9	2	2.7
Other miscellaneous and not specified injuries.....			10	14.5	10	13.5
Total.....	5	100.0	69	100.0	74	100.0

The nature and extent of the injuries in the 69 cases of nonfatal accidents to drillmasters during the period 1888 to 1907 may be seen in the next table.

NATURE AND EXTENT OF NONFATAL INJURIES TO **DRILLMASTERS** INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Drillmasters injured.				
	Bruises, cuts, sprains, etc.	Crushed.	Fractures.	Loss of part.	Total.
Head.....	2				2
Face.....	1				1
Shoulder.....	1				1
Arm.....	3	1			4
Hand.....	6	2			8
Finger.....	3	5	1		9
Fingers.....	1	1			2
Trunk.....	3				3
Hips.....	2				2
Leg.....	2	1	1	1	5
Ankle.....	3				3
Ankles.....	1				1
Foot.....	3				3
Other specified combinations.....	3		1		4
Internal injuries.....					1
Injuries unclassified.....	(a)	(a)	(a)	(a)	20
Total nonfatal injuries.....	34	10	3	1	b 69

(a) Not separately reported.

(b) Including 20 injuries not classified and 1 internal injury.

SUMMARY OF NONFATAL INJURIES TO **DRILLMASTERS**, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	34	49.3
Part or parts crushed.....	10	14.5
Fractures.....	3	4.4
Loss of part or parts.....	1	1.4
Internal injuries.....	1	1.4
Injuries unclassified.....	20	29.0
Total.....	69	100.0

**CONDUCTORS (NOT SPECIFIED).**

Unfortunately in the returns of railroad accidents in New Jersey the classification of employees is frequently not so exact as would be desirable. As has been previously pointed out, the statistics of accidents to railway employees would be greatly improved, and the information obtainable by the compilation of the same would be much more valuable, if greater care were taken to give the specific or definite occupation of the injured person in each and every case. Not fewer than 809 conductors, not otherwise specified, were returned as injured in New Jersey during the twenty-year period 1888 to 1907. Of this number of accidents, 62, or 7.7 per cent, were fatal, and 747, or 92.3 per cent, were nonfatal. These data are compiled in the usual form in the following tables:

CAUSES OF ACCIDENTS TO CONDUCTORS (NOT SPECIFIED) INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Conductors (not specified) injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	17	27.4	359	48.1	376	46.5
Collisions.....	6	9.7	33	4.4	39	4.8
Derailments.....	1	1.6	7	.9	8	1.0
Breaking of parts of cars or engines.....			17	2.3	17	2.1
Falls from trains, locomotives, or cars.....	7	11.3	77	10.3	84	10.4
Falls on or in trains, locomotives, or cars.....			13	1.7	13	1.6
Getting on or off trains, locomotives, or cars.....	2	3.2	67	9.0	69	8.5
Caught between trains, locomotives, or cars.....	3	4.8	16	2.1	19	2.4
Struck by trains, locomotives, or cars.....	20	32.3	18	2.4	38	4.7
Injured by car doors.....			7	.9	7	.9
Injured braking locomotives or cars.....			10	1.3	10	1.2
Striking overhead or other obstructions.....	6	9.7	18	2.4	24	3.0
Handling switches.....			17	2.3	17	2.1
Handling tools or machinery.....			2	.3	2	.2
Struck by objects from passing trains.....			1	.1	1	.1
Falls, miscellaneous and not specified.....			34	4.6	34	4.2
Objects thrown.....			14	1.9	14	1.7
Other miscellaneous and not specified causes.....			37	5.0	37	4.6
Total.....	62	100.0	747	100.0	809	100.0

The above table indicates that conductors of all classes are specially liable to train accidents, the accidents from other causes being relatively insignificant. Of the 62 fatal injuries all were due to train accidents; a large proportion were the result of being struck by trains, locomotives, or cars, the second most important cause being that of coupling or uncoupling. Of the nonfatal injuries to conductors (not specified) 48.1 per cent were inflicted while the conductor was coupling or uncoupling. The causes of accidents indicate that the great majority of the conductors (not specified) were either freight or yard conductors, for, as previously pointed out, passenger conductors seldom do coupling and they are not very liable to injury by being struck.

In the next table the nonfatal accidents to conductors (not specified) during the period 1888 to 1907 are classified by the nature and extent of the injuries. The table calls for little comment.

NATURE AND EXTENT OF NONFATAL INJURIES TO CONDUCTORS (NOT SPECIFIED) INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Conductors (not specified) injured.					Total.
	Bruises, cuts, sprains, etc.	Crushed.	Dislocations.	Fractures.	Loss of part.	
Head.....	26			2		28
Face.....	12					12
Eye.....	2					2
Eyes.....	1					1
Nose.....				3		3
Shoulder.....	2			3		5
Arm.....	19	6	1	5		31
Wrist.....	7			2		9
Hand.....	30	9				39
Finger.....	22	16		2	4	44
Fingers.....	4	4			1	9
Collar bone.....				2		2
Ribs.....				7		7
Trunk.....	38					38
Hip.....				2		2
Hips.....	9					9
Leg.....	18	3		6		27
Legs.....	5			2	1	8
Knee.....	12			1		13
Ankle.....	19			2		21
Foot.....	24	7		3		34
Feet.....		1				1
Toes.....	1					1
Other specified combinations.....	46	1		2		49
Injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	257
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	85
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	10
Total nonfatal injuries.....	297	47	1	44	6	b 747

a Not separately reported.

b Including 352 injuries not classified.

SUMMARY OF NONFATAL INJURIES TO CONDUCTORS (NOT SPECIFIED), BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	297	39.8
Part or parts crushed.....	47	6.3
Dislocations.....	1	.1
Fractures.....	44	5.9
Loss of part or parts.....	6	.8
Injuries unclassified.....	352	47.1
Total.....	747	100.0

The large number of defective reports of the injuries to this class of railway employees is indicative of the more or less indefinite manner in which the railroads of New Jersey conform to the law, which specifically states that the return of an accident shall indicate the nature and extent of the injury. Not fewer than 257 of the injuries to conductors (not specified) were reported simply as injuries, with no statement as to what part was affected or whether the injury was slight or severe.

**ENGINEMEN.**

Locomotive engineers, or enginemen, are subject to quite different accident exposure from that of conductors, as is clearly indicated in the following table. The accidents to enginemen during the period 1888 to 1907 numbered 671, of which 70, or 10.4 per cent, were fatal and 601, or 89.6 per cent, were nonfatal.

CAUSES OF ACCIDENTS TO **ENGINEMEN** FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Enginemen injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	5	7.1	50	8.3	55	8.2
Collisions.....	25	35.7	120	20.0	145	21.6
Derailments.....	9	12.9	12	2.0	21	3.1
Breaking of parts of cars or engines.....	9	12.9	58	9.6	67	10.0
Falls from trains, locomotives, or cars.....	3	4.3	86	14.3	89	13.3
Getting on or off trains, locomotives, or cars.....			51	8.5	51	7.6
Caught between trains, locomotives, or cars.....			4	.7	4	.6
Struck by trains, locomotives, or cars.....	9	12.9	11	1.8	20	3.0
Striking overhead or other obstructions.....	7	10.0	70	11.6	77	11.5
Handling tools or machinery.....			19	3.2	19	2.8
Falls, miscellaneous and not specified.....			28	4.7	28	4.2
Objects thrown.....			6	1.0	6	.9
Oiling, cleaning, or repairing locomotive.....			40	6.7	40	6.0
Shot.....	1	1.4			1	.1
Suicide.....	1	1.4			1	.1
Found dead in cab.....	1	1.4			1	.1
Other miscellaneous and not specified injuries.....			46	7.6	46	6.9
Total.....	70	100.0	601	100.0	671	100.0

The above table is of special interest because it shows that enginemen are particularly liable to fatal accidents as the result of collisions. Of the 70 enginemen killed, 25, or 35.7 per cent, were killed in collisions. The next most important causes of fatal injury were derailments, breaking of parts of cars or engines, and being struck by trains, locomotives, or cars. Each of these causes was responsible for 9 deaths. Of the nonfatal injuries, 20 per cent were caused by collisions, 14.3 per cent by falls from trains, locomotives, or cars, and 11.6 per cent by striking overhead or other obstructions. Enginemen are expected to haul their trains on schedule time, and are, therefore, frequently tempted to take chances which would not otherwise be taken. For example, the engineman might have knowledge of a hot box on a car and yet keep the train in motion with the hope that the wheel would not set, at least not before the next station was reached. In the meantime the engineman would, if possible, watch the wheel or journal, and to do this it would be necessary to lean out

of the cab window. Quite a few of the injuries from striking outside obstructions have been received while the enginemen were so engaged. Injuries from striking outside obstructions are comparatively numerous with enginemen, and of the 70 killed, 7 were killed as the result of this cause; and of the 601 nonfatally injured, 70 were injured in this manner. The table is an interesting one as indicating, in a general way at least, the duties of the engineman and his exposure to injury from various causes.

In the next table are shown the nature and extent of the nonfatal injuries to enginemen reported as injured in New Jersey during the twenty years 1888 to 1907:

NATURE AND EXTENT OF NONFATAL INJURIES TO ENGINEMEN INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Enginemen injured.					Total.
	Bruises, cuts, sprains, etc.	Crushed.	Dislocations.	Fractures.	Loss of part.	
Head.....	46					46
Face.....	16					16
Eye.....	6					6
Shoulder.....	9			1		10
Arm.....	17			4		21
Wrist.....	3			4		7
Hand.....	27	2			1	30
Finger.....	7	6		2	2	17
Collar bone.....				1		1
Ribs.....				6		6
Trunk.....	35					35
Hip.....	7		1	2		10
Leg.....	22	1		4		27
Knee.....	4		2	1		7
Ankle.....	17					17
Foot.....	12	1				13
Feet.....	1				1	1
Toe.....	1					1
Other specified combinations.....	75			2		77
Internal injuries.....						2
Injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	191
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	40
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	20
Total nonfatal injuries.....	304	10	3	27	4	<sup>b</sup> 601

<sup>a</sup> Not separately reported.

<sup>b</sup> Including 251 injuries not classified and 2 internal injuries.

SUMMARY OF NONFATAL INJURIES TO ENGINEMEN, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	304	50.6
Part or parts crushed.....	10	1.7
Dislocations.....	3	.5
Fractures.....	27	4.5
Loss of part or parts.....	4	.7
Internal injuries.....	2	.3
Injuries unclassified.....	251	41.7
Total.....	601	100.0

Of the 601 nonfatally injured, a considerable proportion suffered severe, not to say serious, injuries. For example, 27 represented fractures, and of these 6 were of two or more ribs, 4 of an arm, 4 of a wrist, 4 of a leg, 2 of a hip, and 1 of a shoulder. Of the 4 injuries representing lost parts, 1 was of a hand and 1 of both feet.

**FIREMEN.**

In the next table the accidents to locomotive firemen during the 20-year period 1888 to 1907 are classified by causes in the usual manner:

CAUSES OF ACCIDENTS TO FIREMEN FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Firemen injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	3	4.4	15	2.3	18	2.4
Collisions.....	10	14.5	82	12.3	92	12.5
Deraillments.....	5	7.2	19	2.8	24	3.3
Breaking of parts of cars or engines.....	13	18.8	34	5.1	47	6.4
Falls from trains, locomotives, or cars.....	10	14.5	123	18.4	133	18.0
Getting on or off trains, locomotives, or cars.....	2	2.9	50	7.5	52	7.0
Caught between trains, locomotives, or cars.....	2	2.9	.....	.....	2	.3
Struck by trains, locomotives, or cars.....	9	13.0	17	2.5	26	3.5
Striking overhead and other obstructions.....	14	20.3	57	8.5	71	9.6
Falls, miscellaneous and not specified.....	1	1.5	46	6.9	47	6.4
Objects thrown.....	.....	.....	1	.2	1	.1
Falling piece of coal.....	.....	.....	27	4.0	27	3.7
Burned while firing.....	.....	.....	25	3.7	25	3.4
Miscellaneous injuries while firing.....	.....	.....	79	11.8	79	10.7
Other injuries while working on engine.....	.....	.....	57	8.5	57	7.7
Other miscellaneous and not specified causes.....	.....	.....	37	5.5	37	5.0
Total.....	69	100.0	669	100.0	738	100.0

Firemen are exposed in a general way to about the same causes of accidents as enginemen, but are somewhat more exposed to certain causes, such as falls from trains, locomotives, or cars, by reason of the fact that their duties require them to be more or less outside of the engine proper and at work between the tender and the engine. During the period 1888 to 1907 there were 738 accidents to firemen reported in New Jersey, and of this number 69, or 9.3 per cent, were fatal, and 669, or 90.7 per cent, were nonfatal. The large majority of the accidents, both fatal and nonfatal, were due to train accidents. Firemen are exposed to injury in the firing of their engines, as is clearly shown by the table, but injuries due to this cause are generally slight and seldom fatal. In the opening of the fire box, in the poking of the fire and in the raking of the same, the tools used often slip,

with consequent injury to the hands or fingers. Firemen are specially liable to falls from trains, locomotives, or cars, and of the 69 fatal injuries 10, or 14.5 per cent, were due to that cause. Breaking of parts of cars or engines was also an important cause of injury to firemen, as well as to enginemen. Under this head are included, among others, accidents due to the bursting of boilers, flues, cylinders, etc. Firemen are exposed in practically the same way as enginemen in case of accidents involving collisions. Ten, or 14.5 per cent, of the firemen killed were killed in collisions, and of the 669 nonfatal injuries to firemen 82, or 12.3 per cent, were due to collisions.

In the next table the nonfatal injuries to firemen during the period 1888 to 1907 are classified according to the nature and extent of the injuries:

NATURE AND EXTENT OF NONFATAL INJURIES TO FIREMEN INJURED IN ACCIDENTS  
IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Firemen injured.					Total.
	Bruises, cuts, sprains, etc.	Crushed.	Disloca- tions.	Frac- tures.	Loss of part.	
Head.....	51			4		55
Face.....	38					38
Eye.....	10				1	11
Shoulder.....	9		4	1		14
Arm.....	22	3	3	3		31
Wrist.....	13			3		16
Hand.....	29	2			2	33
Finger.....	34	14		3	4	55
Collar bone.....				2		2
Ribs.....				6		6
Trunk.....	78					78
Hip.....	10					10
Leg.....	26	2		6		34
Knee.....	6					6
Ankle.....	25	1	1	3		30
Foot.....	26	3				29
Toe.....	12	3				15
Other specified combinations.....	69				4	73
Internal injuries.....						4
Injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	106
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	15
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	8
<b>Total nonfatal injuries.....</b>	<b>458</b>	<b>28</b>	<b>8</b>	<b>31</b>	<b>11</b>	<b>669</b>

<sup>a</sup> Not separately reported.

<sup>b</sup> Including 129 injuries not classified and 4 internal injuries.

## SUMMARY OF NONFATAL INJURIES TO FIREMEN, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	458	68.5
Part or parts crushed.....	28	4.2
Dislocations.....	8	1.2
Fractures.....	31	4.6
Loss of part or parts.....	11	1.6
Internal injuries.....	4	.6
Injuries unclassified.....	129	19.3
Total.....	669	100.0

At least 15 per cent of the nonfatal injuries to firemen involved more or less serious disability. Of the lost parts, 1 was of an eye, and 2 of a hand. Of the 31 fractures, 4 were fractures of the skull, 6 of a rib, 6 of a leg, 3 of an arm, 3 of a wrist, 3 of an ankle, 2 of a collar bone, and 1 of a shoulder. Of crushed parts, some represented very severe injuries and probably permanent disability. Of the 28 injuries reported as crushed parts, 3 were of an arm, 3 of a foot, 2 of a leg, and 2 of a hand. The statistics clearly indicate that firemen are subject to exceptional hazards and that to a great extent the injuries to this class of employees are likely to be serious, if not fatal.

**PASSENGER BRAKEMEN.**

Passenger brakemen are apparently not very liable to fatal injury. All the brakemen of this class, however, are not reported under a title sufficiently defined to enable them to be classified as passenger brakemen. In fact, there were only 33 passenger brakemen so specified in the returns, and of these none was fatally injured. The details of the nonfatal injuries are presented in the appendix, page 296.

**FREIGHT BRAKEMEN.**

Freight brakemen, like freight conductors, are considerably more exposed to accidental injury than passenger brakemen, and the percentage of fatal injuries is considerably higher. Of the 962 accidents to freight brakemen 103, or 10.7 per cent, were fatal and 859, or 89.3 per cent, were nonfatal. In the following table the causes of the accidents to this class of railroad employees during the period 1888 to 1907 are presented in the usual manner.

CAUSES OF ACCIDENTS TO **FREIGHT BRAKEMEN** FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Freight brakemen injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	18	17.5	236	27.5	254	26.4
Collisions.....	2	1.9	8	.9	10	1.0
Derailments.....	3	2.9	1	.1	4	.4
Breaking of parts of cars or engines.....			4	.5	4	.4
Falls from trains, locomotives, or cars.....	34	33.0	210	24.4	244	25.4
Falls on or in trains, locomotives, or cars.....			34	4.0	34	3.5
Getting on or off trains, locomotives, or cars.....	2	1.9	41	4.8	43	4.5
Caught between trains, locomotives, or cars.....	3	2.9	17	2.0	20	2.1
Struck by trains, locomotives, or cars.....	12	11.7	3	.3	15	1.6
Injured by car doors.....			10	1.2	10	1.0
Injured drilling.....			4	.5	4	.4
Injured braking.....			9	1.0	9	.9
Striking overhead or other obstructions.....	28	27.2	137	15.9	165	17.2
Handling switches.....			8	.9	8	.8
Handling freight.....			67	7.8	67	7.0
Shifting of lading.....			34	4.0	34	3.5
Shot.....			1	.1	1	.1
Other miscellaneous and not specified causes.....	1	1.0	35	4.1	36	3.8
Total.....	103	100.0	859	100.0	962	100.0

The statistics show that freight brakemen are injured principally in train accidents, although a fair proportion of the nonfatal injuries were the result of other accidents, such as handling switches, handling freight, etc. It is important to note that of the nonfatal injuries, 34, or 4 per cent, were due to the shifting of lading. With the introduction of the automatic coupler engine-men do not use the same caution as was used previously in the connecting of cars. Also, men who are employed in the switching of cars do not use the same caution in bringing cars together as was necessary when a brakeman had to stand between the cars to make the coupling. Partly as the result of the automatic coupler, cars are frequently brought together in freight yards or on sidings with greater momentum now than was true in the earlier days. Often a brakeman's position on a car is such that he is caught by the freight when it shifts or slides as the result of the severe bumping together of the cars. Incidentally it may be remarked that unless there is strict supervision of engine-men and switchmen, or yard brakemen, the damage to rolling stock and freight is likely to be an important item in the expense account of a railroad.

Coupling or uncoupling is still an important cause of injury to freight brakemen, the next most important cause being that included under falls from trains, locomotives, or cars. As a rule, there are telltales in front of overhead bridges, tunnels, etc., but in spite of all precautions and warnings, freight brakemen, particularly on box cars,

frequently meet with fatal or serious injuries by striking overhead obstructions. Of the 103 freight brakemen killed, 28, or 27.2 per cent, were killed in this manner.

In the next table the nonfatal accidents to freight brakemen during the period 1888 to 1907 are classified according to the nature and extent of the injuries:

NATURE AND EXTENT OF NONFATAL INJURIES TO FREIGHT BRAKEMEN INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Freight brakemen injured.					
	Bruises, cuts, sprains, etc.	Crushed.	Dislocations.	Fractures.	Loss of part.	Total.
Head.....	74			1		75
Face.....	20					20
Eye.....	1					1
Jaw.....				1		1
Shoulder.....	8					8
Arm.....	31	4		11	4	50
Wrist.....	11			4		15
Hand.....	70	24		1		95
Finger.....	26	40			2	68
Fingers.....	16	12			1	29
Rib.....				2		2
Ribs.....				7		7
Trunk.....	86					86
Hip.....	12		1	2		15
Leg.....	33	4		4	3	44
Legs.....	2				1	3
Knee.....	17					17
Ankle.....	41			1		42
Foot.....	51	4			1	56
Toe.....	6	1				7
Toes.....		1				1
Other specified combinations.....	99	1		1	3	104
Internal injuries.....						1
Injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	63
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	21
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	28
Total nonfatal injuries.....	604	91	1	35	15	859

a Not separately reported.

b Including 112 injuries not classified and 1 internal injury.

SUMMARY OF NONFATAL INJURIES TO FREIGHT BRAKEMEN, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	604	70.3
Part or parts crushed.....	91	10.6
Dislocations.....	1	.1
Fractures.....	35	4.1
Loss of part or parts.....	15	1.8
Internal injuries.....	1	.1
Injuries unclassified.....	112	13.0
Total.....	859	100.0

The table requires little comment. The figures show that a considerable proportion of the nonfatal injuries represent serious if not permanent disability. Of the lost parts, for example, 4 represented

an arm, 3 a leg, 1 both legs, and 1 a foot. Of the fractures, 11 represented an arm, 7 two or more ribs, 4 a leg, 4 a wrist, 2 a hip, 1 a fracture of the skull, 1 of a jaw, 1 of an ankle, and 1 of a hand.

#### YARD BRAKEMEN.

Yard brakemen, like freight brakemen, are considerably more exposed to accidental injury than passenger brakemen. The general causes of accidents to this class of railroad employees are similar to those of freight brakemen, but a somewhat larger proportion of injuries to yard brakemen are due to coupling or uncoupling, owing to the fact that yard brakemen are almost continually employed in the coupling or uncoupling of cars, and when not on the train they are more exposed to being struck by moving engines or cars, because in the yards there are usually a large number of tracks, with resulting greater confusion and a greater liability of stepping in front of one train or car from behind another. The tables are presented in such manner that they require little comment; nevertheless it may be pointed out that all of the fatal accidents to yard brakemen during the period 1888 to 1907 were the result of train accidents, and the great majority of the nonfatal injuries were due to the same class of causes. Of the 781 accidents to yard brakemen, 49, or 6.3 per cent, were fatal and 732, or 93.7 per cent, were nonfatal.

#### CAUSES OF ACCIDENTS TO YARD BRAKEMEN FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Yard brakemen injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling .....	12	24.5	313	42.8	325	41.6
Collisions.....			11	1.5	11	1.4
Derailements.....	2	4.1			2	.3
Breaking of parts of cars or engines.....			2	.3	2	.3
Falls from trains, locomotives, or cars.....	9	18.4	94	12.8	103	13.2
Falls on or in trains, locomotives, or cars.....			3	.4	3	.4
Getting on or off trains, locomotives, or cars.....	2	4.1	79	10.8	81	10.4
Caught between trains, locomotives, or cars.....	6	12.2	16	2.2	22	2.8
Struck by trains, locomotives, or cars.....	18	36.7	25	3.4	43	5.5
Injured by car doors.....			1	.1	1	.1
Injured drilling.....			21	2.9	21	2.7
Injured braking.....			11	1.5	11	1.4
Striking overhead or other obstructions.....			34	4.6	34	4.3
Handling switches.....			7	1.0	7	.9
Handling freight.....			1	.1	1	.1
Shifting of lading.....			14	1.9	14	1.8
Falls, miscellaneous and not specified.....			4	.6	4	.5
Other miscellaneous and not specified causes.....			96	13.1	96	12.3
<b>Total.....</b>	<b>49</b>	<b>100.0</b>	<b>732</b>	<b>100.0</b>	<b>781</b>	<b>100.0</b>

In the next table the nonfatal accidents to yard brakemen during the period 1888 to 1907 are classified according to the nature and extent of the injuries:

NATURE AND EXTENT OF NONFATAL INJURIES TO YARD BRAKEMEN INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Yard brakemen injured.					Total.
	Bruises, cuts, sprains, etc.	Crushed.	Dislocations.	Fractures.	Loss of part.	
Head.....	16					16
Face.....	10					10
Eye.....	3					3
Shoulder.....	8		1			9
Arm.....	41	7		7	2	57
Wrist.....	8			1		9
Hand.....	57	12			2	71
Finger.....	37	37		4	3	81
Fingers.....	23	25		1	4	53
Collar bone.....				2		2
Rib.....				3		3
Ribs.....				4		4
Trunk.....	33			4		33
Hip.....	14					14
Hips.....	4					4
Leg.....	16	4		6	2	28
Legs.....	4	1				5
Knee.....	15		1	2		18
Ankle.....	37	1				38
Foot.....	28	5			2	35
Toe.....	1	1				2
Toes.....		3			1	4
Other specified combinations.....	44	1		5		50
Internal injuries.....						7
Injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	26
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	9
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	141
Total nonfatal injuries.....	399	97	2	35	16	672

a Not separately reported.

b Including 176 injuries not classified and 7 internal injuries.

SUMMARY OF NONFATAL INJURIES TO YARD BRAKEMEN, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	399	54.5
Part or parts crushed.....	97	13.2
Dislocations.....	2	.3
Fractures.....	35	4.8
Loss of part or parts.....	16	2.2
Internal injuries.....	7	1.0
Injuries unclassified.....	176	24.0
Total.....	732	100.0

Yard brakemen, like freight brakemen, are subject to severe nonfatal injuries, which frequently result in permanent disability. This fact is clearly illustrated in the number of injuries resulting in loss of parts, in the number of fractures, and in the number of injuries reported as crushed parts.

## BRAKEMEN (NOT SPECIFIED).

Brakemen (not specified) constituted by far the most important occupation, numerically, in the group of trainmen. Not fewer than 3,133 accidents to brakemen of this class were reported in New Jersey during the twenty-year period 1888 to 1907, and of this total, 265, or 8.5 per cent, were fatal, and 2,868, or 91.5 per cent, were nonfatal. The great majority of these brakemen were freight and yard brakemen, and the causes of accidents and the nature and extent of injuries were, therefore, similar to those reported under the specific titles "Freight brakemen" and "Yard brakemen." For this reason it is not necessary to comment upon the tables here submitted.

## CAUSES OF ACCIDENTS TO BRAKEMEN (NOT SPECIFIED) FATALLY AND NON-FATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Brakemen (not specified) injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	50	22.3	1,521	53.0	1,580	50.4
Collisions.....	10	3.8	68	2.4	78	2.5
Deraillments.....	4	1.5	15	.5	19	.6
Breaking of parts of cars or engines.....	4	1.5	19	.6	23	.7
Falls from trains, locomotives, or cars.....	86	32.5	404	14.1	490	15.6
Falls on or in trains, locomotives, or cars.....			19	.6	19	.6
Getting on or off trains, locomotives, or cars.....	12	4.5	225	7.8	237	7.6
Caught between trains, locomotives, or cars.....	12	4.5	42	1.5	54	1.7
Struck by trains, locomotives, or cars.....	52	19.6	45	1.6	97	3.1
Injured by car doors.....			23	.8	23	.7
Injured drilling.....			53	1.8	53	1.7
Injured braking.....			77	2.7	77	2.5
Striking overhead or other obstructions.....	8	3.0	85	3.0	93	3.0
Handling switches.....			34	1.2	34	1.1
Handling freight.....			3	.1	3	.1
Shot.....			1	.1	1	.1
Other miscellaneous and not specified causes.....	18	6.8	234	8.2	252	8.0
Total.....	265	100.0	2,868	100.0	3,133	100.0

The nature and extent of the injuries in the 2,868 cases of nonfatal accidents are presented in the next table:

NATURE AND EXTENT OF NONFATAL INJURIES TO BRAKEMEN (NOT SPECIFIED)  
INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Brakemen (not specified) injured.					Total.
	Bruises, cuts, sprains, etc.	Crushed.	Dislocations.	Fractures.	Loss of part.	
Head.....	88			3		91
Face.....	47					47
Eye.....	3					3
Nose.....				2		2
Shoulder.....	23		12	3		38
Shoulders.....	8					8
Arm.....	160	41	2	27	8	238
Arms.....	1					1
Wrist.....	25		1	4		30
Wrists.....				1		1
Hand.....	315	105		1	7	428
Hands.....	1					1
Finger.....	146	179		13	33	371
Fingers.....	54	131		3	10	198
Collar bone.....				15		15
Rib.....				9		9
Ribs.....				10		10
Trunk.....	151					151
Hip.....	26		1	3		30
Hips.....	17					17
Leg.....	89	9		35	8	141
Legs.....	5			2	3	10
Knee.....	49		2	8		59
Knees.....	2					2
Ankle.....	102		1	3		106
Ankles.....	2					2
Foot.....	109	29		2	10	150
Feet.....	5				1	6
Toe.....	5	4		1	1	11
Toes.....	1	7		1	5	14
Other specified combinations.....	175	9		9	4	197
Internal injuries.....						10
Injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	370
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	71
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	30
Total nonfatal injuries.....	1,609	514	19	155	90	b2,868

a Not separately reported.

b Including 471 injuries not classified and 10 internal injuries.

SUMMARY OF NONFATAL INJURIES TO BRAKEMEN (NOT SPECIFIED), BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	1,609	56.1
Part or parts crushed.....	514	17.9
Dislocations.....	19	.7
Fractures.....	155	5.4
Loss of part or parts.....	90	3.1
Internal injuries.....	10	.4
Injuries unclassified.....	471	16.4
Total.....	2,868	100.0

## SWITCHMEN (NOT SPECIFIED).

In New Jersey there seems to be a difference in the meaning and usage of the term switchman. Some roads apply the term switchman to a man who only tends switches and sees that the trains or cars pass safely over them. Tending a switch means not only the throwing of the same, but in keeping it in good condition—that is, free from obstructions, such as snow and ice, and in keeping it well oiled. Switch tenders in this strict sense of the term, when reported in such a manner as to indicate that their duties were principally on the ground, are considered with the group of employees engaged in the maintenance of way. The causes of accidents to switchmen (not specified) so clearly indicate that the large majority of such employees were engaged on trains or cars that they have been considered as trainmen and the statistics are presented in this group. In the following table, for example, it is shown that of the 455 switchmen (not specified) reported as injured during the twenty-year period, 216, or 47.5 per cent, were injured in the coupling or uncoupling of cars; 91 were injured by falls from trains, locomotives, or cars. Of the 41 fatal injuries to switchmen (not specified) all were due to train accidents of one kind or another. The figures show that 9 per cent of the injuries were fatal and 91 per cent were nonfatal.

## CAUSES OF ACCIDENTS TO SWITCHMEN (NOT SPECIFIED) FATALLY AND NON-FATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Switchmen (not specified) injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	9	22.0	207	50.0	216	47.5
Collisions.....			2	.5	2	.4
Deraillments.....			1	.2	1	.2
Breaking of parts of cars or engines.....			1	.2	1	.2
Falls from trains, locomotives, or cars.....	11	26.8	80	19.3	91	20.0
Getting on or off trains, locomotives, or cars.....	4	9.8	24	5.8	28	6.1
Struck by trains, locomotives, or cars.....	16	39.0	60	14.5	76	16.7
Striking overhead or other obstructions.....	1	2.4	12	2.9	13	2.9
Handling materials or supplies.....			1	.2	1	.2
Handling switches.....			4	1.0	4	.9
Handling tools or machinery.....			3	.8	3	.7
Struck by objects from passing trains.....			1	.2	1	.2
Falls, miscellaneous and not specified.....			9	2.2	9	2.0
Other miscellaneous and not specified causes.....			9	2.2	9	2.0
Total.....	41	100.0	414	100.0	455	100.0

In the next table the nonfatal accidents to this class of railway employees during the period 1888 to 1907 are classified by the nature and extent of the injuries:

NATURE AND EXTENT OF NONFATAL INJURIES TO SWITCHMEN (NOT SPECIFIED) INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Switchmen (not specified) injured.					Total.
	Bruises, cuts, sprains, etc.	Crushed.	Dislocations.	Fractures.	Loss of part.	
Head.....	6					6
Face.....	3					3
Nose.....				1		1
Shoulder.....	2		4			6
Arm.....	25	4		5	2	36
Wrist.....	3			2		5
Hand.....	32			1		43
Finger.....	47	10		2	1	74
Fingers.....	17	23		2	2	44
Rib.....				1		1
Ribs.....				6		6
Trunk.....	32					32
Hip.....	5		1			6
Hips.....	4					4
Leg.....	15			5	3	23
Legs.....	2					2
Knee.....	6			1		7
Ankle.....	21		1	1		23
Ankles.....	1					1
Foot.....	12	2		1	1	16
Toe.....	5	1				6
Toes.....		2				2
Other specified combinations.....	53				1	54
Internal injuries.....						2
Injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	9
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	1
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	1
<b>Total nonfatal injuries.....</b>	<b>291</b>	<b>66</b>	<b>6</b>	<b>28</b>	<b>10</b>	<b>414</b>

a Not separately reported.

b Including 11 injuries not classified and 2 internal injuries.

SUMMARY OF NONFATAL INJURIES TO SWITCHMEN (NOT SPECIFIED), BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	291	70.3
Part or parts crushed.....	66	15.9
Dislocations.....	6	1.4
Fractures.....	28	6.8
Loss of part or parts.....	10	2.4
Internal injuries.....	2	.5
Injuries unclassified.....	11	2.7
<b>Total.....</b>	<b>414</b>	<b>100.0</b>

The figures indicate that switchmen on trains are exposed to about the same degree of injury as freight and yard brakemen and drillers. Of the 414 nonfatal injuries, 6.8 per cent represented fractures, 2.4 per cent the loss of a part or parts, and 15.9 per cent represented a crushed part or parts. These figures clearly indicate that the injuries to switchmen are frequently severe, and result in permanent disability.

## FLAGMEN.

In the following table the accidents during the period 1888 to 1907 reported under the occupation title of flagman are presented by causes, in the usual manner. Flagmen on trains perform service similar to that of brakemen; in fact the brakemen frequently perform the work that is sometimes assigned to rear-end flagmen. That flagmen are exposed to about the same hazards as brakemen is plain from the data in the table.

## CAUSES OF ACCIDENTS TO FLAGMEN FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Flagmen injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	2	7.6	31	30.1	33	25.6
Collisions.....	1	3.9	3	2.9	4	3.1
Deraillments.....			1	1.0	1	.8
Breaking of parts of cars or engines.....	1	3.9	5	4.9	6	4.6
Falls from trains, locomotives, or cars.....	1	3.9	9	8.7	10	7.8
Getting on or off trains, locomotives, or cars.....	2	7.6	5	4.9	7	5.4
Struck by trains, locomotives, or cars.....	18	69.2	8	7.8	26	20.2
Striking overhead or other obstructions.....			6	5.8	6	4.6
Shifting of lading.....			2	1.9	2	1.6
Falls, miscellaneous and not specified.....			15	14.5	15	11.6
Other miscellaneous and not specified causes.....	1	3.9	18	17.5	19	14.7
<b>Total.....</b>	<b>26</b>	<b>100.0</b>	<b>103</b>	<b>100.0</b>	<b>129</b>	<b>100.0</b>

The figures in this table show that 25.6 per cent of all the injuries were caused by coupling or uncoupling, and 20.2 per cent were caused by the injured employee being struck by trains, locomotives, or cars. Train accidents were responsible for the great majority of both the fatal and the nonfatal injuries to this class of railroad employees. Of the 129 accidents reported, 26, or 20.2 per cent, were fatal and 103, or 79.8 per cent, were nonfatal.

In the next table the nonfatal accidents to flagmen during the period 1888 to 1907 are classified by the nature and extent of the injuries. Comment on this table is unnecessary, since the degree of injury is very similar to that of brakemen.

NATURE AND EXTENT OF NONFATAL INJURIES TO FLAGMEN INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Flagmen injured.				
	Bruises, cuts, sprains, etc.	Crushed.	Fractures.	Loss of part.	Total. ]
Head.....	4				4
Face.....	4				4
Eye.....	1				1
Shoulder.....	1				1
Arm.....	6	1			7
Wrist.....	4				4
Hand.....	6	3			9
Finger.....	2	2		2	6
Fingers.....	2	3			5
Collar bone.....		1		2	2
Rib.....				2	2
Trunk.....	10				10
Hip.....	2				2
Leg.....	7		3	1	11
Knee.....	3				3
Ankle.....	2				2
Foot.....	9				9
Toe.....	1				1
Other specified combinations.....	9		2		11
Internal injuries.....					1
Injuries unclassified.....	(a)	(a)	(a)	(a)	6
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	2
<b>Total nonfatal injuries.....</b>	<b>73</b>	<b>9</b>	<b>9</b>	<b>3</b>	<b>b 103</b>

<sup>a</sup> Not separately reported.

<sup>b</sup> Including 8 injuries not classified and 1 internal injury.

SUMMARY OF NONFATAL INJURIES TO FLAGMEN, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	73	70.9
Part or parts crushed.....	9	8.7
Fractures.....	9	8.7
Loss of part or parts.....	3	2.9
Internal injuries.....	1	1.0
Injuries unclassified.....	8	7.8
<b>Total.....</b>	<b>103</b>	<b>100.0</b>

**BAGGAGEMEN (NOT SPECIFIED).**

Injuries to baggagemen (not specified) appear to refer, in the New Jersey statistics, principally to baggagemen employed on trains. This occupation is therefore considered in the group of trainmen and the statistics are presented in the following tables. The figures in the first table, in which the accidents during the period 1888 to 1907 are classified by causes, indicate that at least one-half of the injuries to baggagemen (not specified) were the result of train accidents, all of the fatal injuries having been due to that class of causes. Of the 85 accidents reported, 5, or 5.9 per cent, were fatal and 80, or 94.1 per cent, were nonfatal.

## CAUSES OF ACCIDENTS TO BAGGAGEMEN (NOT SPECIFIED) FATALLY AND NON-FATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Baggagemen (not specified) injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....			11	13.8	11	12.9
Collisions.....	1	20.0	12	15.0	13	15.3
Derailments.....			1	1.2	1	1.2
Breaking of parts of cars or engines.....			1	1.2	1	1.2
Getting on or off trains, locomotives, or cars.....			4	5.0	4	4.7
Struck by trains, locomotives, or cars.....	3	60.0	6	7.5	9	10.6
Striking overhead or other obstructions.....	1	20.0	3	3.7	4	4.7
Handling tools or machinery.....			3	3.7	3	3.5
Handling baggage.....			19	23.8	19	22.4
Falls, miscellaneous and not specified.....			11	13.8	11	12.9
Other miscellaneous and not specified causes.....			9	11.3	9	10.6
Total.....	5	100.0	80	100.0	85	100.0

In the next table the nonfatal accidents to baggagemen (not specified) during the period 1888 to 1907 are classified according to the nature and extent of the injuries. The table is self-explanatory and requires no comment.

## NATURE AND EXTENT OF NONFATAL INJURIES TO BAGGAGEMEN (NOT SPECIFIED) INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Baggagemen (not specified) injured.				
	Bruises, cuts, sprains, etc.	Crushed.	Dis-locations.	Fractures.	Total.
Head.....	2				2
Face.....	1				1
Shoulder.....	2				2
Arm.....	3			1	4
Hand.....	4				4
Fingers.....	7	3			10
Collar bone.....	1			1	2
Ribs.....				2	2
Trunk.....	7				7
Leg.....	1			7	8
Knee.....	3		1		4
Ankle.....	2				2
Foot.....	7				7
Toe.....	2				2
Other specified combinations.....	4			1	5
Injuries unclassified.....	(a)	(a)	(a)	(a)	10
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	4
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	4
Total nonfatal injuries.....	46	3	1	12	62

a Not separately reported.

b Including 18 injuries not classified.

SUMMARY OF NONFATAL INJURIES TO BAGGAGEMEN (NOT SPECIFIED), BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	46	57.5
Part or parts crushed.....	3	3.7
Dislocations.....	1	1.3
Fractures.....	12	15.0
Injuries unclassified.....	18	22.5
<b>Total.....</b>	<b>80</b>	<b>100.0</b>

It would have been desirable to classify separately injuries to baggagemen at stations from those to baggagemen on trains, but this distinction is seldom made in the returns of accidents. The above statistics, however, indicate that the majority of the baggagemen (not specified) injured in New Jersey were undoubtedly baggagemen on trains. Of course, the exposure to accidental injury is greater for baggagemen on trains than for baggagemen at stations. It is precisely for this reason that careful distinction should be made between the two classes in all returns of accidents to this group of railway employees. Baggage porters are considered on page 292.

**TRAINMEN (NOT SPECIFIED).**

In the returns of injuries to railway employees, 493 represented trainmen not otherwise designated. This term is indefinite, since it may include conductors of the various classes, enginemen, firemen, brakemen of the various classes, flagmen, switchmen on trains, and baggagemen on trains. The term trainman, therefore, is too ambiguous to be of much practical use for statistical purposes. It may be stated that the term trainmen in some instances means a specific employment. For example, the Delaware, Lackawanna and Western Railroad uses the term trainmen to designate the men usually called passenger brakemen; the occupation in that case is identical with that usually termed passenger brakeman. This fact is only another illustration of the lack of uniformity among railroads in the use of terms or titles to designate the men employed in the various departments of the railway service. A driller with the Central Railroad of New Jersey is a yard brakeman with the Pennsylvania Railroad; a trainman with the Delaware, Lackawanna and Western Railroad is a passenger brakeman with most other roads; a switchman on some roads represents apparently identically the same occupation as a yard brakeman or driller with other roads. These illustrations of the use of various terms by the different railroads to represent the same employment could be carried still further. The result of this lack of

uniformity is confusing in any consideration of accident returns, and it must also be more or less confusing in railroad practice, especially when men who have been employed by one road for one reason or another engage in service with another road.

The following tables for trainmen (not specified) are presented to give completeness to this statistical study of accidents to railway employees, but comment upon the statistics would be of little value, owing to the fact that the occupation itself is such an indefinite one. Out of a total of 493 accidents reported, only 8, or 1.6 per cent, were fatal; 485, or 98.4 per cent, were nonfatal.

CAUSES OF ACCIDENTS TO **TRAINMEN (NOT SPECIFIED)** FATALLY AND NON-FATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Trainmen (not specified) injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	2	25.0	60	12.4	62	12.6
Collisions.....			13	2.7	13	2.6
Derailments.....			9	1.9	9	1.8
Breaking of parts of cars or engines.....			2	.4	2	.4
Falls from trains, locomotives, or cars.....	2	25.0	137	28.3	139	28.2
Getting on or off trains, locomotives, or cars.....			22	4.5	22	4.5
Passing from car to car.....			3	.6	3	.6
Caught between trains, locomotives, or cars.....			7	1.4	7	1.4
Struck by trains, locomotives, or cars.....	3	37.5	4	.8	7	1.4
Injured by car doors.....			3	.6	3	.6
Striking overhead or other obstructions.....	1	12.5	13	2.7	14	2.9
Handling materials or supplies.....			5	1.0	5	1.0
Handling tools or machinery.....			1	.2	1	.2
Falls, miscellaneous and not specified.....			8	1.7	8	1.6
Other miscellaneous and not specified causes.....			198	40.8	198	40.2
Total.....	8	100.0	485	100.0	493	100.0

The nature and extent of the injuries in the 485 cases of nonfatal accidents to this group of employees during the period 1888 to 1907 may be seen in the next table:

NATURE AND EXTENT OF NONFATAL INJURIES TO TRAINMEN (NOT SPECIFIED) INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Trainmen (not specified) injured.					
	Bruises, cuts, sprains, etc.	Crushed.	Dislocations.	Fractures.	Loss of part.	Total.
Head.....	6					6
Face.....	4					4
Arm.....	4	2	1	2		9
Wrist.....	3			2		5
Hand.....	6	1				7
Finger.....	7	3				10
Fingers.....	1	1				2
Collar bone.....		1				2
Rib.....				2		1
Ribs.....				1		1
Trunk.....	12			1		12
Hip.....	4					4
Leg.....	9			3	1	13
Knee.....	9					9
Ankle.....	18			2		20
Foot.....	10			2		12
Feet.....	1					1
Toe.....	2					2
Toes.....	3			1		4
Other specified combinations.....	32	1		1		34
Internal injuries.....						1
Injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	320
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	6
Total nonfatal injuries.....	131	8	1	17	1	<sup>b</sup> 485

<sup>a</sup> Not separately reported.

<sup>b</sup> Including 326 injuries not classified and 1 internal injury.

SUMMARY OF NONFATAL INJURIES TO TRAINMEN (NOT SPECIFIED), BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	131	27.0
Part or parts crushed.....	8	1.7
Dislocations.....	1	.2
Fractures.....	17	3.5
Loss of part or parts.....	1	.2
Internal injuries.....	1	.2
Injuries unclassified.....	326	67.2
Total.....	485	100.0

ACCIDENTS TO SHOPMEN.

In the construction, repair, and adjustment of the rolling stock and other equipment of railroads, employment is found for a large number of more or less skilled men; but the classification of this group of railroad employees on a uniform basis is, for special reasons, extremely difficult if not impossible. The principal employments are machinists and their helpers, boiler makers and their helpers, car builders and repairers, air brake and hose repairers, tinsmiths, pipe fitters, and painters. Repair work is done both in shops and on sidings in yards. Machinists work in shops, in roundhouses, or

along the line, or in yards, as occasion requires. Just so with carpenters and painters. Carpenters may be required to build or mend crossing gates and planking, fences, tool houses, switch shanties, towers, water tanks, stations and platforms, or other structures either along the road or at terminals. Work along the track is more hazardous than work confined to shops, since in the latter case there is less exposure to moving trains, engines, or cars. In roundhouses, too, generally speaking, there is greater danger from certain hazards, such, for example, as the movement of engines, which in the shops would be incidental rather than important from the viewpoint of the relative exposure of the employees to the liability of accidental injury.

In New Jersey there are no strictly manufacturing railroad shops of sufficient importance to require special consideration; yet in the group of railroad shopmen the number of men employed in the State in one capacity or another is considerable. According to the railway statistics of the Interstate Commerce Commission for 1907 there were 89,421 shopmen, including machinists, carpenters, and other shopmen, employed in Group II in that year, or 22.3 per cent of the total number of railroad employees in that group. For the United States as a whole the corresponding percentage was 20.8. Group II, however, embraces the States of New York and Pennsylvania, in which some of the most extensive railroad shops in the United States are located. In New Jersey, according to the returns made by the seven principal roads operating there, the shopmen constituted, on an average during the period 1900 to 1908, only 15.3 per cent of all their employees. These figures, like those quoted for Group II and for the United States, include bridge carpenters, car repairers, and other employees, many of whom are not, strictly speaking, men employed in shops. As a matter of fact, relatively few of the railroad carpenters employed in New Jersey are shop carpenters, but they are principally employed in repair work out along the line, either in the building and repair of side-of-the-track structures or of bridges, trestles, culverts, etc. Obviously, the exposure to accidental injury is much greater to carpenters working on and along tracks than to carpenters who work in shops.

Car repairers and car builders in New Jersey are also largely employed along the line rather than in shops. The details of the injuries to these men, as reported by the railroads of New Jersey, clearly reveal this fact. The expression "car builders" is more or less of a misnomer in New Jersey, for the employees so designated are probably—the injuries so indicate—principally engaged in repair work. In this study of railroad accidents carpenters are not, for the reasons just set forth, considered in the group with shopmen, but all carpenters, and painters also, are considered in the maintenance-of-way group. Car repairers and car builders are separately considered but

are classed with shopmen; yet it is important to note that the details of the injuries to these men clearly indicate that they work a considerable part of their time in yards and on sidings, where they are exposed to a greater or less degree to the hazards of moving trains and cars, in addition to the accidents common to all shop employees of this class.

It has not been possible to differentiate machinists and their helpers in shops, in yards, and in roundhouses. Machinists in roundhouses are subject to practically the same accident liability, as far as can be judged from observation, as machinists employed in car shops. Sometimes the quarters may be a little more cramped in the roundhouses than in the well-equipped shops, and the mechanical facilities may be less satisfactory in the former than in the latter, but just how far these possible differences affect the injury rate of machinists of the two classes it is impossible to say from the facts available. Machinists may also do some work in yards and on sidings, when, as in the roundhouse, the repairs necessary are of a comparatively trivial nature.

The following table is a summary of the injuries to railroad shop employees, as far as they were returned under titles which permit of their proper classification, for the period 1888 to 1907:

**RAILROAD SHOPMEN FATALLY AND NONFATALLY INJURED IN ACCIDENTS IN NEW JERSEY, BY OCCUPATIONS, 1888 TO 1907.**

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Occupation.	Railroad shopmen injured.			Per cent killed of total injured.
	Fatally.	Non-fatally.	Total.	
Shop foreman.....	1		1	100.0
Bolt inspector.....		1	1	
Car builders.....	2	19	21	9.5
Car repairers.....	16	153	169	9.5
Machinists and their helpers.....	6	149	155	3.9
Blacksmiths and their helpers.....		22	22	
Boiler makers and their helpers.....		24	24	
Helpers (not specified).....		7	7	
Plumbers.....	1	7	8	12.5
Tinsmiths.....		4	4	
Messenger boys.....		3	3	
Shopmen (not specified).....	7	301	308	2.3
Total.....	33	690	723	4.6

During the period 1888 to 1907, there were 723 railroad employees injured in New Jersey and reported under specific occupation titles, which made possible their classification in this group of shopmen. Of the total, 33, or 4.6 per cent, were fatally injured and 690, or 95.4 per cent, were nonfatally injured. More than one-half of the fatal accidents and about one-fourth of the nonfatal accidents in this group were to car repairers and car builders. As previously pointed out, this relatively large number of injuries to car repairers and car

builders is, in part at least, due to the fact that their work is frequently done outside of shops, where the danger of serious or fatal injury is much greater than in shops. As far as it is possible to judge, car repairers and car builders in shops are not more exposed to accidental injury than are other shopmen. Referring to the table on page 186 the fatal accident rates per 1,000 employees for the specified occupations of this group were as follows: Machinists and helpers, 0.12; blacksmiths and helpers, 0.51; car builders and repairers, 0.86; and other shopmen, 0.35. The number of fatal accidents was small, however, and it was impossible to separate the car repairers in yards from the car repairers in shops.

### CAR REPAIRERS.

In the following table are given the causes of accidents to persons injured in the repairing of railroad cars in New Jersey during the period 1888 to 1907. All persons reported as car repairers are included in the table. It is quite probable that in a considerable number of cases the definite occupation was not reported for this class of men, and when such injured persons were returned simply as employees, or under some other indefinite title, it has been impossible to include them in this table. Car builders, too, were excluded from the table, but the details of 21 accidents to car builders (2 fatal and 19 nonfatal) are given in the appendix, page 303. The accidents to which the following table relates numbered 169, of which 16, or 9.5 per cent, were fatal and 153, or 90.5 per cent, were nonfatal.

#### CAUSES OF ACCIDENTS TO CAR REPAIRERS FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Car repairers injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	1	6.3	1	0.7	2	1.2
Breaking of parts of cars or engines.....	1		1	.7	1	.6
Falls from trains, locomotives, or cars.....	3	18.8	6	3.9	9	5.3
Caught between trains, locomotives, or cars.....			10	6.5	10	5.9
Struck by trains, locomotives, or cars.....	5	31.3	9	5.9	14	8.3
Handling materials or supplies.....			4	2.6	4	2.3
Handling tools or machinery.....	1	6.2	26	17.0	27	16.0
Cave-in.....			1	.7	1	.6
Falls, miscellaneous and not specified.....	1	6.2	7	4.5	8	4.7
Caught under cars.....	4	25.0	8	5.2	12	7.1
Falling car body.....	1	6.2	1	.7	2	1.2
Falling of other objects.....			28	18.3	28	16.6
Other miscellaneous and not specified causes.....			51	33.3	51	30.2
<b>Total.....</b>	<b>16</b>	<b>100.0</b>	<b>153</b>	<b>100.0</b>	<b>169</b>	<b>100.0</b>

Of the 169 car repairers reported as injured, 27, or 16 per cent, were injured by handling tools or machinery; 14, or 8.3 per cent, were struck by cars; 10, or 5.9 per cent, were caught between cars; and 9, or 5.3 per cent, were injured by falling from engines or cars. It is of special interest to note that 12 were caught underneath cars, 4 of these being killed. Falling objects caused 30 injuries, all but 1 being nonfatal. As near as can be determined from these data about one-fourth of all the injuries to this group of railway employees resulted from train accidents. Of the 16 fatal accidents, however, fully three-fourths may be charged to the movement of trains or cars. These facts clearly show that car repairers in New Jersey do their work largely in yards and on sidings, where they are exposed to the hazards of railway traffic.

In the next table the 153 nonfatal injuries received by this class of railway employees during the period 1888 to 1907 are classified by the nature and extent of the injuries received:

NATURE AND EXTENT OF NONFATAL INJURIES TO CAR REPAIRERS INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Car repairers injured.				
	Bruises, cuts, sprains, etc.	Crushed.	Fractures.	Loss of part.	Total.
Head.....	10				10
Face.....	2				2
Eye.....	7			1	8
Nose.....	1				1
Shoulder.....	5				5
Arm.....	3	1		1	5
Wrist.....			2		2
Hand.....	11	3			14
Finger.....	8	6	1		15
Collar bone.....			1		1
Ribs.....			2		2
Trunk.....	10				10
Hip.....			1		1
Leg.....	6	1	3		10
Knee.....	2				2
Ankle.....	4				4
Foot.....	1				1
Feet.....	12				12
Toes.....	3				3
Other specified combinations.....	8				8
Internal injuries.....					1
Injuries unclassified.....	(a)	(a)	(a)	(a)	7
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	26
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	3
<b>Total nonfatal injuries.....</b>	<b>93</b>	<b>11</b>	<b>10</b>	<b>2</b>	<b>b 153</b>

<sup>a</sup> Not separately reported.

<sup>b</sup> Including 36 injuries not classified and 1 internal injury.

## SUMMARY OF NONFATAL INJURIES TO CAR REPAIRERS, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	93	60.8
Part or parts crushed.....	11	7.2
Fractures.....	10	6.5
Loss of part or parts.....	2	1.3
Internal injuries.....	1	.7
Injuries unclassified.....	36	23.5
Total.....	153	100.0

The statistics show that a considerable proportion of the injuries (15 per cent) were serious enough to be reported as part or parts crushed, part or parts fractured, or loss of part or parts. Of the parts crushed, however, 9 of the 11 cases were hands or fingers. All of the 10 fractures, with the exception of 1 which was a finger, were serious or bad fractures. Of the 2 parts lost 1 was an eye and 1 an arm. Some of the 93 cases of bruises, cuts, sprains, etc., were severe and entailed considerable loss of time, and possibly in some instances resulted in permanent disability.

**MACHINISTS AND THEIR HELPERS.**

Machinists and their helpers, as has already been shown, during the period 1888 to 1907 suffered a total of 155 injuries, of which 6, or 3.9 per cent, were fatal, and 149, or 96.1 per cent, were nonfatal.

In the following table the causes of the accidents, the fatal and nonfatal accidents being shown separately, are given. The table is arranged in a manner similar to that for car repairers and is self-explanatory.

## CAUSES OF ACCIDENTS TO MACHINISTS AND THEIR HELPERS FATALLY AND NON-FATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Machinists and their helpers injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	1	16.7	7	4.7	1	0.6
Breaking of parts of cars or engines.....			6	4.0	7	4.5
Falls from trains, locomotives, or cars.....			1	.7	6	3.9
Getting on or off trains, locomotives, or cars.....	2	33.3	8	5.4	3	1.9
Struck by trains, locomotives, or cars.....	2	33.3	1	.7	10	6.5
Striking overhead or other obstructions.....			1	.7	1	.6
Handling materials or supplies.....	1	16.7	5	3.3	6	3.9
Handling tools or machinery.....			52	34.9	52	33.5
Falls, miscellaneous and not specified.....			10	6.7	10	6.5
Other miscellaneous and not specified causes.....			59	39.6	59	38.1
Total.....	6	100.0	149	100.0	155	100.0

The nature and extent of the injuries in the 149 cases of nonfatal accidents during the period 1888 to 1907 may be seen in the next table:

NATURE AND EXTENT OF NONFATAL INJURIES TO MACHINISTS AND THEIR HELPERS INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Machinists and their helpers injured.				
	Bruises, cuts, sprains, etc.	Crushed.	Fractures.	Loss of part.	Total.
Head.....	8		2		10
Face.....	4				4
Eye.....	6				6
Nose.....			2		2
Shoulder.....	1				1
Arm.....	3	1			4
Hand.....	22	2	1		25
Hands.....	1				1
Finger.....	18	6	2	7	33
Fingers.....	8	2			10
Ribs.....			1		1
Trunk.....	2				2
Hip.....	1				1
Leg.....	4				4
Ankle.....	3				3
Foot.....	13	1		1	15
Toe.....	1				2
Toes.....	1	3			4
Other specified combinations.....	13				13
Internal injuries.....					2
Injuries unclassified.....	(a)	(a)	(a)	(a)	4
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	1
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	1
<b>Total nonfatal injuries.....</b>	<b>109</b>	<b>16</b>	<b>8</b>	<b>8</b>	<b>149</b>

a Not separately reported.

b Including 6 injuries not classified and 2 internal injuries.

SUMMARY OF NONFATAL INJURIES TO MACHINISTS AND THEIR HELPERS, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	109	73.2
Part or parts crushed.....	16	10.7
Fractures.....	8	5.4
Loss of part or parts.....	8	5.4
Internal injuries.....	2	1.3
Injuries unclassified.....	6	4.0
<b>Total.....</b>	<b>149</b>	<b>100.0</b>

Fully 18 per cent of the 155 railroad machinists reported injured in New Jersey during the period 1888 to 1907 were injured by train accidents. Ten, or 6.5 per cent of the total, were struck by engines, cars, or trains, 2 being fatally injured. The handling of tools and machines was naturally the most important single cause of injury to this group of railway employees.

Of the 149 nonfatal injuries certainly more than one-fifth and probably more than one-fourth were severe if not serious. Of the more serious injuries, 2 were fractures of the skull, 2 of the nose, 1

of the hand, and 1 of two or more ribs; of crushed parts, 1 was an arm, 2 a hand, 1 a foot, and 12 were finger or fingers and toe or toes; of lost parts, 1 was a foot and 7 a finger.

**SHOPMEN (MISCELLANEOUS AND NOT SPECIFIED).**

In the following tables the injuries to all other shopmen (not including car repairers and machinists) during the period 1888 to 1907 are presented in the usual manner. The miscellaneous but specified employees were shop foreman, 1; boiler makers, 24; blacksmiths, 22; car builders, 21; plumbers, 8; tinsmiths, 4; pumpmen (not at roundhouses), 4; painters, 19; messenger boys, 3; and bolt inspector, 1. The injuries to which the table relates numbered 415, of which 14, or 3.4 per cent, were fatal, and 401, or 96.6 per cent, were nonfatal.

**CAUSES OF ACCIDENTS TO SHOPMEN (MISCELLANEOUS AND NOT SPECIFIED)  
FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.**

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Shopmen (miscellaneous and not specified) injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....			5	1.2	5	1.2
Breaking of parts of cars or engines.....			2	.5	2	.5
Falls from trains, locomotives, or cars.....			12	3.0	12	2.9
Getting on or off trains, locomotives, or cars.....			8	2.0	8	1.9
Caught between trains, locomotives, or cars.....	1	7.2	4	1.0	5	1.2
Struck by trains, locomotives, or cars.....	6	42.8	14	3.5	20	4.8
Striking overhead or other obstructions.....			1	.2	1	.2
Handling materials or supplies.....	1	7.2	40	10.0	41	9.9
Handling tools or machinery.....			82	20.5	82	19.8
Falls, miscellaneous and not specified.....	2	14.2	34	8.5	36	8.7
Falling car body.....	1	7.2			1	.2
Other shop accidents (unclassified).....	1	7.2	167	41.6	168	40.5
Injured by drawbridge.....			2	.5	2	.5
Drowned.....	2	14.2			2	.5
Other miscellaneous and not specified causes.....			30	7.5	30	7.2
<b>Total.....</b>	<b>14</b>	<b>100.0</b>	<b>401</b>	<b>100.0</b>	<b>415</b>	<b>100.0</b>

In the next table are shown the nature and extent of the injuries in the 401 cases of nonfatal accidents which occurred in this group during the period 1888 to 1907:

NATURE AND EXTENT OF NONFATAL INJURIES TO SHOPMEN (MISCELLANEOUS AND NOT SPECIFIED) INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Shopmen (miscellaneous and not specified) injured.				
	Bruises, cuts, sprains, etc.	Crushed.	Fractures.	Loss of part.	Total.
Head.....	15		1		16
Face.....	10				10
Eye.....	32				32
Eyes.....	1				1
Nose.....	2		2		2
Shoulder.....	2				2
Shoulders.....	1				1
Arm.....	11		2		13
Wrist.....	8				8
Hand.....	67	4			71
Finger.....	16	6	2	4	28
Fingers.....	3	1		1	5
Collar bone.....			2		2
Ribs.....			2		2
Trunk.....	14				14
Hip.....	5				5
Hips.....	1				1
Leg.....	16	1	4	1	22
Legs.....	3	1			4
Knee.....	1				1
Ankle.....	9				9
Foot.....	30	5			35
Toe.....	2	1			3
Toes.....	1	1			2
Arm and leg.....				1	1
Other specified combinations.....	19				19
Injuries unclassified.....	(a)	(a)	(a)	(a)	14
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	71
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	7
<b>Total nonfatal injuries.....</b>	<b>267</b>	<b>20</b>	<b>15</b>	<b>7</b>	<b>b 401</b>

a Not separately reported.

b Including 92 injuries not classified.

SUMMARY OF NONFATAL INJURIES TO SHOPMEN (MISCELLANEOUS AND NOT SPECIFIED), BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	267	66.6
Part or parts crushed.....	20	5.0
Fractures.....	15	3.7
Loss of part or parts.....	7	1.8
Injuries unclassified.....	92	22.9
<b>Total.....</b>	<b>401</b>	<b>100.0</b>

Train accidents were a prominent factor in the causes of accidental injury to this group of railroad shopmen, and a considerable number of the injuries were severe or serious enough to result in permanent disability. In one instance the injured person lost an arm and a leg and in another case suffered the loss of a leg. Of the 20 fractures, at least 13 were quite serious; 7 were of finger or fingers.

## ACCIDENTS TO ROUNDHOUSE MEN.

Roundhouses are so called because they are built in circular shape with engine stalls on the circumference and an engine turning table or turntable in the center. Turntables are also often located elsewhere than at roundhouses. The arrangement of the roundhouse is admirably adapted to accommodate the largest number of engines in the least possible area, with due allowance for space to handle the engines, and room between when in their stalls to admit of making minor repairs, oiling, wiping, etc., without undue danger of injury from engines on adjoining tracks. The turntable makes it possible to shift the locomotives from one stall track to another with little loss of time, and, as a rule, crippled engines that can be repaired in the roundhouse are run on to tracks reserved specially for repair work, alongside of which are lifting cranes to facilitate the handling of heavy parts when the machinists find it necessary to remove them to make the repairs required. For illustration, if a steam-chest valve were broken, it would be necessary to lift off the jacket, which can be easily and quickly removed by the mechanical means available in the well-equipped roundhouse. The engines do not come from the road direct to the stall, but first are run on or over what is termed the ash pit. The ash pit is simply a pit or trench which extends between rails so that when the engine is over it the ashes from the ash pan and the cinders from the spark arrester may be shaken or dumped from the engine into the pit with the least labor and the greatest dispatch possible. There are ash pits at other points than at roundhouses, and turntables at various local terminal points along the line of any important railroad, but these accessories are necessary, and always form a part of the equipment of every roundhouse.

At the roundhouse the engines are cleaned, coaled, and supplied with water and sand. This involves various kinds of labor, and in the most important and busiest roundhouses there is greater differentiation of labor than is required in roundhouses where the engines are moved less frequently.

At terminal roundhouses, especially on the big railroads, different men or sets of men perform the various more or less distinct duties connected with the handling and care of the engines. In such a roundhouse there is a foreman with general supervision, and an engine dispatcher to see that the engines are ready for service on schedule time, and that, as far as possible, they are manned with the same crews from day to day. This function is important, for the crews become attached to an engine and take better care of it when they feel that, in a sense at least, it is their own. The engine dispatcher's duties are largely of an office nature. He has a clerk or messenger who calls the crews at their homes at the proper time. In recent years the telephone is used when the employee has one.

The hostler handles the engine after the regular engineman has brought it to the roundhouse. The hostler runs it over the ash pit, runs it to the sand house, takes it to the water tank, standpipe, plug, or other source of water supply, runs it on the turntable, and then into the stall assigned to it. In brief, he moves the engine from place to place, as required, while it is at the roundhouse.

Engine preparers see that the locomotives are provided with fuel, water, sand, etc., and watch them while in the roundhouse to see that the fires are properly banked, the boilers filled, etc. These men are also termed engine watchmen.

Engine wipers go over the engines with waste or other similar material and remove the excess oil and dirt from the working and other parts of the engine. On the road this work is also done more or less by the firemen while the engine is temporarily at rest at stations, in yards, or elsewhere. The engineman also wipes the main parts when he oils the engine. In the roundhouse engine wiping is an important part of the work in connection with the general care of the engines.

Engine cleaners may or may not be wipers. When the work in the roundhouse is differentiated the engine cleaners are not, as a rule, much above the grade of common labor. They clean the cinders from the spark arresters and the ashes from the ash pans of the engines. In fact, in the busiest roundhouses the smokestack cleaners and ash-pan cleaners are separate employments.

The ash-pit cleaner shovels the ashes out of the pit. In the up-to-date roundhouses dump cars are placed in the ash pits and are drawn or lifted out when filled. This method obviates rehandling the ashes by manual labor. There is always some spill, however, which requires to be shoveled out of the pit. The cleaning of the ash pit is done by low-grade labor.

The turntable operator, when power is used, occupies a little cabin at the edge of the turntable and operates the table with a lever. Tables which are seldom used are turned by manual labor by means of a long lever against which several men push when an engine requires to be turned. Such turntables are usually located at local terminal points where only one or two engines lay up.

In roundhouses many of the smaller repairs or adjustments of the parts of the locomotive can be made with economy of time, both to men and engines. Machinists and their helpers, therefore, form an essential and indispensable part of the labor force of every modern roundhouse. Sometimes important repairs can be completed while the locomotive is being wiped and otherwise prepared for its next trip. In this way the railroad equipment is made to serve at its highest capacity—an important economy when in rush days or seasons the road, at its best, is severely taxed to do the work required.

The hours of labor in the roundhouse are, as a rule, a full day of eleven or twelve hours, with the necessary intermission for the mid-day or midnight meal. Machinists, however, are often paid on the piecework plan. This system is said to be economical and generally satisfactory, with proper supervision to see that the work is not slighted. According to the returns made by the principal railroads of New Jersey to the bureau of statistics of labor and industries of that State, the class of labor included under the title engine wipers, etc., is employed, on an average, eleven or twelve hours per day, and the days that they are not on duty during the year average less than 50 out of the 365.

During the twenty years, 1888 to 1907, there were 195 injuries reported as having occurred to persons employed in the roundhouses of New Jersey, and of this number 13, or 6.7 per cent, were fatal and 182, or 93.3 per cent, nonfatal. Some of the injuries were probably the result of accidents at ash pits and turntables outside of roundhouses, and some of the engine cleaners, wipers, etc., also were probably injured while at work elsewhere than at roundhouses. The labor, however, is much the same whether done in or out of the roundhouse, and as it was not possible always to separate the injuries occurring at the roundhouse from those occurring elsewhere, they have all been grouped under the general heading of roundhouse employees.

The following table shows the number of injuries during the period 1888 to 1907 reported under titles indicating that the employees were engaged in roundhouse duties. The table shows the injuries by specific occupation titles, as far as reported, and the percentage of fatal of total injuries for each particular employment.

**ROUNDHOUSE MEN FATALLY AND NONFATALLY INJURED IN ACCIDENTS IN NEW JERSEY, BY OCCUPATIONS, 1888 TO 1907.**

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Occupation.	Roundhouse men injured.			Per cent killed of total injured.
	Fatally.	Non-fatally.	Total.	
Roundhouse foremen.....	2	1	3	66.7
Engine dispatchers.....		2	2	
Engine hostlers and hostlers' helpers.....		39	39	
Engine wipers.....	4	24	28	14.3
Engine cleaners.....	2	29	31	6.5
Ash-pan cleaners.....	1	3	4	25.0
Ash-pit cleaners.....	3	21	24	12.5
Fire cleaners.....		23	23	
Coal-chute foreman.....		1	1	
Engine preparers or engine watchmen.....		11	11	
Turntable operators.....	1	5	6	16.7
Pumpmen at roundhouse.....		3	3	
Boiler washers.....		3	3	
Janitor at roundhouse.....		1	1	
Roundhouse men (not specified).....		11	11	
Total.....	13	182	195	6.7

Although the numbers of injuries reported under the specific occupation titles are too small to warrant a final conclusion as to the relative dangers, it is significant that the fatal accidents have been so largely among men employed in engine wiping and cleaning and as ash-pit cleaners. Of the three fatal accidents outside of those occupations, two were roundhouse foremen and the other was a turntable operator. On the other hand, engine hostlers appear to escape fatal accidents, and the group of employees (including fire cleaners, engine coalers, pumpmen, and boiler washers) which may collectively be considered as engine preparers had no fatal injuries reported, although there were 46 nonfatal injuries reported for that group of roundhouse men. Men employed on the engine appear to be less liable to fatal injury in the roundhouse than men employed about the engine.

In this connection it may be well to state that engine wipers are in line for promotion to be enginemen, after having first served an apprenticeship as firemen. Engine hostlers are usually, or at least frequently, men who have previously served as regular enginemen.

In the following table are presented the causes of the injuries to roundhouse employees in New Jersey during the period 1888 to 1907:

CAUSES OF ACCIDENTS TO **ROUNDHOUSE MEN** FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause	Roundhouse men injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....			7	3.8	7	3.6
Breaking of parts of cars or engines.....			3	1.6	3	1.5
Falls from trains, locomotives, or cars.....	1	7.7	13	7.2	14	7.2
Falls into turntable pit.....			7	3.8	7	3.6
Falls into ash pit.....			3	1.6	3	1.5
Getting on or off trains, locomotives, or cars.....	1	7.7	6	3.3	7	3.6
Struck by trains, locomotives, or cars.....	8	61.5	19	10.4	27	13.8
Other injuries by engine moving.....	1	7.7	9	5.0	10	5.1
Striking overhead or other obstructions.....			9	5.0	9	4.6
Handling tools or machinery.....			4	2.2	4	2.1
Falls, miscellaneous and not specified.....			8	4.4	8	4.1
Falling coal and other material.....			12	6.6	12	6.2
Injuries from turntable.....			6	3.3	6	3.1
Electric shock.....	1	7.7			1	.5
Burns, scalds, etc.....			28	15.4	28	14.4
Explosion of gas tank.....	1	7.7			1	.5
Other miscellaneous and not specified causes.....			48	26.4	48	24.6
Total.....	13	100.0	182	100.0	195	100.0

These statistics are indicative of the real source of fatal injuries in roundhouses. The great majority, or 8 out of the total of 13, were the result of the employees being struck or run over by an engine.

In fact, all but 2 of the fatal accidents were due to the victims being struck or run over in one way or another. One death was caused by electric shock and 1 by the explosion of a gas tank.

In the next table the nonfatal injuries to roundhouse employees as a group are classified by their nature and extent, as far as this information was reported in New Jersey during the period 1888 to 1907:

NATURE AND EXTENT OF NONFATAL INJURIES TO **ROUNDHOUSE MEN** INJURED  
IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Roundhouse men injured.					Total.
	Bruises, cuts, sprains, etc.	Burns and scalds.	Crushed.	Fractures.	Loss of part.	
Head.....	8					8
Face.....	6	5				11
Eye.....	1				1	2
Shoulder.....	2					2
Arm.....	3	2	2	4	1	12
Wrist.....	1			1		2
Hand.....	14	1		1		16
Hands.....		1				1
Finger.....	7		5	1		13
Fingers.....			1		2	3
Trunk.....	5					5
Hip.....	2					2
Leg.....	1	2	2	1		6
Legs.....	1					1
Knee.....	4					4
Ankle.....	8					8
Foot.....	11		1		a 1	13
Toe.....	2			1		3
Foot and fingers.....			1			1
Other specified combinations.....	10	16				26
Internal injuries.....						1
Overcome by heat.....						2
Injuries unclassified.....	(b)	3	(b)	(b)	(b)	34
Slight injuries unclassified.....	(b)	(b)	(b)	(b)	(b)	4
Severe injuries unclassified.....	(b)	(b)	(b)	(b)	(b)	2
Total nonfatal injuries.....	86	30	12	9	5	c 182

a Foot cut off and arm broken.

b Not separately reported.

c Including 37 injuries not classified, 1 internal injury, and 2 overcome by heat.

SUMMARY OF NONFATAL INJURIES TO **ROUNDHOUSE MEN**, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	86	47.3
Burns and scalds.....	30	16.5
Part or parts crushed.....	12	6.6
Fractures.....	9	4.9
Loss of part or parts.....	5	2.8
Internal injuries.....	1	.5
Injuries unclassified.....	a 39	21.4
Total.....	182	100.0

a Including 2 overcome by heat.

This table shows that of the 182 nonfatal injuries, 9, or 4.9 per cent, represented fractures and 5, or 2.8 per cent, loss of parts. Of the 9 fractures, 7 were of some part of the upper limbs and 2 of the lower limbs—1 of the leg and 1 of the toe. Of the 5 lost parts, 1 was an eye, 1 an arm, 1 a foot, and 2 cases represented the loss of two or more fingers each. Burns and scalds are relatively frequent as injuries among roundhouse men, those reported constituting 16.5 per cent of all the nonfatal injuries. Finally, the fatal accidents numbered 13 out of a grand total of 195 injuries, or 6.7 per cent.

### ACCIDENTS TO YARD EMPLOYEES.

Men employed in railroad yards in New Jersey are an important element in the grand total of railway employees in the State. Excluding the roundhouse men, yard trainmen, and yard-track or maintenance-of-way employees, there still remains a numerically important group which may be separately considered as yard men. In New Jersey, owing to the several terminals with their necessarily big yards, a large proportion of the total mileage is yard track and sidings, or, according to the state board of assessors, 36.2 per cent, in 1906. In territorial group II the proportion was only 31.4 per cent in 1907,<sup>(a)</sup> while in the United States as a whole the proportion was only 23.7 per cent in 1907. This means that a comparatively large number of men are required in the railway yard service, in one capacity or another, in New Jersey.

Exclusive of yard trainmen, roundhouse men, and yard trackmen, there is a considerable number of distinct employments which may be grouped under the general title of yard men. The yardmaster has general supervision of the yard work, including the movement of the freight cars and the placing of the same at the proper points. Freight conductors report to him, and thus he knows at any given moment just what cars are in the yard, their contents, and their destination. He has several clerks in his office, if the yard is an important one, and an assistant. The yardmaster is responsible for the movement of traffic in the yard, but the section foreman and the road master are responsible for the proper maintenance of the yard track and structures. In the yards, too, many of the minor repairs to rolling stock can be made more economically than in shops. Car examiners, air-brake inspectors, car cleaners, etc., therefore form an important element in yard service. Usually, however, there is at least a small shop in the larger yards, and in the roundhouse there are usually facilities for minor repair work on engines.

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<sup>a</sup> See page 189.

Car, train, air-brake, steam heat, etc., inspectors examine the incoming rolling stock and if defects are found in the equipment either make the repairs themselves or report the defects, so that the engine or car can be temporarily taken out of service and placed on a yard siding or in a roundhouse or shop until the necessary repair work is completed. These inspectors of rolling stock and equipment are specially exposed to the danger of train accidents. The men sometimes disobey or fail to observe the strict rules and go under or between cars without displaying the necessary warning flag or signal. An engine under such circumstances may bump the car and fatally or seriously injure the inspector or examiner.

Passenger-car cleaners are an important element at terminal points. They clean both the outside and inside of passenger cars. Women do a large part of the inside work but men usually do the outside work, most of which consists of window cleaning. Accidents to this class of employees are principally from falls from ladders or falls in cars, due to the cars being bumped by an engine or by other cars while the cleaners are at work.

It is necessary that freight cars be moved in yards with as great expedition as possible to avoid congestion and to get the largest service from the rolling stock. The yardmaster, therefore, must keep himself informed as to the movement of the cars in his yard. The clerks under his supervision must secure this information, in part at least, by actual observation of the cars in the yard at stated intervals. It is not enough to get reports from conductors of the arrival of cars, but the cars must be checked and watched from the time they arrive in the yard until they go out. To do this there are car-number takers and car checkers. If a car is expected and it does not arrive, or if it is in some manner temporarily lost, it must be traced by a car tracer.

Freight cars when loaded are not locked but sealed. This work is done by a yard clerk called a car sealer. While en route the sealed cars are regularly inspected at various points by the seal inspector. In this manner if a freight car is tampered with it can readily be determined between what localities along the line the seal was broken.

Freight handlers and warehousemen work more or less in and about yards and are therefore considered in this group. Yard watchmen are required to guard against fire and thieves.

In the following table is presented a summary of the injuries to yard employees (not including trainmen, roundhouse men, and trackmen) in New Jersey during the period 1888 to 1907:

**YARD EMPLOYEES FATALLY AND NONFATALLY INJURED IN ACCIDENTS IN NEW JERSEY, BY OCCUPATIONS, 1888 TO 1907.**

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Occupation.	Yard employees injured.			Per cent killed of total injured.
	Fatally.	Non-fatally.	Total.	
Yardmasters.....	2	29	31	6.4
Assistant yardmasters.....	5	12	17	29.4
Yard foremen.....		3	3	
Train inspectors.....	1		1	100.0
Air-brake inspectors.....	2	11	13	15.4
Car examiners or inspectors.....	16	71	87	18.4
Steam inspectors.....		3	3	
Hose cutters.....		6	6	
Car oilers.....	2	9	11	18.2
Car cleaners.....	12	136	148	8.1
Call boys.....	1	3	4	25.0
Car checkers.....	1	6	7	14.3
Car markers.....		1	1	
Car-number takers.....		2	2	
Car tracers.....	1		1	100.0
Car sealers.....	1	3	4	25.0
Seal inspectors.....		2	2	
Yard clerks (not specified).....	3	10	13	23.1
Yard messengers.....	3	3	6	50.0
Water boys.....		1	1	
Weighmasters' assistants.....		1	1	
Freight handlers.....	4	136	140	2.9
Warehousemen.....		14	14	
Yard porters.....	1		1	100.0
Yard watchmen.....	5	4	9	55.6
<b>Total.....</b>	<b>60</b>	<b>466</b>	<b>526</b>	<b>11.4</b>

In this group of railroad employees there were 526 persons returned as injured and under a specific occupation title. Of the total number injured, 60, or 11.4 per cent, were fatally injured. Car cleaners, freight handlers, car inspectors, and yardmasters were numerically of most importance and in the order named.

A reference to the details of injuries to yardmasters, assistant yardmasters, and yard foremen (presented in the appendix, pages 309 and 310) shows that these men are injured in the main by train accidents. Their duties require that they be on and about tracks and moving traffic and they are thus considerably exposed to injury from moving trains, locomotives, or cars.

**CAR EXAMINERS.**

The consideration of the statistics of car examiners as presented in the following pages will be sufficient to indicate the causes of injury to this class of railroad employees and the nature and extent of the injuries suffered.

CAUSES OF ACCIDENTS TO CAR EXAMINERS FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Car examiners injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	1	6.2	4	5.6	5	5.7
Breaking of parts of cars or engines.....			4	5.6	4	4.6
Falls from trains, locomotives, or cars.....	2	12.5	2	2.8	4	4.6
Getting on or off trains, locomotives, or cars.....			2	2.8	2	2.3
Caught between trains, locomotives, or cars.....	1	6.3	5	7.1	6	6.9
Cars moving while at work under them.....	3	18.7	10	14.1	13	15.0
Struck by trains, locomotives, or cars.....	7	43.7	13	18.3	20	23.0
Handling materials or supplies.....			2	2.8	2	2.3
Handling tools or machinery.....			6	8.5	6	6.9
Falls, miscellaneous and not specified.....	1	6.3	4	5.6	5	5.7
Other miscellaneous and not specified causes.....	1	6.3	19	26.8	20	23.0
Total.....	16	100.0	71	100.0	87	100.0

The figures in the table show that train accidents were responsible for over 60 per cent of all of the injuries to car examiners or inspectors. No less than 15 per cent of the injuries were due to cars moving while the inspectors were underneath them. Of the fatal accidents, 3 of the 16, or 18.7 per cent, were due to this cause. Of the 16 fatal accidents, 7, or 43.7 per cent, were caused by the victim being struck by moving engines, trains, or cars. Of the 87 accidents to employees of this class, 16, or 18.4 per cent, were fatal and 71, or 81.6 per cent, were nonfatal.

In the next table the nonfatal injuries to car inspectors are classified by the nature and extent of the injuries reported in New Jersey under this occupation title during the period 1888 to 1907:

NATURE AND EXTENT OF NONFATAL INJURIES TO CAR EXAMINERS INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Car examiners injured.				
	Bruises, cuts, sprains, etc.	Crushed.	Fractures.	Loss of part.	Total.
Head.....	3				3
Face.....	3				3
Jaw.....			1		1
Shoulder.....	1				1
Hand.....	4	1		1	6
Finger.....	3	2			5
Trunk.....	2				2
Leg.....	2	2	2		6
Ankle.....	1		1		2
Foot.....				1	1
Toe.....	1				1
Other specified combinations.....	20				20
Injuries unclassified.....	(a)	(a)	(a)	(a)	17
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	2
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	1
Total nonfatal injuries.....	40	5	4	2	b 71

\* Not separately reported.

b Including 20 injuries not classified.

SUMMARY OF NONFATAL INJURIES TO CAR EXAMINERS, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	40	56.3
Part or parts crushed.....	5	7.1
Fractures.....	4	5.6
Loss of part or parts.....	2	2.8
Injuries unclassified.....	20	28.2
Total.....	71	100.0

These statistics show that not a few of the nonfatal injuries to this class of railway employees are serious and result in permanent disability. One represented the loss of a foot and 1 of a hand; 1 was a fracture of the jaw, 2 of a leg, and 1 of an ankle; of parts crushed, 1 was of a hand and 2 of a leg.

Of the total nonfatal injuries, over 15 per cent were severe and under the heading "Bruises, cuts, and sprains" there were several injuries of a severe, not to say serious, nature.

CAR CLEANERS.

In the following tables the injuries to car cleaners in New Jersey during the period 1888 to 1907 are summarized in the usual way:

CAUSES OF ACCIDENTS TO CAR CLEANERS FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Car cleaners injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....			2	1.5	2	1.4
Collisions.....			39	28.7	39	26.3
Breaking of parts of cars or engines.....			1	.7	1	.7
Falls from trains, locomotives, or cars.....			10	7.3	10	6.7
Getting on or off trains, locomotives, or cars.....	2	16.7	12	8.8	14	9.5
Caught between trains, locomotives, or cars.....	1	8.3	3	2.2	4	2.7
Struck by trains, locomotives, or cars.....	8	66.7	19	14.0	27	18.2
Injured by car doors.....			3	2.2	3	2.0
Handling materials or supplies.....			2	1.5	2	1.4
Handling tools or machinery.....			2	1.5	2	1.4
Falls from ladders.....			5	3.7	5	3.4
Falls, miscellaneous and not specified.....			12	8.8	12	8.1
Other miscellaneous and not specified causes.....	1	8.3	26	19.1	27	18.2
Total.....	12	100.0	136	100.0	148	100.0

The table shows that train accidents were responsible for over 65 per cent of all the injuries to car cleaners and for about 92 per cent of the fatalities to this class. Car cleaners in walking across tracks

to and from their work are exposed to injury from moving trains, and 8 of the 12 car cleaners killed were struck by engines, trains, or cars. The table clearly indicates the dangers to which employees of this class are specially exposed. Car cleaners suffered a total of 148 accidents, of which 12, or 8.1 per cent, were fatal, and 136, or 91.9 per cent, were nonfatal.

NATURE AND EXTENT OF NONFATAL INJURIES TO CAR CLEANERS INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Car cleaners injured.				Total.
	Bruises, cuts, sprains, etc.	Crushed.	Fractures.	Loss of part.	
Head.....	5				5
Face.....	2				2
Eye.....	1				1
Jaw.....	2				2
Shoulder.....	4				4
Arm.....	2		3	1	6
Wrist.....	3		2		5
Hand.....	4	1			5
Finger.....	3	3	1		7
Collar bone.....			1		1
Rib.....			1		1
Trunk.....	6				6
Hip.....	3				3
Leg.....	6				6
Knee.....	2				2
Ankle.....	5				5
Foot.....	5				5
Other specified combinations.....	14		1		15
Injuries unclassified.....	(a)	(a)	(a)	(a)	42
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	12
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	1
Total nonfatal injuries.....	67	4	9	1	b 136

<sup>a</sup> Not separately reported.

<sup>b</sup> Including 55 injuries not classified.

SUMMARY OF NONFATAL INJURIES TO CAR CLEANERS, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	67	49.3
Part or parts crushed.....	4	2.9
Fractures.....	9	6.6
Loss of part or parts.....	1	.7
Injuries unclassified.....	55	40.5
Total.....	136	100.0

Of the 136 car cleaners nonfatally injured, 14, or 10.3 per cent, were severely or seriously injured in some specified part of the body. One of these represented the loss of an arm, 3 the fracture of an arm, 2 the fracture of a wrist, 1 of a collar bone, and 1 of a rib. Of

course, some of the injuries tabulated under the heading bruises, cuts, and sprains were severe, and even serious in a few cases.

**YARD CLERKS.**

The injuries to which yard clerks are specially liable indicate that railroad employees of this class are generally injured by train accidents. In crossing tracks, while walking on tracks, or while between cars, these men are struck, squeezed, or run over. The data also indicate that yard clerks frequently perform trainmen's duties, such as coupling or uncoupling, and are injured while performing such extra service. During the twenty-year period, 1888 to 1907, there were 13 accidents to yard clerks, 3 of which were fatal and 10 were nonfatal.

**FREIGHT HANDLERS.**

The injuries to freight handlers reported in New Jersey during the period 1888 to 1907 are presented in tabular form as follows:

CAUSES OF ACCIDENTS TO **FREIGHT HANDLERS** FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Freight handlers injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	1	25.0	1	0.7	2	1.4
Collisions.....			5	3.7	5	3.6
Breaking of parts of cars or engines.....			1	.7	1	.7
Falls from trains, locomotives, or cars.....	1	25.0	1	.7	2	1.4
Struck by trains, locomotives, or cars.....	1	25.0	9	6.7	10	7.2
Falls while handling freight.....			16	11.8	16	11.4
Handling freight.....			103	75.7	103	73.6
Dropped dead while handling freight.....	1	25.0			1	.7
Total.....	4	100.0	136	100.0	140	100.0

The figures in the table show that the great majority of the non-fatal, and generally slight, injuries were due to falling freight or to other causes incident to the handling of the same. There were comparatively few fatal injuries, but of the 4 reported, 3, or 75 per cent, were the result of train accidents. Of the 136 nonfatal injuries, at least 17, or 12.5 per cent, were the result of train accidents. Of the 140 injuries to freight handlers, 4, or 2.9 per cent, were fatal and 136, or 97.1 per cent, were nonfatal.

In the next table the nonfatal injuries to freight handlers in New Jersey during the period 1888 to 1907 are classified by their nature and extent:

NATURE AND EXTENT OF NONFATAL INJURIES TO FREIGHT HANDLERS INJURED  
IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Freight handlers injured.				
	Bruises, cuts, sprains, etc.	Crushed.	Fractures.	Loss of part.	Total.
Head.....	3				3
Face.....	3				3
Shoulder.....	2				2
Arm.....	1				1
Wrist.....			1		1
Hand.....	7	1			8
Finger.....	5	3	1		9
Fingers.....	3	1			4
Trunk.....	6				6
Hip.....	2				2
Leg.....	22		3		25
Knee.....	1		1		2
Ankle.....	6		2		8
Ankles.....	1				1
Foot.....	19	4	3		26
Feet.....	1				1
Toe.....	1	2			3
Toes.....	1	2		1	4
Other specified combinations.....	11				11
Internal injuries.....					1
Injuries unclassified.....	(a)	(a)	(a)	(a)	10
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	5
Total nonfatal injuries.....	95	13	11	1	136

a Not separately reported.

b Including 15 injuries not classified and 1 internal injury.

SUMMARY OF NONFATAL INJURIES TO FREIGHT HANDLERS, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	95	69.9
Part or parts crushed.....	13	9.6
Fractures.....	11	8.1
Loss of part or parts.....	1	.7
Internal injuries.....	1	.7
Injuries unclassified.....	15	11.0
Total.....	136	100.0

According to the figures in this table it is seen that crushed parts constituted 9.6 per cent of the nonfatal injuries, but 8 of the 13 were of fingers and toes. Fractures constituted 8.1 per cent of the nonfatal injuries, and of these 1 was of a wrist, 3 of a leg, 1 of a knee, 2 of an ankle, and 3 of a foot. Freight handlers are also liable to internal injury through sprains while lifting or otherwise handling heavy freight.

## YARD WATCHMEN.

Yard watchmen are liable to fatal injury by train accidents, and 5 of the 9 injuries reported to this class of employees were fatal, 4 of the fatalities resulting from being struck by engines or cars.

Summarizing the injuries to yard employees, it may be observed that the accidents quite frequently resulted from needless exposure on the part of the employee or to his carelessness and failure to observe the rules of the road. On the other hand, the necessity for crossing and walking on tracks while going to and from and about their work means exposure to the ever-present danger of accident from moving trains. In foggy weather, or at night, and especially in the winter when the tracks are slippery, these yard dangers are increased. Again, in terminal yards, where the traffic is heavy and the movement of trains frequent, the danger to employees at work on or about yard trains or cars is correspondingly increased.

## ACCIDENTS TO MAINTENANCE-OF-WAY EMPLOYEES.

One of the most important divisions of the railway service is that technically known as maintenance of way. By maintenance of way is meant the construction, repair, and general care of the permanent way of the railroad. The permanent way includes everything connected with the roadbed and its necessary accessories, including ballast, cross-ties and tie plates, rails and rail joints, fish plates, railroad spikes; switches, frogs, various switch attachments, such as switch rods, switch stands, guard rails, head-blocks, interlocking switch devices, etc.; water tanks; signals and signal devices, including semaphore signals, banjo signals, etc.; culverts, bridges, trestles, crossing gates, fences, stations, towers, and in brief all stationary structures and parts of the general equipment of the railroad track. It is quite apparent that a very considerable number of men are necessary for the proper performance of the various duties in connection with the extension, repair, and general care of the permanent way.

For the better organization and control of the large number of employees in the maintenance-of-way department on any great railroad, subdivision of the system is necessary. A trunk line, for example, would be divided into grand divisions and divisions. The divisions would be further divided into subdivisions, and the subdivisions into sections. The length of a division is usually such that it is possible for a train crew to make a return trip over the same in one day, at least on passenger trains. Interdivisional crews are not unknown. For example, the Pennsylvania Railroad Company has certain trains which run between Jersey City and Washington without change of crews, although the first division ends at

West Philadelphia. The length of a subdivision is largely dependent upon the importance of the stretch of track; that is, upon whether it is single track, two track, three track, or four track, and whether the amount of traffic carried is heavy or light. The length would also depend to a certain extent upon the general character of the country through which the track is laid. In the same manner the length of a section, which is the unit of the permanent way for maintenance purposes, is also dependent upon the importance of the stretch of track; that is, whether it is single or multiple track, and whether it is a heavy or light traffic-carrying part of the system. In yards where there are many sidings, switches, etc., the section would be comparatively short. It is usually estimated that from 3 to 5 miles of single track is a fair average length for a section, and at certain points a mile or 2 miles, or perhaps even less, would constitute the section or unit for maintenance purposes.

For the present purpose it is not necessary to consider at any length the question of railroad construction in new country, for in New Jersey the railroad construction during the last twenty years has been principally in the form of extension, elevation, etc., of already existing railroads. In the making of extensions, however, civil engineers are required to lay out the road, determine the proper grades, curves, etc. These men are not, as a rule, exposed to any exceptional accident liability and they have the advantage of being men of superior intelligence and therefore likely to take the necessary precautions for their personal safety at the more dangerous points where they may be called upon to work.

The construction part of the maintenance-of-way work is usually under the supervision of a division engineer, and the assistant engineers, who are more actively engaged in the field operations, are responsible and make their reports to him. On some railroads the man responsible for the maintenance of various structures, such as bridges, culverts, trestles, water tanks, stations, etc., is called a master carpenter, and the various assistants or foremen in charge of this kind of work are responsible and report to the master carpenter either directly or through the track supervisor or road master. Some of the larger railroads do not have road masters, the division engineer being the recognized head of the maintenance-of-way department.

The track supervisor or road master usually has general charge of the maintenance-of-way work on a subdivision; the subdivision, as before stated, being made up of several sections. The duties of the track supervisor require that he do both office and field work. He has assistance in the office work, and it is usually considered desirable that the road supervisor or road master be relieved as much as possible from the merely clerical labor of the office, so that the larger part of his time and attention can be devoted to the supervision of

the field or maintenance-of-way work. It is his primary duty to make himself thoroughly familiar with all the details of the construction and repair work on the subdivision over which he has charge. To do this it is necessary that he make more or less frequent inspections of the whole stretch of track under his care, and how frequent these inspections are depends on various conditions, such as amount of traffic carried, general character of the permanent way, etc. The track supervisor, in the performance of his out-on-the-road duties, can make his inspections either by riding over the road or by walking over the same. In fact, the inspections are made in both ways and necessarily so, in order that all the possible defects may be detected. Certain defects can be detected only by riding over the track on a fast train, while minor defects can more easily be discovered and the general supervision of the repairs can best be made by walking over each section of the subdivision.

The section foreman is responsible to the track supervisor or road master and reports to him. The section foreman is usually employed the year round and has with him at least one section hand or man, and one or more of the section hands are also continuously employed the year round, the number increasing with the importance of the section. The section foreman, among his other duties, hires laborers to perform the work necessary to keep the section in a proper condition of repair. Generally speaking, the section gang is larger in the spring and summer than in the winter, although this depends upon the general conditions of traffic and on the general character of the particular section. For example, in yards or where the traffic is very heavy on a three or four track railroad, the work in winter may possibly be even greater on a given section than in the summer; this is so because it is necessary and highly important that the various signal devices and switches, frogs, etc., be kept free from snow and ice.

The general duties of a section foreman are to keep the permanent way in repair, and in the permanent way is included all the various fixtures already enumerated. The section foreman and his gang must keep the roadbed properly ballasted, that is, must add new ballast when necessary; must replace cross-ties which have become worn or rotten; must keep the rails straight and spiked or otherwise fastened firmly to the ties, and replace worn or broken rails; must see that culverts, etc., are properly repaired, and also that fences, crossing gates, etc., are properly mended and kept in good condition. In addition, the section foreman and his gang must keep the ditches alongside the track clear of rubbish, weeds, etc., and in brief must keep all parts of the permanent way between and including the fences in a good state of repair. Finally, the track foreman is responsible on most sections for the proper care of the

switches, including the necessary repair and oiling of the same, the lighting of switch lamps, etc.

It is not necessary to enumerate the duties of section hands or section men, as these have already been considered in preceding paragraphs. It may be pointed out, however, that the section hand is more irregularly employed, as a rule, than most other classes of railroad labor. The work of the section hand depends considerably upon varying conditions, and the section foreman increases or decreases the size of his gang as the requirements of the road repairs necessitate. According to the returns made by the Pennsylvania Railroad Company to the bureau of statistics of labor and industries of New Jersey, the average annual number of days at work for all trackmen in New Jersey during the period 1903 to 1907 was 268, against an average of from 300 to 340 for most other railroad employes.

As a necessary part of the labor on a section the track must be regularly inspected at least once a day (with the possible exception of Sunday on stretches where traffic is light), and often the inspection is made at least twice a day where traffic is heavy or where the stretch of road is, for various reasons, more or less exposed to exceptional danger, including curves, deep cuts, tunnels, etc. The track walker is usually assigned from the section gang to do this particular work of inspection. When the work of inspection is comparatively light and when not engaged in patrolling the track the track walker can assist in the regular work of a section gang. The track walker carries light tools, usually including a wrench, hammer, bolts, nut locks, and spikes, and in daytime he also carries a flag for signaling purposes. When he finds a slight defect in the track he must repair it, and if he discovers a more serious defect it is his duty to report the same at once to the section foreman, who sees to it that the defect is immediately remedied. Where the traffic is dense and there is considerable night traffic the section must be inspected by a track walker or patroller during the night. The night track walker carries a lantern and torpedoes for signaling purposes. The track walker should be thoroughly familiar with the general duties of road repair, and for this reason he is usually an experienced section hand. When there is a particularly dangerous point on the section a watchman is sometimes posted at the point, especially when the traffic is heavy and the movement of trains consequently frequent.

As a necessary part of construction and repair work, there are work-train crews and gangs assigned to a subdivision, or several subdivisions, the length of track covered by any given crew depending upon the amount of work necessary for this particular department or branch of the maintenance-of-way service. The work-train crew

as a whole is composed of the work-train crew proper and the construction gang. The work-train crew is usually made up of four men—the conductor, engineman, fireman, and at least one brakeman or flagman. Sometimes the work-train crew and the working force are in charge of one man, called either a conductor or foreman, this man being responsible both for the running of the train and the supervision of the work gang. The purpose of the work train is to distribute the materials necessary in the repair work on the various sections. It distributes ties, rails, ballast, and other materials required. The duties of the work gang are quite similar to those of section hands generally, and while at work on and about tracks their exposure to accident is similar to that of the section hands.

Whenever a wreck occurs it is necessary that the track be cleared as soon as possible. When the wreck is at all serious, special tools and machinery are required for this kind of work. A so-called wreck train is kept in readiness at division headquarters for the special purpose of removing débris and clearing tracks whenever there is a wreck on the division of sufficient importance to require its services. The wreck-train crew is composed of the men necessary for the running of the train, and in addition, men especially skilled in the work of clearing up wrecks, usually including a hoisting engineer and a derrick foreman, and other skilled workmen, including shopmen. In all cases of wreck the section foreman and his gang are required to assist in removing the débris and in making the necessary track repairs. Also if a work train is accessible it is required to assist in clearing up the wreck, and generally the work-train crew and the section gang are at the wreck before the wreck train arrives.

Bridge foremen have supervision over bridge construction and repair on the stretches of permanent way under their immediate supervision. As before stated, the general work of structure construction, repair, and care is usually in charge of a master carpenter. Bridge carpenters do the necessary repair or construction work in connection with railroad bridges and trestles. Besides being exposed to the dangers incident to the duties of carpenters generally, they are exposed to more or less danger from the movement of trains, and to considerable danger from falls, due to the fact that they frequently work on high structures and in positions more hazardous than those generally met with in carpenter work.

Closely related to the work of the carpenter is that of the painter. Painters are required to work not only on wooden structures but on iron structures as well. They are exposed to practically the same dangers as bridge carpenters.

Switch repairs are usually made by section hands under the supervision of the section foreman. Sometimes, however, particularly at terminals, there is so much of this particular kind of work to be

done that it is economy to differentiate the labor to the extent that the switch repairing is done by a particular set of men called switch repairers. The exposure of switch repairers to the hazards incident to moving trains is considerable. Switch cleaning and oiling is also dangerous because of exposure to moving trains.

On all important stretches of track it is necessary to have more or less elaborate devices for the proper signaling of trains, in order that the enginemen may always know whether or not the track is clear. The construction, maintenance, and repair of the various signal devices, which is to some extent skilled work, is done by men called signal repairers. These men are in charge of a supervisor of signals who is responsible for all the signal apparatus on his division. The men employed at this labor are also, like switch repairers, exposed to the danger of injury by moving trains.

Men known as crossing-gate tenders or crossing flagmen are stationed at grade crossings for the purpose of warning street traffic of the approach of trains; or, if the crossing is a railroad junction point, it is the duty of the crossing flagman to see that proper warnings are given, so that there will be no collision at the point of intersection of the two or more railroads. This occupation exposes to considerable danger, particularly from moving trains.

Drawbridge tenders are stationed at drawbridges, and it is their duty to see that the drawbridge is in position before trains are allowed to cross it. On railroads where traffic is heavy the drawbridges are opened and closed by steam or electric power operated by the bridge tender from a cabin built above the bridge. If the drawbridge is turned for the passage of shipping, the tender must give proper warning to approaching trains by means of signals attached to the bridge. These men, like crossing tenders, are exposed principally to the dangers incident to men employed on or about the tracks. The majority of the accidents to this class of employees are from moving trains, although a few have been injured by being caught in the draw.

With this brief introductory statement of the general duties of men employed in maintenance of way, consideration will be given to the injuries reported under specific occupation titles in this department of railway service in New Jersey during the twenty years 1888 to 1907. The summary tables which follow are for such of the occupations as proved to be of sufficient numerical importance to warrant the tabulation of the injuries.

In the following table is presented a summary of the accidents to employees in the maintenance-of-way department, which have been reported by the railroads of New Jersey under specific occupation titles during the twenty-year period 1888 to 1907. The arrangement

of the occupations in the table is more or less arbitrary but fairly logical, on the basis of the work performed by the employees.

**MAINTENANCE-OF-WAY EMPLOYEES FATALLY AND NONFATALLY INJURED IN ACCIDENTS IN NEW JERSEY, BY OCCUPATIONS, 1888 TO 1907.**

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Occupation.	Maintenance-of-way employees injured.			Per cent killed of total injured.
	Fatally.	Non-fatally.	Total.	
Civil engineers, rodmen, etc.....	2	4	6	33.3
Track supervisor.....	1	1	1	.....
Assistant track supervisor.....	1	1	1	.....
Section foremen.....	8	31	39	20.5
Section hands or section men.....	213	653	866	24.6
Tunnel laborers, etc.....	7	9	16	43.8
Track walkers or patrollers.....	57	30	87	65.5
Bridge watchman.....	1	.....	1	100.0
Bridge inspector.....	.....	1	1	.....
Bridge foreman.....	.....	1	1	.....
Bridge carpenters, etc.....	9	65	74	12.2
Carpenters (not specified).....	10	169	179	5.6
Masons.....	.....	3	3	.....
Painters.....	2	17	19	10.5
Wreck master.....	.....	1	1	.....
Derrick foreman.....	.....	1	1	.....
Hoisting engineer.....	.....	1	1	.....
Wreck removers (not specified).....	.....	27	27	.....
Foremen, pile drivers.....	.....	2	2	.....
Iron workers.....	6	2	8	75.0
Drawbridge tenders.....	7	6	13	53.8
Crossing gatemen and flagmen.....	42	41	83	50.6
Electricians.....	2	15	17	11.8
Switch tenders.....	15	66	81	18.5
Switch repairers.....	1	13	14	7.1
Switch oilers.....	.....	3	3	.....
Switch cleaners.....	5	2	7	71.4
Supervisor of signals.....	1	.....	1	100.0
Signal foreman.....	.....	1	1	.....
Signal inspector.....	.....	1	1	.....
Signal repairers.....	2	13	15	13.3
Tower-men.....	.....	4	4	.....
Lamp men.....	6	15	21	28.6
Signalmen (not specified).....	4	7	11	36.4
Total.....	400	1,206	1,606	24.9

The table shows that there were 1,606 employees specified as in some employment connected with maintenance of way, and that of this total, 400, or 24.9 per cent, were fatally injured, and 1,206, or 75.1 per cent, were nonfatally injured.

During the period 1888 to 1907 there were 6 civil engineers, rodmen, etc., reported injured in the railway service in New Jersey, and of this total 2 were killed and 4 were more or less seriously injured. One track supervisor and 1 assistant track supervisor were reported injured. There were 39 injuries to section foremen reported, and 8, or 20.5 per cent, of these were fatal. All of the 8 section foremen killed were struck or run over by trains, either while in the performance of their duties or while walking on the track to or from their work.

## SECTION HANDS.

Section hands constitute the most important occupation, numerically, in this group of classified railway employments. Not fewer than 866 injuries to section hands or section men were reported, and of this total 213, or 24.6 per cent, were fatal and 653, or 75.4 per cent, were nonfatal. In the following table is presented a summary statement of the injuries to section hands, classified by causes of accidents:

CAUSES OF ACCIDENTS TO SECTION HANDS FATALLY AND NONFATALLY INJURED  
IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Section hands injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	1	0.5	17	2.6	18	0.1
Collisions.....	1	.5	4	.6	5	2.1
Derailments.....			1	.2	2	.5
Breaking of parts of cars or engines.....	1	.5	1	.2	2	.2
Falls from trains, locomotives, or cars.....	9	4.2	50	7.7	59	6.8
Getting on or off trains, locomotives, or cars.....	6	2.8	39	6.0	45	5.2
Struck by trains, locomotives, or cars.....	183	85.9	153	23.4	336	38.8
Striking overhead or other obstructions.....			2	.3	2	.2
Handling materials or supplies.....			205	31.4	205	23.7
Handling tools, machinery, etc.....			46	7.0	46	5.3
Cave-ins.....	4	1.8	14	2.1	18	2.1
Struck by objects from passing trains.....			13	2.0	13	1.5
Falls, miscellaneous and not specified.....	1	.5	16	2.5	17	2.0
Other miscellaneous and not specified causes.....	7	3.3	93	14.2	100	11.5
Total.....	213	100.0	653	100.0	866	100.0

The table shows that of the 866 section hands injured, 336, or 38.8 per cent, were injured by being struck by trains, locomotives, or cars. The next most important cause of injury was the handling of materials or supplies, to which were attributed 205, or 23.7 per cent, of the total injuries. All the injuries of this class, however, were nonfatal. The third numerically most important specific cause of injuries was falls from trains, locomotives, or cars; this was responsible for 59 of the injuries, or 6.8 per cent of the total. Other important causes of injury to this class of employees were, in the order named, handling tools, machinery, etc.; getting on or off locomotives or cars; collisions; cave-ins of gravel banks, cuts, etc.; and falls other than those specified as being falls from trains, locomotives, or cars. The table requires no extended comment. It may be added, however, that section hands, especially in the Eastern States, are composed largely of a foreign element, and as a result the men are often

so ignorant of the English language that the foremen find it difficult to make their warnings understood in time to prevent serious or fatal injuries to one or more members of the gang when danger is imminent, especially when the dangers are incident to the movement of trains. Some of the most disastrous accidents of the kind in railroad history have occurred in the State of New Jersey. In 1898, for example, there was an accident which caused the death of 12 section hands and the more or less serious injury of at least three others. A rapidly moving train struck a gang of section laborers before sufficient warning could be given of its approach. Another unfortunate accident of this class occurred on June 29, 1900, when 3 section hands were killed by being struck by a train. Again, as recently as November 8, 1907, a gang of section hands was struck by a train while at work on the track, and 3 were killed.

Section hands are especially exposed to the dangers incident to moving trains when they are employed in tunnels or when, owing to foggy weather conditions, it is impossible to get a clear view of approaching trains.

From the best returns available the annual fatal accident rate of trackmen, including section hands, section foremen, construction gangs, etc., is on an average about 3.55 per 1,000 in the State of New Jersey.<sup>(9)</sup> The fatal-accident rate for employees of this class varies considerably in different parts of the United States, and from the statistics in the reports of the Interstate Commerce Commission, their fatal-accident rate appears to be higher in the Southern and Western States than in the Eastern States, which would indicate that the hazards incident to track work are increased when the larger part of the mileage is single track. It is important to note also that the comparatively high fatal accident rate for section hands is in spite of the fact that this group of employees is employed fewer days per year on an average than almost any other class of railroad men.

Nonfatal injuries to section hands are also comparatively frequent, and the average annual nonfatal accident rate in New Jersey for trackmen was 22.89 for the period 1900 to 1908, according to the reports made to the state bureau of statistics of labor by the principal railroads operating in the State.

In the next table is presented a summary of the nonfatal injuries to section men or section hands, classified by nature and extent of the injuries.

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<sup>9</sup> See the table on page 186. There were 48,146 men of this class exposed to the risk of injury, with 171 fatally injured and 1,102 nonfatally injured.

## NATURE AND EXTENT OF NONFATAL INJURIES TO SECTION HANDS INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Section hands injured.					Total.
	Bruises, cuts, sprains, etc.	Crushed.	Dislocations.	Fractures.	Loss of part.	
Head.....	44			3		47
Face.....	16					16
Eye.....	8				2	10
Jaw.....				2		2
Shoulder.....	7		1	1		9
Arm.....	5		1	6	1	13
Wrist.....	5					5
Hand.....	29	2			1	32
Hands.....	3					3
Finger.....	20	19			6	45
Fingers.....	11	9			1	26
Collar bone.....				3		3
Rib.....				3		3
Ribs.....				2		2
Trunk.....	37					37
Hip.....	7		1			8
Leg.....	33	2		29	5	69
Legs.....	6			2	1	9
Knee.....	5					5
Ankle.....	13			3		16
Foot.....	64	13			1	78
Feet.....					1	1
Toe.....	15	7		2	2	26
Toes.....	6	2		1		9
Other specified combinations.....	38	2	1	10		51
Internal injuries.....	(a)	(a)	(a)	(a)	(a)	2
Injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	72
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	36
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	18
Total nonfatal injuries.....	372	56	4	72	21	<sup>b</sup> 653

<sup>a</sup> Not separately reported.<sup>b</sup> Including 126 injuries not classified and 2 internal injuries.

## SUMMARY OF NONFATAL INJURIES TO SECTION HANDS, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	372	57.0
Part or parts crushed.....	56	8.6
Dislocations.....	4	0.6
Fractures.....	72	11.0
Loss of part or parts.....	21	3.2
Internal injuries.....	2	.3
Injuries unclassified.....	126	19.3
Total.....	653	100.0

This table is self-explanatory and requires little comment. The figures clearly show that a considerable proportion of the nonfatal accidents to this class of railway employees are so serious as to result in permanent disability. For example, 72, or 11 per cent, of the 653 nonfatal injuries were fractures of one or more parts of the body, and 21, or 3.2 per cent, resulted in the loss of one or more parts of the body. Of the lost parts, 2 were of eyes, 1 of an arm, 1 of a hand, 6 of one finger and 1 of two or more fingers; 5 represented the

loss of a leg and 1 the loss of both legs; 1 represented the loss of a foot and 1 of both feet.

As previously stated, section hands, generally speaking, are employed in larger numbers in the spring and summer months than in the winter. In New Jersey, however, this general rule does not seem to apply, or at any rate there are more section hands injured in the winter season than in the other seasons of the year. Of the fatal injuries, for example, 30 per cent were in the winter, as compared with 19 per cent in the spring, 23 per cent in the summer, and 28 per cent in the autumn.

It has been possible to consider separately injuries to 16 tunnel laborers. These men were section hands, track laborers, or track watchmen, but exposed to exceptionally hazardous conditions. Of the 16 injuries specified as having occurred to tunnel workers, 7, or 43.8 per cent, were fatal.

**TRACK WALKERS.**

The accident liability of track walkers or patrollers presents some interesting features. Of the 87 injuries reported as having occurred to track walkers, 57, or 65.5 per cent, were fatal, and 30, or 34.5 per cent, were nonfatal. The great majority of the accidents, both fatal and nonfatal, to this class of railway employees were the result of the injured persons being struck by trains, engines, or cars. The following table is a summary of the accidents occurring to track walkers in New Jersey during the twenty-year period 1888 to 1907, classified by principal causes:

CAUSES OF ACCIDENTS TO **TRACK WALKERS** FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Track walkers injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Collisions.....	1	1.8	1	3.3	1	1.2
Falls from trains, locomotives, or cars.....	55	98.2	18	60.0	74	85.0
Struck by trains, locomotives, or cars.....	1	3.3	4	13.4	5	5.7
Struck by car door.....	1	3.3	2	6.7	3	3.4
Struck by objects from passing trains.....	1	3.3	1	3.3	2	2.3
Falls, miscellaneous and not specified.....	1	3.3	1	3.3	2	2.3
Shot.....	1	3.3	1	3.3	2	2.3
Other miscellaneous and not specified causes.....	1	3.3	1	3.3	2	2.3
Total.....	57	100.0	30	100.0	87	100.0

The figures in the table show that 56 of the 57 track walkers fatally injured were killed by being struck by trains, engines, or cars. Of the nonfatal accidents to track walkers, 18 of the 30, or 60 per cent, were due to the same cause. These statistics indicate that the injuries to track walkers are likely to be very severe, if not fatal. As stated in the introduction to this part of the article, track walkers are a select class of section hands assigned to the particular work of patrolling or inspecting the section, either by day or by night. It is highly important that these men perform their work with efficiency; otherwise the danger of railroad travel is greatly increased. In this connection it may be of interest to recall that one of the important railroads of New Jersey within the past year made a special effort to determine whether its track patrollers were performing the duties expected of them. It was discovered that a considerable proportion of the total number of track walkers were idling away their time instead of performing their duties, and several were discharged for neglecting their work.

For completeness the following table is added. It shows the nature and extent of the 30 nonfatal injuries to track walkers in New Jersey during the period 1888 to 1907.

NATURE AND EXTENT OF NONFATAL INJURIES TO TRACK WALKERS INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Track walkers injured.			
	Bruises, cuts, sprains, etc.	Crushed.	Fractures.	Total.
Head.....	4			4
Arm.....	1		1	2
Hand.....	1			1
Ribs.....	1			1
Trunk.....	2			2
Leg.....	2			2
Ankle.....		1		1
Foot.....	1			1
Other specified combinations.....	4			4
Injuries unclassified.....	(a)	(a)	(a)	11
Serious injuries unclassified.....	(a)	(a)	(a)	1
Total nonfatal injuries.....	16	1	1	b 30

a Not separately reported.

b Including 12 injuries not classified.

SUMMARY OF NONFATAL INJURIES TO TRACK WALKERS, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	16	53.4
Part or parts crushed.....	1	3.3
Fractures.....	1	3.3
Injuries unclassified.....	12	40.0
Total.....	30	100.0

**BRIDGE CARPENTERS, ETC.**

During the period 1888 to 1907 there was 1 bridge watchman reported fatally injured, and 1 bridge inspector and 1 bridge foreman nonfatally injured. Bridge carpenters and bridge workers so specified suffered a total of 74 injuries, of which 9, or 12.2 per cent, were fatal, and 65, or 87.8 per cent, were nonfatal. The details of the accidents to bridge carpenters and other bridge workers, not including watchmen, inspectors, and foremen, are presented in the following tables, which are self-explanatory and require little comment:

CAUSES OF ACCIDENTS TO **BRIDGE CARPENTERS, ETC.**, FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Bridge carpenters, etc., injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Falls from trains, locomotives, or cars .....			2	3.1	2	2.7
Struck by trains, locomotives, or cars .....	4	44.5	10	15.4	14	18.9
Handling materials or supplies .....			3	4.6	3	4.0
Handling tools or machinery .....			5	7.7	5	6.8
Falls from bridges .....	2	22.2	13	20.0	15	20.3
Falling materials .....	1	11.1	14	21.5	15	20.3
Falls, miscellaneous and not specified .....			2	3.1	2	2.7
Other miscellaneous and not specified causes .....	2	22.2	16	24.6	18	24.3
Total .....	9	100.0	65	100.0	74	100.0

NATURE AND EXTENT OF NONFATAL INJURIES TO **BRIDGE CARPENTERS, ETC.**, INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Bridge carpenters, etc., injured.				Total.
	Bruises, cuts, sprains, etc.	Crushed.	Dislocations.	Fractures.	
Head .....	4			2	6
Eye .....	1				1
Arm .....	3		1	1	5
Hand .....	2				2
Finger .....		1		1	2
Fingers .....	1	1			2
Collar bone .....				1	1
Rib .....	1				1
Ribs .....				1	1
Trunk .....	4				4
Hip .....			1		1
Leg .....	4			3	7
Knee .....	1		1		2
Ankle .....	3			1	4
Foot .....	5	1			6
Other specified combinations .....	4				4
Injuries unclassified .....	(a)	(a)	(a)	(a)	5
Slight injuries unclassified .....	(a)	(a)	(a)	(a)	9
Severe injuries unclassified .....	(a)	(a)	(a)	(a)	2
Total nonfatal injuries .....	33	3	3	10	b 65

<sup>a</sup> Not separately reported.

<sup>b</sup> Including 16 injuries not classified.

SUMMARY OF NONFATAL INJURIES TO BRIDGE CARPENTERS, ETC., BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	33	50.8
Part or parts crushed.....	3	4.6
Dislocations.....	3	4.6
Fractures.....	10	15.4
Injuries unclassified.....	16	24.6
<b>Total.....</b>	<b>65</b>	<b>100.0</b>

The statistics here presented show that railroad bridge carpenters and other bridge workers are especially liable to injury by falls from bridges, by falling material, and by being struck by trains, locomotives, or cars. Of the 9 fatal injuries, 4 were due to the last-named cause. As would be expected where one of the principal causes of injuries was falls, the number of fractures was comparatively high among the nonfatal injuries to this class of railroad employees. Of the 65 nonfatal injuries, 10, or 15.4 per cent, were fractures.

**CARPENTERS (NOT SPECIFIED).**

It has been considered advisable to include carpenters (not specified) in the group of employees occupied in the maintenance-of-way department. The great majority of the carpenters employed by railroads in New Jersey are employed out on the line rather than in shops. During the period 1888 to 1907 there were 179 injuries reported as having occurred to carpenters, exclusive of bridge carpenters, and of this total, 10, or 5.6 per cent, were fatal, and 169, or 94.4 per cent, were nonfatal. The facts are summarized in considerable detail in the following tables, which are self-explanatory and require little comment:

CAUSES OF ACCIDENTS TO CARPENTERS (NOT SPECIFIED) FATALLY AND NON-FATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Carpenters (not specified) injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Collisions.....			4	2.4	4	2.2
Breaking of parts of cars or engines.....	1	10.0	1	0.6	2	1.1
Falls from trains, locomotives, or cars.....			2	1.2	2	1.1
Getting on or off trains, locomotives, or cars.....	1	10.0	7	4.1	8	4.5
Struck by trains, locomotives, or cars.....	6	60.0	8	4.7	14	7.8
Handling materials or supplies.....	1	10.0	47	27.8	48	26.8
Handling tools or machinery.....			43	25.4	43	24.0
Struck by objects from passing trains.....			3	1.8	3	1.7
Falls, miscellaneous and not specified.....			24	14.2	24	13.4
Falling body of car.....	1	10.0			1	0.6
Other miscellaneous and not specified causes.....			30	17.8	30	16.8
<b>Total.....</b>	<b>10</b>	<b>100.0</b>	<b>169</b>	<b>100.0</b>	<b>179</b>	<b>100.0</b>

NATURE AND EXTENT OF NONFATAL INJURIES TO CARPENTERS (NOT SPECIFIED) INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Carpenters (not specified) injured.					Total.
	Bruises, cuts, sprains, etc.	Crushed.	Dislocations.	Fractures.	Loss of part.	
Head.....	9					9
Face.....	6					6
Eye.....	2					2
Shoulder.....	2		2			4
Arm.....	2			2		4
Wrist.....	3		1			4
Hand.....	17	1				18
Hands.....	1					1
Finger.....	4	2		1	3	10
Fingers.....	3				3	6
Trunk.....	20					20
Hip.....	1					1
Hips.....	1					1
Leg.....	12	1		6		19
Ankle.....	4			1		5
Foot.....	22	2		2		26
Toe.....	2	3		1		6
Toes.....	1					1
Other specified combinations.....	6			2		8
Internal injuries.....						1
Injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	10
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	3
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	4
Total nonfatal injuries.....	118	9	3	15	6	b 169

a Not separately reported.

b Including 17 injuries not classified and 1 internal injury.

SUMMARY OF NONFATAL INJURIES TO CARPENTERS (NOT SPECIFIED), BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	118	69.8
Part or parts crushed.....	9	5.3
Dislocations.....	3	1.8
Fractures.....	15	8.9
Loss of part or parts.....	6	3.5
Internal injuries.....	1	.6
Injuries unclassified.....	17	10.1
Total.....	169	100.0

It is significant to note that 6 of the 10 fatal accidents to carpenters (not specified) were the result of being struck by trains, locomotives, or cars. Of the nonfatal injuries, the majority resulted from the handling of materials or supplies, or of tools and machinery. Of the 169 nonfatal injuries to this class of railroad employees, 15, or 8.9 per cent, were fractures of one or more parts of the body, and 6, or 3.5 per cent, represented the loss of one or more parts of the body. All of the latter injuries, however, were to the fingers, 3 representing the loss of one finger, and 3 the loss of two or more fingers.

**MASONS.**

In connection with maintenance-of-way work masons are required for the construction of foundations for bridges or other permanent-way structures. Only 3 cases of injuries to masons were reported, and all of these were nonfatal injuries.

**PAINTERS.**

Painters are required to assist in keeping in good condition the various permanent-way structures, such as fences, crossing gates, bridges, stations, tool houses, towers, switch shanties, etc. Painters are also employed in the repair and construction of cars in shops, but in New Jersey the most of the painters in the railroad service are engaged in work along the line. There were 19 injuries to painters returned under that specific occupation title during the period 1888 to 1907. Of the 19 cases, 2 were fatal and 17 were nonfatal injuries. The injuries to painters, in New Jersey, at least, are principally caused by the movement of trains and by falls. The exposure of painters to accidental injury is apparently about the same as that of carpenters.

**WRECK EMPLOYEES.**

In the statistics of injuries to railway employees in New Jersey during the period 1888 to 1907, there were 30 injuries reported as having occurred to men employed in the work of removing or clearing wrecks. One was a wreck master, one a derrick foreman, and one a hoisting engineer. These 3 were nonfatally injured. In addition 27 wreck removers (not otherwise specified) received nonfatal injuries. There were no fatal injuries to men employed in the clearing of wrecks, but it is quite probable that some men employed at this work were injured, fatally or nonfatally, and were returned either as laborers or as section hands.

**PILE DRIVERS.**

There were 2 foremen pile drivers nonfatally injured.

**IRON WORKERS.**

In bridge and other large construction work structural-iron workers are required in railroad service. There were 8 of these returned as having been injured during the 20-year period, and of these 6 were killed and 2 were nonfatally injured.

**DRAWBRIDGE TENDERS.**

During the 20-year period, 1888 to 1907, there were 13 drawbridge tenders returned under that title as having met with injuries. Of this number, 7 were killed and 6 were nonfatally injured. The

details of these accidents indicate that there are two principal causes of accidents to this class of railway employees; they are specially liable to injury from movement of trains and from the movement of the draw itself.

**CROSSING GATEMEN AND FLAGMEN.**

Railroad-crossing tending or guarding is an important occupation in the railroad service. Wherever the population is dense, and street traffic correspondingly so, or wherever there is intersection of one railroad with another, a crossing gateman or flagman is required to be on duty when the crossings are at grade. Some of the larger roads in New Jersey, particularly the Morris and Essex division of the Delaware, Lackawanna and Western, the Pennsylvania Railroad, and the Central Railroad of New Jersey, have elevated their tracks in some of the more congested sections within a comparatively recent period, and this has eliminated to a considerable extent the necessity for employing gatemen and crossing flagmen. During the twenty years, 1888 to 1907, there were 83 crossing gatemen and flagmen returned as injured in New Jersey, and of these, 42, or 50.6 per cent, were killed and 41, or 49.4 per cent, were nonfatally injured.

The following table gives a convenient summary of the accidents to this group of railway employees, classified by causes of accidents:

CAUSES OF ACCIDENTS TO **CROSSING GATEMEN AND FLAGMEN** FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Crossing gatemen and flagmen injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Deraillments.....			2	4.9	2	2.4
Falls from trains, locomotives, or cars.....			2	4.9	2	2.4
Getting on or off trains, locomotives, or cars.....	1	2.4	3	7.3	4	4.8
Struck by trains, locomotives, or cars.....	40	95.2	23	56.0	63	75.9
Falls, miscellaneous and not specified.....	1	2.4	4	9.8	5	6.1
Struck by runaway teams.....			2	4.9	2	2.4
Injured by gates.....			4	9.8	4	4.8
Other miscellaneous and not specified causes.....			1	2.4	1	1.2
Total.....	42	100.0	41	100.0	83	100.0

The table shows that 40, or 95.2 per cent, of all the fatal accidents were caused by the victims being struck by trains, engines, or cars. Of the 41 nonfatal injuries, 23, or 56 per cent, were due to the same cause. Also, it is interesting to note that 2 of the nonfatal injuries resulted from the injured persons being struck or otherwise injured by runaway teams. Other details of the table are self-explanatory.

In the next table are presented the summary statistics of non-fatal injuries to crossing gatemen and flagmen, classified by nature and extent of the injuries:

NATURE AND EXTENT OF NONFATAL INJURIES TO CROSSING GATEMEN AND FLAGMEN INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Crossing gatemen and flagmen injured.			
	Bruises, cuts, sprains, etc.	Fractures.	Loss of part.	Total.
Head.....	5			5
Face.....	1			1
Arm.....	1	1	1	3
Hand.....	1		1	2
Finger.....		1		1
Rib.....		1		1
Trunk.....	4			4
Leg.....		1		1
Knee.....	1			1
Other specified combinations.....	11	1		12
Injuries unclassified.....	(a)	(a)	(a)	2
Slight injuries unclassified.....	(a)	(a)	(a)	4
Severe injuries unclassified.....	(a)	(a)	(a)	4
Total nonfatal injuries.....	24	5	2	b 41

a Not separately reported.

b Including 10 injuries not classified.

SUMMARY OF NONFATAL INJURIES TO CROSSING GATEMEN AND FLAGMEN, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	24	58.5
Fractures.....	5	12.2
Loss of part or parts.....	2	4.9
Injuries unclassified.....	10	24.4
Total.....	41	100.0

**ELECTRICIANS.**

For various purposes, and particularly in connection with signal apparatus, etc., electricians are employed in railway service. During the twenty years, 1888 to 1907, there were 17 electricians returned as injured, of whom 2 were fatally injured.

**SWITCH TENDERS.**

In connection with the maintenance of way it is often necessary to employ special men, particularly in large yards and at terminal points, to tend switches. In other words, where the movement of cars, freight and passenger, is sufficiently frequent to warrant it, the labor is differentiated in such manner that the brakemen are not required to throw switches except occasionally, but special men, sometimes termed ground switchmen, are stationed at switching

points and throw the switches by manual labor. In some cases switches are thrown by operators in towers or switch stations, and this is coming to be the usual method where there are a large number of tracks requiring more or less continuous switch-throwing operations. From a tower or switch station the operator or leverman can control a considerable number of switches with comparative ease and with considerably less danger than if the work were done from the ground.

During the twenty years, 1888 to 1907, there were 81 switch tenders, so specified, who were injured while in the performance of their duties, of whom 15, or 18.5 per cent, were fatally injured, and 66, or 81.5 per cent, were nonfatally injured. The statistics, tabulated in the usual form, are presented in the following tables:

CAUSES OF ACCIDENTS TO SWITCH TENDERS FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Switch tenders injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....	1	6.7	1	1.5	2	2.5
Getting on or off trains, locomotives, or cars.....			2	3.1	2	2.5
Struck by trains, locomotives, or cars.....	14	93.3	15	22.7	29	35.8
Handling switches.....			47	71.2	47	58.0
Other miscellaneous and not specified causes.....			1	1.5	1	1.2
Total.....	15	100.0	66	100.0	81	100.0

NATURE AND EXTENT OF NONFATAL INJURIES TO SWITCH TENDERS INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Switch tenders injured.				
	Bruises, cuts, sprains, etc.	Crushed.	Frac- tures.	Loss of part.	Total.
Face.....	1				1
Arm.....	1			1	2
Hand.....	8				8
Finger.....	1	2			3
Fingers.....	1				1
Rib.....			1		1
Trunk.....	5				5
Leg.....			1	1	2
Knee.....	1				1
Ankle.....	2				2
Foot.....	2	2		1	5
Toe.....	1				1
Other specified combinations.....	6	1			7
Injuries unclassified.....	(a)	(a)	(a)	(a)	24
Slight injuries.....	(a)		(a)	(a)	3
Total nonfatal injuries.....	29	5	2	3	b 66

<sup>a</sup> Not separately reported.

<sup>b</sup> Including 27 injuries not classified.

## SUMMARY OF NONFATAL INJURIES TO SWITCH TENDERS, BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	29	43.9
Part or parts crushed.....	5	7.6
Fractures.....	2	3.0
Loss of part or parts.....	3	4.6
Injuries unclassified.....	27	40.9
Total.....	66	100.0

From these returns it appears that of the 15 fatal accidents to switch tenders, 14, or 93.3 per cent, were killed by being struck by trains, locomotives, or cars. The other fatal injury was by coupling. Of the 66 nonfatal injuries, 15, or 22.7 per cent, were due to the injured persons being struck by trains, locomotives, or cars, and 47, or 71.2 per cent, resulted from the handling of switches.

The statistics showing the classification of the accidents by nature and extent of the injuries indicate that at least 15 per cent were more or less serious and involved permanent disability. One of these, for example, was the loss of an arm, 1 the loss of a leg, and 1 the loss of a foot; 1 was a fracture of a rib, and 1 a fracture of a leg. Of crushed parts, 2 were of a finger and 2 were of a foot. The other details of the tables are self-explanatory.

**SWITCH REPAIRERS, OILERS, AND CLEANERS.**

The repairing, oiling, cleaning, and general care of switches, particularly at terminal points or in large yards, is an important part of the work of maintenance of way. During the period 1888 to 1907, 14 switch repairers, 3 switch oilers, and 7 switch cleaners were returned as having been injured. Of the 24 cases of injury, 6 represented fatal accidents. It may be pointed out that, as a general thing, switch repairing and oiling is done by section hands, and under the supervision of the section foreman. Where switches are numerous, however, and where it is especially important that they be kept in excellent condition because of the volume of traffic, the labor of repairing, oiling, cleaning, etc., is differentiated.

**EMPLOYEES OPERATING, REPAIRING, ETC., SIGNALS.**

Finally, under this group of maintenance-of-way employees we have to consider the men engaged in the operation, repair, and general care of signals. This department of railway service is assuming more and more importance. The so-called block signal system is of comparatively recent development. The signal systems used on the railroads may be entirely automatic, in part automatic and in part manual, or entirely manual. The signal system of a given section of the permanent way is under the supervision of either a supervisor of signals or an engineer of signals. Different roads use differ-

ent terms in this as in other departments of the railway service. The supervisor of signals, as the term indicates, has general supervision of the signal system for the protection of trains on that part of the permanent way assigned to him. The signal inspector's work is to regularly inspect the signals and to see that they are kept in good working condition. Signal repairers are more or less skilled men and it is their duty to make the necessary repairs to the apparatus along the line, and this work involves more or less exposure to moving trains. The men who actually control the signals are often stationed in towers and are then termed tower-men. They may, however, be stationed in what are called switch or signal stations on stretches of track where it is not necessary to have a general view of the road. Towers are used at junction points, at terminal points, and in yards where a commanding view of the track or tracks is essential. The switch or signal stations are employed where there are not more than three or four tracks and the necessary view can be secured from a lower elevation than a tower. The duties of signalmen and tower-men, however, are practically the same.

Lamp men are required to keep the signal or switch lights in excellent condition, and to see that they are kept properly filled and clean.

In the following tables all employees operating, repairing, etc., signals have been grouped, because otherwise the numbers would be too small to warrant the tabulation of the statistics. The next table shows that during the twenty-year period, 1888 to 1907, this group of employees suffered a total of 54 accidents, of which 13, or 24.1 per cent, were fatal and 41, or 75.9 per cent, were nonfatal.

CAUSES OF ACCIDENTS TO SIGNALMEN, ETC., FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Signalmen, etc., injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Derailments.....			2	4.0	2	3.7
Falls from trains, locomotives, or cars.....	1	7.7	1	2.4	2	3.7
Falls from signal poles.....	1	7.7	2	4.9	3	5.5
Falls from towers.....			1	2.4	1	1.9
Falls from ladders.....			1	2.4	1	1.9
Falls from trestles.....			1	2.4	1	1.9
Getting on or off trains, locomotives, or cars.....			2	4.9	2	3.7
Struck by trains, locomotives, or cars.....	10	76.9	7	17.1	17	31.5
Striking overhead and other obstructions.....			3	7.4	3	5.5
Handling tools or machinery.....			1	2.4	1	1.9
Handling baggage.....			1	2.4	1	1.9
Struck by objects from passing trains.....			3	7.4	3	5.5
Falls, miscellaneous and not specified.....	1	7.7	1	2.4	2	3.7
Injured by switch.....			1	2.4	1	1.9
Breaking lamp globes.....			5	12.2	5	9.2
Other miscellaneous and not specified causes.....			9	22.0	9	16.6
<b>Total.....</b>	<b>13</b>	<b>100.0</b>	<b>41</b>	<b>100.0</b>	<b>54</b>	<b>100.0</b>

## NATURE AND EXTENT OF NONFATAL INJURIES TO SIGNALMEN, ETC., INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Signalmen, etc., injured.				
	Bruises, cuts, sprains, etc.	Crushed.	Fractures.	Loss of part.	Total.
Head.....	3				3
Eye.....	1				1
Jaw.....			1		1
Arm.....			1		1
Hand.....	3				3
Finger.....	1	1	1		3
Trunk.....	4				4
Ribs.....			1		1
Leg.....	3		2	1	6
Knee.....	2				2
Ankle.....	1				1
Foot.....	1			1	2
Feet.....		1			1
Ribs and arm.....			1		1
Other specified combinations.....	2				2
Injuries unclassified.....	(a)	(a)	(a)	(a)	4
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	5
<b>Total nonfatal injuries.....</b>	<b>21</b>	<b>2</b>	<b>7</b>	<b>2</b>	<b>b 41</b>

a Not separately reported.

b Including 9 injuries not classified.

## SUMMARY OF THE NONFATAL INJURIES TO SIGNALMEN, ETC., BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	21	51.2
Part or parts crushed.....	2	4.9
Fractures.....	7	17.1
Loss of part or parts.....	2	4.9
Injuries unclassified.....	9	21.9
<b>Total.....</b>	<b>41</b>	<b>100.0</b>

These returns indicate that a considerable proportion of the injuries sustained by signalmen were due to train accidents. Of the 13 fatal accidents to this group of railroad employees, 10, or 76.9 per cent, were the result of the victims being struck by trains, locomotives, or cars. Of the other 3 fatal accidents, 1 was due to a fall from a train, 1 to a fall from a signal pole, and 1 to a fall not specified.

As regards the nature and extent of the injuries received, 7, or 17.1 per cent of the total of nonfatal injuries, represented fractures. It is of interest also to note that the fractures among this group were serious, 1 being of the jaw, 1 of an arm, 1 of two or more ribs, 2 of a leg, and 1 of an arm and two or more ribs. Of the nonfatal injuries representing losses of parts, 1 was of a leg and 1 was of a foot. These facts are sufficient to indicate that the nonfatal injuries to this class of railroad employees often represent serious, if not permanent, disability.

In concluding the review of the accidents to men employed in the maintenance-of-way department of the railway service in New Jersey, it may be said that the tables and other facts set forth in the preceding descriptive and statistical statements clearly prove that men engaged in almost any employment in this branch of railroad work are exposed to more than average liability to fatal and nonfatal injuries. It is also important to note that the various safety devices which are adapted to the possible saving of life among trainmen are not likely to result in any material reduction in the number of accidents to men employed in the maintenance-of-way service. The increased speed of trains probably has made the work of the section hand more dangerous, and what applies to the section hand applies equally to other men at work in positions where they are exposed to the hazards incident to moving trains, locomotives, or cars. As a matter of fact some of the trains move so fast at the present time that men working alongside the track are not infrequently injured by objects sent flying by the passing trains. Sometimes the force of the wind or air currents generated by the train is sufficient to pick up pieces of ballast or wood and hurl them with such violence that men are injured. If a steam hose or any similar part of the train by chance gets loose and drags, the ballast is thrown in such manner that men working on or along the track are seriously injured. This statement is made to illustrate how in two of many ways the increased speed of trains tends to increase the danger of injury to men working on or along the track. Of course, the danger of being struck by trains, especially in foggy weather or at night, is proportionately increased with the speed of the trains. On the other hand, it is generally considered safer for men to work on or along a multiple track than a single track, for the reason that in the one case they have, as a rule, to watch for trains coming from only one direction, while in the other case the approaching trains may come from either direction.

The facts set forth are sufficient to demonstrate that in any consideration of accidents to men employed on the permanent way of railroads it is essential that the different employments, which often involve very different exposure, should be clearly differentiated; otherwise the statistics are likely to be either of no value, or, what is perhaps worse, entirely misleading.

#### ACCIDENTS TO FLOATING EQUIPMENT EMPLOYEES.

Railroads which connect with ports usually possess more or less floating equipment, so that the movement of passengers and freight across rivers, bays, or harbors may be effected with the greatest possible economy and dispatch. Sometimes one railroad uses another road's floating equipment, in part at least, when both use

the same terminal site. In a State like New Jersey the railroads, taken together, have a comparatively large amount of floating equipment, and the employees are carried on the pay rolls of the various roads owning the equipment.

In 1907 the number of men reported by the railroads with interstate business in Group II <sup>(a)</sup> as having been employed in connection with floating equipment was 5,537, and it is safe to say that the proportion of such employees to the total was greater for New Jersey than for any other one State in the group.

Ferryboats, barges, and floats make up the larger part of the floating equipment of railroads, and New Jersey lying next to New York City and having the terminal sites of several of the trunk railroads—Pennsylvania, Philadelphia and Reading, Central Railroad of New Jersey, Delaware, Lackawanna and Western, Erie (including the New York, Susquehanna and Western), Lehigh Valley, and the West Shore division of the New York Central—this equipment is necessarily quite extensive to facilitate the handling of the heavy passenger and freight traffic in its movement to and from the metropolis or other points east of New Jersey. Possibly this equipment will eventually be considerably reduced, particularly that required for passenger service, on account of the tunnels which already serve an important purpose as a partial substitute for the ferry in the handling of passenger traffic. It is very doubtful, however, if this change in the method of transporting persons and goods across waterways will result in a saving of life among employees engaged in the work. Already several employees occupied in the handling of tunnel and subway trains and in the repair of tunnel and subway tracks in New York and vicinity have been killed, and several have been more or less seriously injured.

Men employed on shipping are not, properly speaking, railroad employees, but since they are carried on the pay rolls of the railroads those injured in the floating equipment service are reported, in part at least, by the railroads in their returns of accidents to the state comptroller of New Jersey. As only 32 floating equipment employees under specific titles were reported by the railroads as having been injured in New Jersey during the period 1888 to 1907, it is doubtful whether the returns of the injuries to this class of employees have thus far been made with even approximate completeness. Injuries to New Jersey railroad employees on the shipping in New York Harbor and on the North River may be considered by the railroads as not having occurred in New Jersey, although the accidents may have occurred while the vessels were plying on the waters within the State's territorial jurisdiction. Some of the inju-

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<sup>a</sup> Comprising the States of New York, New Jersey, Pennsylvania, Delaware, and Maryland.—Statistics of Railways, Interstate Commerce Commission 1907, page 57.

ries to employees of this class were also probably reported simply as "employees" without other qualification, making classification by specified employments impossible. But with full allowance for these omissions there certainly would have been a showing of more than 32 injuries in New Jersey to specified employees in the floating equipment service of the railroads of the State if the accidents had been fully returned. The employees on account of floating equipment of railroads in Group II averaged 4,209 per year during the last ten years, and if one-third were credited to New Jersey it can readily be seen that the accidents to this class of employees have not been completely reported, because the injury rate per 1,000 would otherwise be lower than in any occupation or industry for which accident statistics are available. Unfortunately the Interstate Commerce Commission's annual reports, Statistics of Railways, throw no light on the accident liability of this class of employees, for no attempt is made to collect the statistics.<sup>a</sup>)

There are other persons employed on account of floating equipment besides those actually in service on board the shipping; men employed, for example, in the loading and unloading of barges, tugs, etc., and men employed on docks, piers, etc., in work on account of floating equipment. But, making due allowance for all the injuries to these men reported as employees not specified and under other titles, the following table would appear to represent only a fragment of the probable actual number of injuries that have occurred to floating equipment employees of the railroads of New Jersey during the two decades, 1888 to 1907:

**FLOATING EQUIPMENT EMPLOYEES INJURED FATALLY AND NONFATALLY IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.**

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Occupation.	Floating equipment employees injured.			Per cent killed of total injured.
	Fatally.	Non-fatally.	Total.	
Wharf captain.....		1	1	
Ferry bridge men.....		3	3	
Ferry slip men.....		2	2	
Ferryboat fireman.....		1	1	
Ferryboat deck hands.....		2	2	
Tugboat captain.....		1	1	
Tugboat pilots.....		2	2	
Tugboat engineers.....		2	2	
Tugboat fireman.....		1	1	
Tugboat employees (not specified).....		4	4	
Barge captains.....		2	2	
Float men.....		3	3	
Pilot (not specified).....		1	1	
Boatmen (not specified).....	1	1	2	50.00
Deck hands (not specified).....		5	5	
<b>Total.....</b>	<b>1</b>	<b>31</b>	<b>32</b>	<b>3.13</b>

<sup>a</sup> "Accidents to employees on boats, in shops, or on wharves or other places remote from the railroad, should not be reported."—Interstate Commerce Commission. Instructions to be followed in filling up blanks. Form of 1905.

Of the 32 employees of this class injured, only 1, a boatman, was killed. He was killed while taking up a towline, but further particulars were not given in the report. Five other employees were more or less seriously injured by towlines. A float man had his thigh fractured while handling a towline, and a tugboat employee, probably a deck hand, had his right foot pulled off at the ankle by getting it caught in a turn of the line in such a manner that he was drawn around the steam head several times.

Injuries from falls were also relatively frequent in this group of employees, and of the total of 32 injuries 7 were due to that cause.

The full particulars of all the injuries to this class of employees as reported in New Jersey during 1888 to 1907 are given in convenient form under the occupation titles in the appendix, pages 325 to 327.

### ACCIDENTS TO MISCELLANEOUS AND UNCLASSIFIED EMPLOYEES.

The employments of 6,777 of the persons employed by the railroads of New Jersey and returned as injured during the period 1888 to 1907 were more or less ill defined. Of this total, however, 667 were reported as laborers and 128 as topmen. Laborers on track are trackmen, and probably many returned as laborers were trackmen, but such a classification would have been doubtful when there was no specific statement to indicate the character of the service performed.

Topman is a term applied to men employed principally at South Amboy on the coal docks. It is apparently a local term and means practically a laborer on coal docks or piers whose work is to transfer coal from cars into boats.

Coal trimmers are men employed to trim or level the coal in the holds of the boats.

Employees (not specified) numbered 5,811, or about one-third of the grand total of railroad employees injured in New Jersey during the period 1888 to 1907. Of this total, 3,043 were returned as have been injured while coupling or handling cars. This fact indicates that the larger part of the employees (not specified) were brakemen or other trainmen.

The following table gives a summary of the employees injured in New Jersey during the twenty-year period, 1888 to 1907, whose occupations were either not specified or not readily classifiable in the other groups previously considered:

**MISCELLANEOUS AND UNCLASSIFIED EMPLOYEES FATALLY AND NONFATALLY INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.**

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Occupation.	Miscellaneous and unclassified employees injured.			Per cent killed of total injured.
	Fatally.	Non-fatally.	Total.	
Bellman .....	1		1	100.0
Chain men .....		3	3	
Clerks (not specified) .....	1	17	18	5.6
Coal heavers .....	1	6	7	14.3
Coal trimmers .....	1	11	12	8.3
Door swingers .....	1	1	2	50.0
Foremen .....	5	18	23	21.7
Assistant foremen .....	1	2	3	33.3
Inspectors (not specified) .....		2	2	
Laborers (not specified) .....	100	567	667	15.0
Pier and dock laborers .....	5	36	41	12.2
Messenger .....		1	1	
Porters (not specified) .....		9	9	
Pump men (except in roundhouses) .....		4	4	
Superintendent (not specified) .....		1	1	
Topmen .....	3	125	128	2.3
Watchmen (not specified) .....	15	29	44	34.1
Employees (not specified) .....	544	5,267	5,811	9.4
<b>Total .....</b>	<b>678</b>	<b>6,099</b>	<b>6,777</b>	<b>10.0</b>

For three of these occupation titles the numbers were sufficiently large to warrant their tabulation in the usual manner, and the injuries to laborers (not specified), topmen, and employees (not specified) are therefore presented in the following tables, with distinction of causes of accidents and nature and extent of the injuries.

**LABORERS (NOT SPECIFIED).**

The following table, in which are presented the causes of accidents to laborers (not specified), shows that this group of employees suffered a total of 667 injuries, of which 100, or 15 per cent, were fatal and 567, or 85 per cent, were nonfatal:

**CAUSES OF ACCIDENTS TO LABORERS (NOT SPECIFIED) FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.**

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Laborers (not specified) injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling .....			30	5.3	30	4.5
Collisions .....	1	1.0	11	1.9	12	1.8
Derailments .....			3	.5	3	.5
Falls from trains, locomotives, or cars .....	2	2.0	36	6.3	38	5.7
Getting on or off trains, locomotives, or cars .....	5	5.0	39	6.9	44	6.6
Caught between trains, locomotives, or cars .....	7	7.0	11	1.9	18	2.7
Struck by trains, locomotives or cars .....	79	79.0	72	12.7	151	22.6
Striking overhead or other obstructions .....			2	.4	2	.3
Handling materials or supplies .....			157	27.7	157	23.5
Handling tools or machinery .....	1	1.0	31	5.5	32	4.8
Struck by objects from other trains .....			21	3.7	21	3.2
Falls, miscellaneous and not specified .....	2	2.0	63	11.1	65	9.7
Other miscellaneous and not specified causes .....	3	3.0	91	16.1	94	14.1
<b>Total .....</b>	<b>100</b>	<b>100.0</b>	<b>567</b>	<b>100.0</b>	<b>667</b>	<b>100.0</b>

NATURE AND EXTENT OF NONFATAL INJURIES TO LABORERS (NOT SPECIFIED)  
INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Laborers (not specified) injured.					
	Bruises, cuts, sprains, etc.	Crushed.	Disloca- tions.	Fractures.	Loss of part.	Total.
Head.....	30			3		33
Face.....	18					18
Eye.....	3				2	5
Shoulder.....	6		2	1		9
Arm.....	23			7	2	32
Arms.....	1					1
Wrist.....				2		2
Hand.....	41	8		2		51
Finger.....	20	19		6	1	46
Fingers.....	16				1	17
Collar bone.....			1	4		5
Rib.....				3		3
Ribs.....				4		4
Trunk.....	45			1		46
Hip.....	7			1		8
Leg.....	29	4		17	2	52
Legs.....	1					1
Knee.....	5			2		7
Knees.....	1					1
Ankle.....	11	1		2		14
Ankles.....	1					1
Foot.....	52	16		1	2	71
Toe.....	2	3		1		6
Toes.....	2	1				3
Other specified combinations.....	36	1		10		47
Injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	68
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	13
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	3
<b>Total nonfatal injuries.....</b>	<b>350</b>	<b>53</b>	<b>3</b>	<b>67</b>	<b>10</b>	<b>b 567</b>

a Not separately reported.

b Including 84 injuries not classified.

SUMMARY OF NONFATAL INJURIES TO LABORERS (NOT SPECIFIED), BY NATURE  
OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	350	61.7
Part or parts crushed.....	53	9.4
Dislocations.....	3	.5
Fractures.....	67	11.8
Loss of part or parts.....	10	1.8
Injuries unclassified.....	84	14.8
<b>Total.....</b>	<b>567</b>	<b>100.0</b>

**TOPMEN.**

In the tables which follow are presented the accident statistics of the group of employees known as topmen. During the twenty-year period, 1888 to 1907, 128 employees of this class were reported as having been accidentally injured. Of this total number of injuries, 3, or 2.3 per cent, were fatal, and 125, or 97.7 per cent, were nonfatal.

**ACCIDENTS TO RAILROAD EMPLOYEES IN NEW JERSEY. 277**

**CAUSES OF ACCIDENTS TO TOPMEN FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.**

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Topmen injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling or uncoupling.....			12	9.6	12	9.4
Collisions.....	1	33.4	2	1.6	3	2.3
Falls from trains, locomotives, or cars.....			2	1.6	2	1.6
Struck by trains, locomotives, or cars.....	1	33.3	8	6.4	9	7.0
Striking overhead or other obstructions.....			1	.8	1	.8
Injured by coal chute.....			7	5.6	7	5.5
Injured by coal.....			19	15.2	19	14.8
Handling materials or supplies.....			4	3.2	4	3.1
Handling tools or machinery.....			42	33.6	42	32.8
Falls, miscellaneous and not specified.....	1	33.3	22	17.6	23	18.0
Other miscellaneous and not specified causes.....			6	4.8	6	4.7
<b>Total.....</b>	<b>3</b>	<b>100.0</b>	<b>125</b>	<b>100.0</b>	<b>128</b>	<b>100.0</b>

**NATURE AND EXTENT OF NONFATAL INJURIES TO TOPMEN INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.**

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Topmen injured.			
	Bruises, cuts, sprains, etc.	Crushed.	Fractures.	Total.
Head.....	9			9
Face.....	1			1
Nose.....			1	1
Shoulder.....	2			2
Arm.....	5	1	2	8
Wrist.....	1			1
Hand.....	18			18
Finger.....	7	3	1	11
Trunk.....	20			20
Hip.....	2			2
Leg.....	9			9
Knee.....	4		1	5
Ankle.....	1			1
Foot.....	16	2		18
Toe.....		3		3
Other specified combinations.....	12	1		13
Internal injuries.....				1
Injuries unclassified.....	(a)	(a)	(a)	2
<b>Total nonfatal injuries.....</b>	<b>107</b>	<b>10</b>	<b>5</b>	<b>b 125</b>

a Not separately reported.

b Including 2 injuries not classified and 1 internal injury.

**SUMMARY OF NONFATAL INJURIES TO TOPMEN, BY NATURE OF THE INJURY.**

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	107	85.6
Part or parts crushed.....	10	8.0
Fractures.....	5	4.0
Internal injuries.....	1	.8
Injuries unclassified.....	2	1.6
<b>Total.....</b>	<b>125</b>	<b>100.0</b>

## EMPLOYEES (NOT SPECIFIED).

The causes of accidents to the class reported simply as "employees" are shown in the following table. Of the total of 5,811 injuries reported, 544, or 9.4 per cent, were fatal, and 5,267, or 90.6 per cent, were nonfatal.

## CAUSES OF ACCIDENTS TO EMPLOYEES (NOT SPECIFIED) FATALLY AND NONFATALLY INJURED IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Cause.	Employees (not specified) injured.					
	Fatally.		Nonfatally.		Total.	
	Number.	Per cent from each cause.	Number.	Per cent from each cause.	Number.	Per cent from each cause.
Coupling, uncoupling, or "handling" cars . . . . .	181	33.3	3,009	57.1	3,190	54.9
Collisions . . . . .	14	2.6	126	2.4	140	2.4
Derailements . . . . .	3	.5	29	.6	32	.6
Breaking of parts of cars or engines . . . . .	10	1.8	4	.1	14	.2
Falls from trains, locomotives, or cars . . . . .	43	7.9	323	6.1	366	6.3
Falls on or in trains, locomotives, or cars . . . . .			30	.6	30	.5
Getting on or off trains, locomotives, or cars . . . . .	12	2.2	206	3.9	218	3.8
Caught between trains, locomotives, or cars . . . . .	21	3.8	50	.9	71	1.2
Struck by trains, etc., while walking on track . . . . .	43	7.9	25	.5	68	1.2
Struck by trains, etc., while crossing track . . . . .	44	8.1	49	.9	93	1.6
Struck by trains, etc., unclassified . . . . .	120	22.1	166	3.2	286	4.9
Injured by car door or window . . . . .			76	1.4	76	1.3
Striking overhead or other obstructions . . . . .	8	1.5	116	2.2	124	2.1
Handling materials or supplies . . . . .			181	3.4	181	3.1
Handling tools or machinery . . . . .	2	.4	87	1.7	89	1.5
Shifting of lading . . . . .			11	.2	11	.2
Struck by objects from passing trains . . . . .	2	.4	83	1.6	85	1.5
Falls, miscellaneous and not specified . . . . .	8	1.5	152	2.9	160	2.8
Working on or about engine . . . . .	2	.4	98	1.9	100	1.7
Working under cars . . . . .	4	.7	6	.1	10	.2
Hand-car injuries . . . . .			23	.4	23	.4
On floating equipment . . . . .			40	.8	40	.7
Drowned . . . . .	5	.9			5	.1
Found dead . . . . .	1	.2			1	(a)
Other miscellaneous and not specified causes . . . . .	21	3.8	377	7.1	398	6.8
Total . . . . .	544	100.0	5,267	100.0	5,811	100.0

<sup>a</sup> Less than one-tenth of 1 per cent.

## NATURE AND EXTENT OF INJURIES TO EMPLOYEES (NOT SPECIFIED) INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907.

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Employees (not specified) injured.					
	Bruises, cuts, sprains, etc.	Crushed.	Dislocations.	Fractures.	Loss of part.	Total.
Head . . . . .	60					60
Face . . . . .	41					41
Eye . . . . .	25				1	26
Nose . . . . .				1		1
Jaw . . . . .				1		1
Shoulder . . . . .	21		8	4		33
Arm . . . . .	90	28	1	19		138
Wrist . . . . .	15			4		19
Hand . . . . .	240	47				287

NATURE AND EXTENT OF INJURIES TO EMPLOYEES (NOT SPECIFIED) INJURED IN ACCIDENTS IN NEW JERSEY, 1888 TO 1907—Concluded.

Part injured.	Employees (not specified) injured.					
	Bruises, cuts, sprains, etc.	Crushed.	Dislocations.	Fractures.	Loss of part.	Total.
Finger.....	79	69		5	14	167
Fingers.....	22	57		1	3	83
Collar bone.....				9		9
Rib.....				5		5
Ribs.....				4		4
Trunk.....	62					62
Hip.....	12					12
Hips.....	15					15
Leg.....	48	6	1	20	5	80
Legs.....	3	4		3	1	11
Knee.....	14					14
Ankle.....	44	2		3		49
Foot.....	123	23			2	148
Feet.....	2	2				4
Toe.....	3	7				10
Toes.....		2			1	3
Heat stroke.....						1
Other specified combinations.....	74	3		7	1	85
Internal injuries.....						5
Injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	2,719
Slight injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	987
Severe injuries unclassified.....	(a)	(a)	(a)	(a)	(a)	188
Total nonfatal injuries.....	993	250	10	86	28	b 5,267

a Not separately reported.

b Including 3,894 injuries not classified, 5 internal injuries, and 1 heat stroke.

SUMMARY OF NONFATAL INJURIES TO EMPLOYEES (NOT SPECIFIED), BY NATURE OF THE INJURY.

Nature of injury.	Number injured.	Per cent of total.
Bruises, cuts, sprains, etc.....	993	18.9
Part or parts crushed.....	250	4.7
Dislocations.....	10	.2
Fractures.....	86	1.6
Loss of part or parts.....	28	.5
Internal injuries.....	5	.1
Injuries unclassified.....	a 3,895	74.0
Total.....	5,267	100.0

a Including 1 heat stroke.

EMPLOYEES (NOT SPECIFIED) INJURED WHILE COUPLING OR HANDLING CARS.

Employees (not specified) who were injured while "coupling or handling cars" have been separately tabulated according to the nature and extent of the nonfatal injuries. For comparative purposes, statistics of a similar kind presented in the accident bulletins of the Interstate Commerce Commission have been compiled for the four-year period 1905 to 1908, and will be found in the appendix, page 289.

Of the 3,190 injuries reported as having occurred to this group of employees while "coupling or handling cars," 181, or 5.7 per cent, were fatal and 3,009, or 94.3 per cent, were nonfatal.

The nature and extent of the nonfatal injuries are shown in the following table:

NATURE AND EXTENT OF NONFATAL INJURIES TO EMPLOYEES (NOT SPECIFIED) INJURED IN ACCIDENTS WHILE "COUPLING OR HANDLING CARS" IN NEW JERSEY, 1888 TO 1907. (a)

[Data compiled from the annual reports of the railroads of New Jersey to the state comptroller.]

Part injured.	Employees (not specified) injured.					
	Bruises, cuts, sprains, etc.	Crushed.	Dislocations.	Fractures.	Loss of part.	Total.
Head.....	5					5
Face.....	4					4
Shoulder.....	11		1	2		14
Arm.....	61	25	1	11		98
Wrist.....	5			3		8
Hand.....	137	43				180
Finger.....	50	62		2	10	124
Fingers.....	20	52		1	3	76
Collar bone.....				6		6
Ribs.....				2		2
Trunk.....	17					17
Hips.....	15					15
Leg.....	11	3	1	7		22
Legs.....		2				2
Ankle.....	6					6
Foot.....	19	7				26
Toe.....	1	1				1
Other specified combinations.....	10	3				13
Internal injuries.....						1
Injuries unclassified.....	(b)	(b)	(b)	(b)	(b)	1,719
Slight injuries unclassified.....	(b)	(b)	(b)	(b)	(b)	570
Severe injuries unclassified.....	(b)	(b)	(b)	(b)	(b)	100
Total nonfatal injuries.....	371	198	3	34	13	c 3,009

a These statistics are included in the previous tables for all employees (not specified).

b Not separately reported.

c Including 2,389 injuries not classified and 1 internal injury.

## SUMMARY AND CONCLUSIONS.

A careful survey of the returns of accidents as made by the railroads of New Jersey to the state comptroller has indicated that compliance with the requirements of the law is not so complete as it ought to be in respect to the reporting of accidents to employees. The provision of the law that the nature and extent of the injury shall be reported is continually disregarded, and in some instances the accidents to employees have been reported by groups of employees with distinction only of fatal and nonfatal injuries. The causes of accidents are also reported in many instances in a very unsatisfactory manner. This may be due in part to the fact that no particular use has been made of the returns and consequently that there has been little supervision to determine the quality of the data submitted by the railroads.

If the law could be modified to the extent of requiring the railroads to report the specific occupation of the injured employee, the returns would be greatly improved in value and at little or no extra expense or trouble to the railroads.

The statistics based upon the New Jersey returns clearly demonstrate that any railroad employee working on or about tracks or on or about trains, engines, or cars is exposed to more than normal accident liability. After consideration of every reported injury (18,555 in number) to the railway employees of New Jersey during the twenty years 1888 to 1907, the writer is convinced that a considerable proportion of the employees injured were injured because of their own carelessness or because of the carelessness of their fellow-employees. This is apparent from the causes of the accidents as given in detail. In any consideration of safety appliances, and in any criticism of railroad management from the viewpoint of accidents, it should always be borne in mind that American workmen are notoriously indifferent to their own safety. This is quite as true of structural-iron workers, miners, and employees in other hazardous undertakings as of railway employees, but it is a striking fact which should never be lost sight of by the student of American industrial conditions.

The following summary shows, for each specified occupation, the number and per cent of fatal, of nonfatal, and of all accidents to railway employees in New Jersey due to each specified cause, for the period 1888 to 1907. The figures include a total of 18,002 accidents for which the causes were reported in detail.

## CAUSES OF ACCIDENTS TO RAILWAY EMPLOYEES IN NEW JERSEY, BY OCCUPATIONS, 1888 TO 1907.

## FATAL ACCIDENTS—NUMBER DUE TO EACH CAUSE.

Occupation.	Movement of trains.							Handling materials, supplies, or freight.	Handling tools or machinery.	Other causes.	All causes.
	Coupling or uncoupling.	Falls from trains.	Struck by trains.	Getting on or off trains.	Striking obstructions.	Collisions.	Oth-er.				
Station men.....			12	2			1	15			15
Freight conductors.....	2	3	1		5	2		13			13
Yard conductors.....	5	1	6					12			12
Drillmasters.....	1	3	1					5			5
Conductors (n. s.).....	17	7	20	2	6	6	4	62			62
Enginemen.....	5	3	9		7	25	18	67		3	70
Firemen.....	3	10	9	2	14	10	20	68		1	69
Freight brakemen.....	18	34	12	2	23	2	6	102		1	103
Yard brakemen.....	12	9	18	2			8	49			49
Brakemen (n. s.).....	59	86	52	12	8	10	20	247		18	265
Switchmen (n. s.).....	9	11	16	4	1			41			41
Flagmen.....	2	1	18	2		1	1	25		1	26
Baggagemen (n. s.).....			3		1			5			5
Trainmen (n. s.).....	2	2	3		1	1		8			8
Car repairers.....	1	3	5	2				9	1	1	16
Machinists and helpers.....	1		2	2				5	1		6
Shopmen (n. s.).....			7				1	7	2		14
Roundhouse men.....		1	8	1				10		4	13
Car examiners.....	1	2	7				1	11		5	16
Car cleaners.....		1	3	2			1	11		1	12
Freight handlers.....	1	1	1					3	1		4
Section hands.....	1	9	183	6		1	1	201		12	213
Track walkers.....		1	56					57			57
Bridge carpenters.....			4					4	1		9
Carpenters (n. s.).....			6	1			1	8	2		10
Crossing gatemen and flagmen.....			40	1				41			42
Switch tenders.....	1		14					15			15
Signalmen.....		1	10					11		2	13
Laborers (n. s.).....		2	79	5			7	94		5	100
Topmen.....			1			1		2		1	3
Employees not specified.....	181	43	207	12	8	14	38	503		2	544
Total.....	322	233	817	58	79	74	128	1,711	8	5	1,830

## FATAL ACCIDENTS—PER CENT DUE TO EACH CAUSE.

Station men.....			80.0	13.3			6.7	100.0			100.0
Freight conductors.....	15.4	23.1	7.7		33.4	15.4		100.0			100.0
Yard conductors.....	41.7	8.3	50.0					100.0			100.0
Drillmasters.....	20.0	60.0	20.0					100.0			100.0
Conductors (n. s.).....	27.4	11.3	32.3	3.2	9.7	9.7	6.4	100.0			100.0
Enginemen.....	7.1	4.3	13.9		10.0	35.7	25.7	95.7		4.3	100.0
Firemen.....	4.4	14.5	13.0	2.9	20.3	14.5	29.0	98.6		1.4	100.0
Freight brakemen.....	17.5	33.0	11.7	1.9	27.2	1.9	5.8	99.0		1.0	100.0
Yard brakemen.....	24.5	18.4	36.7	4.1			16.3	100.0			100.0
Brakemen (n. s.).....	22.3	32.5	19.6	4.5	3.0	3.8	7.5	93.2		6.8	100.0
Switchmen (n. s.).....	22.0	26.8	39.0	9.8	2.4			100.0			100.0
Flagmen.....	7.6	3.9	69.2	7.7		3.9	3.9	96.2		3.8	100.0
Baggagemen (n. s.).....			60.0		20.0	20.0		100.0			100.0
Trainmen (n. s.).....	25.0	25.0	37.5		12.5			100.0			100.0
Car repairers.....	6.3	18.7	31.3					56.3	6.2	6.2	31.3
Machinists and helpers.....	16.7		33.3	33.3				83.3	16.7		100.0
Shopmen (n. s.).....			42.9				7.1	50.0	14.3	7.1	28.6
Roundhouse men.....		7.7	61.5	7.7				76.9			23.1
Car examiners.....	6.2	12.5	43.7				6.3	68.7			31.3
Car cleaners.....			26.7	16.7			8.3	91.7			8.3
Freight handlers.....	25.0	25.0	25.0					75.0	25.0		100.0
Section hands.....	5	4.2	85.9	2.8		5		94.4		5.6	100.0
Track walkers.....		1.8	98.2					100.0			100.0
Bridge carpenters.....			44.5					44.5	11.1		44.4
Carpenters (n. s.).....			60.0	10.0			10.0	80.0	20.0		100.0
Crossing gatemen and flagmen.....			95.2	2.4				97.6		2.4	100.0
Switch tenders.....	6.7		93.3					100.0			100.0
Signalmen.....		7.7	76.9					84.6		15.4	100.0
Laborers (n. s.).....		2.0	79.0	5.0		1.0	7.0	94.0		1.0	5.0
Topmen.....			33.3			33.4		66.7			33.3
Employees not specified.....	33.3	7.9	38.0	2.2	1.4	2.6	7.0	92.4		.4	7.2
Total.....	17.6	12.7	44.7	3.2	4.3	4.0	7.0	93.5	.4	.3	5.8

\* Shop accident not classified.

CAUSES OF ACCIDENTS TO RAILWAY EMPLOYEES IN NEW JERSEY, BY OCCUPATIONS, 1888 TO 1907—Continued.

NONFATAL ACCIDENTS—NUMBER DUE TO EACH CAUSE.

Occupation.	Movement of trains.							Handling materials, supplies, or freight.	Handling tools or machinery.	Other causes.	All causes.	
	Coupling or uncoupling.	Falls from trains.	Struck by trains.	Getting on or off trains.	Striking obstructions.	Collisions.	Other.					Total.
Station men	1	1	8	2	.....	1	6	19	29	.....	18	66
Freight conductors	25	20	5	13	8	9	32	113	9	1	22	145
Yard conductors	38	6	8	5	3	2	4	66	1	9	6	82
Drillmasters	30	8	3	4	2	3	6	56	1	.....	12	69
Conductors (n. s.)	359	77	18	67	18	33	88	660	.....	2	85	747
Enginemen	50	86	11	51	70	120	114	502	.....	19	80	601
Firemen	15	123	17	50	57	82	214	558	27	.....	84	669
Freight brakemen	236	210	3	41	137	8	87	722	101	.....	36	859
Yard brakemen	313	94	25	79	34	11	61	617	15	.....	100	732
Brakemen (n. s.)	1,621	404	45	225	85	68	282	2,630	3	.....	235	2,868
Switchmen (n. s.)	207	80	60	24	12	2	7	392	1	3	18	103
Flagmen	31	9	8	5	6	3	6	68	.....	.....	33	71
Baggagemen (n. s.)	11	.....	6	4	3	12	2	38	19	3	20	80
Trainmen (n. s.)	60	137	4	22	13	13	24	273	5	1	206	485
Car repairers	1	6	9	.....	.....	.....	7	27	33	26	67	153
Machinists and helpers	5	6	8	1	1	.....	7	23	5	52	69	149
Shopmen (n. s.)	5	12	14	8	1	.....	6	46	40	2	66	401
Roundhouse men	7	13	19	6	9	.....	3	57	12	4	109	182
Car examiners	4	2	13	2	.....	.....	9	30	2	6	33	71
Car cleaners	2	10	19	12	.....	39	7	89	2	2	43	136
Freight handlers	1	1	9	.....	.....	5	1	17	103	.....	16	136
Section hands	.....	50	153	39	2	17	18	279	205	46	123	663
Track walkers	.....	.....	.....	.....	.....	1	5	24	.....	.....	6	30
Bridge carpenters	.....	2	10	.....	.....	.....	.....	12	17	.....	5	31
Carpenters (n. s.)	.....	2	8	7	.....	4	4	25	47	43	54	169
Crossing gatemen and flagmen	.....	2	23	3	.....	.....	2	30	.....	.....	11	41
Switch tenders	1	.....	15	2	.....	.....	47	65	.....	.....	1	66
Signalmen	.....	1	7	2	3	.....	6	19	1	1	20	41
Laborers (n. s.)	30	36	72	39	2	11	35	225	157	31	154	567
Topmen	12	2	8	.....	1	2	.....	25	30	42	28	125
Employees not specified	3,009	323	240	206	116	126	370	4,390	192	87	598	5,267
Total	5,970	1,723	866	919	583	572	1,464	12,097	1,059	632	2,334	16,172

NONFATAL ACCIDENTS—PER CENT DUE TO EACH CAUSE.

Station men	1.5	1.5	12.1	3.1	.....	1.5	9.1	28.8	43.9	.....	27.3	100.0
Freight conductors	17.9	13.8	3.4	9.0	5.5	6.2	22.1	77.9	6.2	0.7	15.2	100.0
Yard conductors	46.3	7.3	9.8	6.1	3.7	2.4	4.9	80.5	1.2	11.0	7.3	100.0
Drillmasters	43.5	11.6	4.3	5.8	2.9	4.3	8.7	81.1	1.5	.....	17.4	100.0
Conductors (n. s.)	48.1	10.3	2.4	9.0	2.4	4.4	11.7	88.3	.....	.3	11.4	100.0
Enginemen	8.3	14.3	1.8	8.5	11.6	20.0	19.0	83.5	.....	3.2	13.3	100.0
Firemen	2.2	18.4	2.5	7.5	8.5	12.3	32.0	83.4	4.0	.....	12.6	100.0
Freight brakemen	27.5	24.4	.4	4.8	15.9	.9	10.1	84.0	11.8	.....	4.2	100.0
Yard brakemen	42.8	12.8	3.4	10.8	4.7	1.5	8.3	84.3	2.0	.....	13.7	100.0
Brakemen (n. s.)	53.0	14.1	1.6	7.8	3.0	2.4	9.8	91.7	.1	.....	8.2	100.0
Switchmen (n. s.)	50.0	19.3	14.5	5.8	2.9	.5	1.7	94.7	2	.7	4.4	100.0
Flagmen	30.1	8.7	7.8	4.9	5.8	2.9	5.8	66.0	2.0	.....	32.0	100.0
Baggagemen (n. s.)	13.8	.....	7.5	5.0	3.7	15.0	2.5	47.5	23.8	3.7	25.0	100.0
Trainmen (n. s.)	12.4	28.2	.8	4.5	2.7	2.7	5.0	56.3	1.0	.2	42.5	100.0
Car repairers	.6	3.9	5.9	.....	.....	7.2	17.6	17.6	21.6	17.0	43.8	100.0
Machinists and helpers	.....	4.0	5.4	.7	.7	.....	4.7	15.5	3.3	34.9	46.3	100.0
Shopmen (n. s.)	1.2	3.0	3.5	2.0	.3	.....	1.5	11.5	10.0	.....	16.4	100.0
Roundhouse men	3.8	7.1	10.4	3.3	5.0	.....	1.7	31.3	6.6	2.2	59.9	100.0
Car examiners	5.6	2.8	18.3	2.8	.....	.....	12.7	42.2	2.8	8.5	46.5	100.0
Car cleaners	1.5	7.3	14.0	8.8	.....	28.7	5.1	65.4	1.5	1.5	31.6	100.0
Freight handlers	.7	.7	6.7	.....	.....	3.7	.7	12.5	75.7	.....	11.8	100.0
Section hands	.....	7.7	23.4	6.0	.3	2.6	2.7	42.7	31.4	7.0	18.9	100.0
Track walkers	.....	.....	60.0	.....	.....	3.3	16.7	80.0	.....	.....	20.0	100.0
Bridge carpenters	.....	3.1	15.4	.....	.....	.....	.....	18.5	26.1	7.7	47.7	100.0
Carpenters (n. s.)	.....	1.2	4.7	4.1	.....	2.4	2.4	14.8	27.8	25.4	32.0	100.0
Crossing gatemen and flagmen	.....	4.9	56.1	7.3	.....	.....	4.9	73.2	.....	.....	26.8	100.0
Switch tenders	1.5	.....	22.7	3.1	.....	.....	71.2	98.5	.....	.....	1.5	100.0
Signalmen	.....	2.4	17.1	4.9	7.3	.....	14.7	46.4	2.4	2.4	48.8	100.0
Laborers (n. s.)	5.3	6.3	12.7	6.9	.4	1.9	6.2	39.7	27.7	5.5	27.1	100.0
Topmen	9.6	1.6	6.4	.....	.8	1.6	.....	20.0	24.0	33.6	22.4	100.0
Employees not specified	57.1	6.1	4.6	3.9	2.2	2.4	7.0	83.3	3.6	1.7	11.4	100.0
Total	36.9	10.7	5.4	5.7	3.6	3.5	9.0	74.8	6.6	3.9	14.7	100.0

α Including 167 shop accidents not classified.

CAUSES OF ACCIDENTS TO RAILWAY EMPLOYEES IN NEW JERSEY, BY OCCUPATIONS, 1888 TO 1907—Concluded.

FATAL AND NONFATAL ACCIDENTS—NUMBER DUE TO EACH CAUSE.

Occupation.	Movement of trains.							Total.	Handling materials, supplies, or freight.	Handling tools or machinery.	Other causes.	All causes.
	Coupling or uncoupling.	Falls from trains.	Struck by trains.	Getting on or off trains.	Striking obstructions.	Collisions.	Oth-er.					
Station men.....	1		20	4		1	7	34	29		18	81
Freight conductors.....	28	23	6	13	13	11	32	126	9	1	22	158
Yard conductors.....	43	7	14	5	3	2	4	78	1	9	6	94
Drillmasters.....	31	11	4	4	2	3	6	61	1		12	74
Conductors (n. s.).....	376	84	38	69	24	39	92	722		2	85	809
Enginemen.....	55	89	20	51	77	145	132	569		19	83	671
Firemen.....	18	133	26	52	71	92	234	626	27		85	738
Freight brakemen.....	254	244	15	43	165	10	93	824	101		37	962
Yard brakemen.....	325	103	43	81	34	11	69	666	15		100	781
Brakemen (n. s.).....	1,520	490	97	237	93	78	302	2,877	3		253	3,133
Switchmen (n. s.).....	216	91	76	28	13	2	7	433	1	3	18	455
Flagmen.....	33	10	26	7	6	4	7	93	2		34	129
Baggagemen (n. s.).....	11		9	4	4	13	2	43	19	3	20	85
Trainmen (n. s.).....	62	139	7	22	14	13	24	281	5	1	206	493
Car repairers.....	2	9	14				11	36	34	27	72	169
Machinists and helpers.....	1	6	10	3	1		7	28	6	52	69	155
Shopmen (n. s.).....	5	12	20	8	1		7	53	42	250	70	415
Roundhouse men.....	7	14	27	7	9		3	67	12	4	112	195
Car examiners.....	5	4	20	2			10	41	2	6	38	87
Car cleaners.....	2	10	27	14		39	8	100	2	2	44	143
Freight handlers.....	2	2	10			5	1	20	104		16	140
Section hands.....	1	59	336	45	2	13	19	480	205	46	135	886
Track walkers.....	1		74			1	5	81			6	87
Bridge carpenters.....	2		14					16	18	5	35	74
Carpenters (n. s.).....	2		14	8		4	5	33	49	43	54	179
Crossing gatemen and flagmen.....	2	2	63	4			2	71			12	83
Switch tenders.....	2		29	2			47	80			1	81
Signalmen.....	2	2	17	2	3		6	30	1	1	22	54
Laborers (n. s.).....	30	38	151	44	2	12	42	319	157	32	159	667
Topmen.....	12	2	9		1	3		27	30	42	29	128
Employees not specified.....	3,190	336	447	218	124	140	408	4,893	192	89	637	5,811
Total.....	6,292	1,956	1,683	977	662	645	1,592	13,808	1,067	637	2,490	18,002

FATAL AND NONFATAL ACCIDENTS—PER CENT DUE TO EACH CAUSE.

Station men.....	1.2	1.2	24.7	5.0		1.2	8.7	42.0	35.8		22.2	100.0
Freight conductors.....	17.7	14.6	3.8	8.2	8.2	7.0	20.3	79.8	5.7	0.6	13.9	100.0
Yard conductors.....	45.7	7.5	14.9	5.3	3.2	2.1	4.3	83.0	1.1	9.6	6.3	100.0
Drillmasters.....	41.9	14.9	5.4	5.4	2.7	4.0	8.1	82.4	1.4		16.2	100.0
Conductors (n. s.).....	46.5	10.4	4.7	8.5	3.0	4.8	11.3	89.2		3	10.5	100.0
Enginemen.....	8.2	13.2	3.0	7.6	11.5	21.6	19.7	84.8		2.8	12.4	100.0
Firemen.....	2.4	18.0	3.5	7.1	9.6	12.5	31.7	84.8	3.7		11.5	100.0
Freight brakemen.....	26.4	25.4	1.6	4.5	17.2	1.0	9.6	85.7	10.5		3.8	100.0
Yard brakemen.....	41.6	13.2	5.5	10.4	4.4	1.4	8.8	85.3	1.9		12.8	100.0
Brakemen (n. s.).....	50.4	15.6	3.1	7.6	3.0	2.5	9.6	91.8	1.9		8.1	100.0
Switchmen (n. s.).....	47.5	20.0	16.7	6.2	2.9	4	1.5	95.2	2	7	3.9	100.0
Flagmen.....	25.6	7.8	20.2	5.4	4.6	3.1	5.4	72.1	1.6		26.3	100.0
Baggagemen (n. s.).....	12.9		10.6	4.7	4.7	15.3	2.4	50.6	22.4	3.5	23.5	100.0
Trainmen (n. s.).....	12.6	28.2	1.4	4.5	2.8	2.6	4.9	57.0	1.0	2	41.8	100.0
Car repairers.....	1.2	5.3	8.3				6.5	21.3	20.1	16.0	42.6	100.0
Machinists and helpers.....	.6	3.9	6.5	2.0	.6		4.5	18.1	3.9	33.5	44.5	100.0
Shopmen (n. s.).....	1.2	2.9	4.8	1.9	.3		1.7	12.8	10.1	60.2	16.9	100.0
Roundhouse men.....	3.6	7.2	13.9	3.6	4.6		1.5	34.4	6.2	2.0	57.4	100.0
Car examiners.....	5.7	4.6	23.0	2.3			11.5	47.1	2.3	6.9	43.7	100.0
Car cleaners.....	1.4	6.7	18.2	9.5		26.3	5.4	67.5	1.4	1.4	29.7	100.0
Freight handlers.....	1.4	1.4	7.2			3.6	7	14.3	74.3		11.4	100.0
Section hands.....	.1	6.8	38.8	5.2	.2	2.1	2.2	55.4	23.7	5.3	15.6	100.0
Track walkers.....	1.2		85.0			1.2	5.7	93.1			6.9	100.0
Bridge carpenters.....	2.7		18.9					21.6	24.3	6.8	47.3	100.0
Carpenters (n. s.).....	1.1		7.8	4.5		2.2	2.8	18.4	27.4	24.0	30.2	100.0
Crossing gatemen and flagmen.....	2.4		75.9	4.8			2.4	85.5			14.5	100.0
Switch tenders.....	2.5		35.8	2.5			58.0	99.8			1.2	100.0
Signalmen.....	3.7		31.5	3.7	5.5		11.1	55.5	1.9	1.9	40.7	100.0
Laborers (n. s.).....	4.5	5.7	22.6	6.6	.3	1.8	6.3	47.8	23.6	4.8	23.8	100.0
Topmen.....	9.4	1.6	7.0			8	2.3	21.1	23.4	32.8	22.7	100.0
Employees not specified.....	54.9	6.3	7.7	3.8	2.1	2.4	7.0	84.2	3.3	1.5	11.0	100.0
Total.....	35.0	10.9	9.4	5.4	3.6	3.6	8.8	76.7	5.9	3.6	13.8	100.0

\* Including 168 shop accidents not classified.

The above table clearly indicates that in New Jersey train accidents are responsible for the great majority of the fatal injuries to employees in nearly all of the various divisions of the railway service. Of the fatal accidents to employees other than station men, shopmen, and trackmen, 93.9 per cent were caused by moving trains, locomotives, or cars. To this cause was due 95.6 per cent of the deaths of trackmen (shown in the table as section hands and track walkers), 100 per cent of the deaths of station men, and 58.3 per cent of the deaths of shopmen (shopmen, not specified, machinists and helpers, and car repairers). Of the total fatal railway accidents reported for all occupations 93.5 per cent were due to the movement of trains, locomotives, or cars.

These statistics are fully confirmed by those collected by the Interstate Commerce Commission, which have been compiled for a series of years and in such detail by employments as has been possible. The tables for the United States as a whole and separately for Group II (New York, New Jersey, Pennsylvania, Delaware, and Maryland) are presented in the appendix, pages 287 to 290. The tables compiled from the Interstate Commerce Commission reports show that in the United States as a whole 96.7 per cent of the fatal accidents to employees, other than trackmen, station men, and shopmen, were caused by moving trains, locomotives, or cars. To this cause was also attributed 91 per cent of the deaths of trackmen, 72.4 per cent of the deaths of station men, and 62.3 per cent of the deaths of shopmen. For all employees the ratio was 93.9 per cent. In Group II the ratios were not materially different.

What is needed is a clearer idea of the purposes which accident statistics may serve. The greatest advantage of safety devices, for example, and their relative advantages in the saving of life and the reduction of injuries can not be definitely determined without full details of how accidents are caused, to whom they occur, and under what circumstances. It is essential also to know whether the injury is serious, severe, or slight, and what part or parts of the body are injured. Obviously, such returns should be of value to railroad companies also; for, as a general rule, a high accident liability to railroad employees means a correspondingly high damage liability to railroad equipment. Accidents to employees also often means the loss, temporarily or permanently, to the railroad of the efficient service of old and experienced employees. That full statistics of accidents would benefit the employees both directly and indirectly appears to be a fact not requiring explanation. From the viewpoint of life and accident insurance alone, such returns would be of benefit to railroad employees in the less hazardous branches of the service; for if the facts were known it is quite probable that insurance would be granted by the companies where now it is refused, or it would be furnished at

lower rates than is possible without more definite information as to the accident liability than is now available. Finally, any means by which greater safety can be secured for the railway employee would redound immeasurably to his personal benefit, to say nothing of those dependent upon him for support.

Lack of accurate information may be set down as one of the principal reasons why conditions are as bad, from the viewpoint of accidents, as they notoriously are in the industries of America to-day.

APPENDIX.

LAW UNDER WHICH THE RAILROADS OF NEW JERSEY ARE REQUIRED TO REPORT INJURIES.

ACTS OF NEW JERSEY, 1903.

CHAPTER 257.—An act concerning railroads (revision of 1903).

78. Every railroad company in this State shall, on the first Tuesday of January in each year, make to the legislature a report, under oath of the president of the company, containing an account of capital stock paid in, the amount of funded and other debts of the company, the cost of the road, the cost of equipment, also of the operation of the company during the year preceding up to the first day of January aforesaid; also the expenditures for working said road, including repairs, maintenance of way, motive power, and contingencies; also income from passengers, freight, and other sources; also amount of dividends and how paid; also the accidents that have occurred during said year on the road, and the cause of the same, with the names of the persons injured and the nature and extent of their injuries; also the names of the engineers and conductors under whose management such accidents have occurred, and whether such engineers and conductors are still retained in the employ of said companies; said reports shall be filed with the comptroller of the treasury, to remain in his office of record, and he shall transmit copies thereof to the legislature on the first Tuesday of February of each year; on the willful failure of any railroad company of this State to make such report by the first Tuesday of February in each year, such company shall forfeit and pay to the State for every such omission the sum of ten thousand dollars, to be recovered in an action on contract, with costs of suit, and to be added to the public school fund of the State.

STATISTICS OF RAILWAY ACCIDENTS IN THE UNITED STATES.

NUMBER AND PER CENT OF ACCIDENTS TO RAILROAD EMPLOYEES IN THE UNITED STATES DUE TO MOVEMENT OF TRAINS, LOCOMOTIVES, OR CARS, BY SPECIFIED GROUPS OF OCCUPATIONS, 1901 TO 1907.

[From the annual reports of the Interstate Commerce Commission on the Statistics of Railways in the United States.]

Occupation.	Number of accidents.			Accidents due to movement of trains, locomotives, or cars.					
				Number.			Per cent.		
	Fatal.	Nonfatal.	Total.	Fatal.	Nonfatal.	Total.	Fatal.	Nonfatal.	Total.
Station men.....	315	19,845	20,160	228	1,887	2,115	72.38	9.51	10.49
Shopmen.....	1,024	99,825	100,849	638	4,820	5,458	62.30	4.83	5.41
Trackmen.....	4,510	61,297	65,807	4,102	14,044	18,146	90.95	22.91	27.57
Other employees.....	18,857	209,425	288,282	18,237	226,328	244,565	96.71	84.00	84.84
All employees.....	24,706	450,392	475,098	23,205	247,079	270,284	93.92	54.86	56.80

NUMBER AND PER CENT OF ACCIDENTS TO RAILROAD EMPLOYEES IN TERRITORIAL GROUP II(a) DUE TO MOVEMENT OF TRAINS, LOCOMOTIVES, OR CARS, BY SPECIFIED GROUPS OF OCCUPATIONS, 1901 TO 1907.

[From the annual reports of the Interstate Commerce Commission on the Statistics of Railways in the United States.]

Occupation.	Number of accidents.			Accidents due to movement of trains, locomotives, or cars.					
				Number.			Per cent.		
	Fatal.	Nonfatal.	Total.	Fatal.	Nonfatal.	Total.	Fatal.	Nonfatal.	Total.
Station men.....	82	6,626	6,708	60	446	506	73.17	6.73	7.54
Shopmen.....	310	27,443	27,753	211	1,794	2,005	68.06	6.54	7.22
Trackmen.....	1,481	10,365	11,846	1,424	3,537	4,961	96.15	34.12	41.88
Other employees.....	5,194	68,584	73,778	5,084	58,121	63,205	97.88	84.74	85.67
All employees.....	7,067	113,018	120,085	6,779	63,898	70,677	95.92	56.54	58.86

<sup>a</sup> Comprising the States of New York, New Jersey, Pennsylvania, Delaware, and Maryland.

NUMBER OF RAILROAD EMPLOYEES IN THE UNITED STATES AND NUMBER AND RATE PER 1,000 FATALLY AND NONFATALLY INJURED, CLASSIFIED BY GROUPS OF OCCUPATIONS, 1901 TO 1907.

[From the annual reports of the Interstate Commerce Commission on the Statistics of Railways in the United States.]

Occupation, group.	Number of employees.	Fatally injured.		Nonfatally injured.	
		Number.	Rate per 1,000 employees.	Number.	Rate per 1,000 employees.
<b>Accidents resulting from the movement of trains, locomotives, or cars:</b>					
Trainmen.....	1,810,498	14,232	7.86	198,766	109.79
Switch tenders, crossing tenders, and watchmen.....	342,893	1,339	3.91	10,055	29.32
Station men.....	1,512,240	228	.15	1,887	1.25
Shopmen.....	1,888,639	638	.34	4,820	2.55
Trackmen.....	2,396,550	4,102	1.71	14,044	5.86
Telegraph operators and dispatchers.....	223,505	98	.44	660	2.95
Other employees.....	1,270,442	2,568	2.02	16,847	13.26
Total.....	9,444,767	23,205	2.46	247,079	26.16
<b>Accidents from other causes:</b>					
Station men.....	1,512,240	87	.06	17,958	11.88
Shopmen.....	1,888,639	386	.20	95,005	50.30
Trackmen.....	2,396,550	408	.17	47,253	19.72
Other employees.....	3,647,338	620	.17	43,097	11.82
Total.....	9,444,767	1,501	.16	203,313	21.53

RAILROAD EMPLOYEES INJURED IN THE UNITED STATES WHILE COUPLING OR UNCOUPLING CARS, BY NATURE OF INJURIES, 1905 TO 1908.

[From accident bulletins of the Interstate Commerce Commission, Nos. 15 to 30.]

Nature of injury.	Employees injured.				Total.
	Trainmen.(a)	Trainmen in yards.(b)	Yard trainmen.(c)	Other employes.	
Loss of—					
Feet.....	59	29	81	3	172
Legs.....	27	21	34	4	86
Arms.....	38	20	55	7	120
Hands.....	18	22	26	1	67
Fingers.....	186	103	193	17	499
Toes.....	29	17	25	1	72
Fractured—					
Skull.....	2	4	4	1	11
Leg.....	35	13	40	5	93
Arm.....	63	41	79	9	192
Collar bone or ribs.....	79	43	125	13	260
Other bones.....	84	51	128	6	269
Contusion of head or body.....	410	318	835	61	1,624
Contusion or laceration of—					
Feet.....	357	254	564	15	1,190
Toes.....	88	49	117	5	259
Legs.....	113	89	340	9	551
Arms.....	214	129	325	18	686
Hands.....	561	449	856	60	1,926
Fingers.....	1,304	807	2,008	92	4,211
Dislocation.....	19	12	24	6	61
Internal injuries.....	95	64	159	12	330
Sprains.....	114	59	268	12	453
Shocks.....	2	2	1	1	6
Miscellaneous.....	73	62	87	9	231
Total nonfatal injuries (d).....	3,970	2,658	6,374	367	13,369
Total fatal injuries (e).....	320	213	456	56	1,045
Total injuries.....	4,290	2,871	6,830	423	14,414

<sup>a</sup> Trainmen includes engineers, firemen, conductors, brakemen, baggagemen, and rear-end flagmen engaged in road service, that is, in the operation of trains on the road.

<sup>b</sup> The classification trainmen in yards is intended to cover the class of trainmen when they are employed occasionally in switching service; for instance, train crews are sometimes required to make up their own trains at some division points where no regular yard crews are employed. They are also required to do the necessary switching at way stations. For the purpose of separating accidents occurring to trainmen while engaged in regular road service from those occurring while engaged in this occasional switching service, the classification of trainmen in yards was established.

<sup>c</sup> Yard trainmen includes members of switching crews, such as switchmen, foremen of switching crews, yardmasters, and assistant yardmasters. These persons are engaged wholly in the making up of trains in yards and the switching of cars about yards.

<sup>d</sup> Accidents to employees resulting in slight injuries which do not prevent the employee injured from performing his accustomed service for more than three days, in the aggregate, during the ten days immediately following the accident, are not reported.

<sup>e</sup> "Accidents to persons resulting in immediate death, or in death within twenty-four hours from the time the accident occurred, should be reported in the column headed 'killed.' All other accidents to persons, including those resulting in the death of the person injured after an interval of more than twenty-four hours from the time the accident occurred, should be reported in the column headed 'injured.'"—Interstate Commerce Commission. Instructions to be followed in filling up blanks. Form of 1905.

PER CENT OF RAILROAD EMPLOYEES IN THE UNITED STATES SUSTAINING EACH SPECIFIED KIND OF INJURY WHILE COUPLING OR UNCOUPLING CARS, 1905 TO 1908.

[From accident bulletins of the Interstate Commerce Commission, Nos. 15 to 30.]

Nature of injury.	Per cent of employees sustaining each kind of injury.				Total.
	Trainmen.(a)	Trainmen in yards.(b)	Yard trainmen.(c)	Other employees.	
<b>Loss of—</b>					
Feet.....	1.4	1.0	1.2	0.7	1.2
Legs.....	.6	.7	.5	1.0	.6
Arms.....	.9	.7	.8	1.7	.8
Hands.....	.4	.8	.4	.2	.5
Fingers.....	4.3	3.6	2.8	4.0	3.5
Toes.....	.7	.6	.4	.2	.5
<b>Fractured—</b>					
Skull.....	.1	.1	.1	.2	.1
Leg.....	.8	.5	.6	1.2	.7
Arm.....	1.5	1.4	1.2	2.1	1.3
Collar bone or ribs.....	1.8	1.5	1.8	3.1	1.8
Other bones.....	2.0	1.3	1.9	1.4	1.9
Contusion of head or body.....	9.6	11.1	12.2	14.4	11.3
Contusion or laceration of—					
Feet.....	8.3	8.8	8.2	3.6	8.3
Toes.....	2.1	1.7	1.7	1.2	1.8
Legs.....	2.6	3.1	5.0	2.1	3.8
Arms.....	5.0	4.5	4.8	4.3	4.8
Hands.....	13.0	15.6	12.5	14.2	13.3
Fingers.....	30.3	28.1	29.3	21.8	29.2
Dislocation.....	.4	.4	.4	1.4	.4
Internal injuries.....	2.2	2.2	2.3	2.8	2.3
Sprains.....	2.7	2.1	3.9	2.8	3.1
Shocks.....	.1	.1	.....	.2	.....
Miscellaneous.....	1.7	2.2	1.3	2.1	1.6
<b>Total nonfatal injuries (d).....</b>	<b>92.5</b>	<b>92.6</b>	<b>93.3</b>	<b>86.7</b>	<b>92.8</b>
<b>Total fatal injuries.....</b>	<b>7.5</b>	<b>7.4</b>	<b>6.7</b>	<b>13.3</b>	<b>7.2</b>
<b>Total injuries.....</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

<sup>a</sup> Trainmen includes engineers, firemen, conductors, brakemen, baggagemen, and rear-end flagmen engaged in road service, that is, in the operation of trains on the road.

<sup>b</sup> The classification trainmen in yards is intended to cover the class of trainmen when they are employed occasionally in switching service; for instance, train crews are sometimes required to make up their own trains at some division points where no regular yard crews are employed. They are also required to do the necessary switching at way stations. For the purpose of separating accidents occurring to trainmen while engaged in regular road service from those occurring while engaged in this occasional switching service, the classification of trainmen in yards was established.

<sup>c</sup> Yard trainmen includes members of switching crews, such as switchmen, foremen of switching crews, yardmasters, and assistant yardmasters. These persons are engaged wholly in the making up of trains in yards and the switching of cars about yards.

<sup>d</sup> Accidents to employees resulting in slight injuries which do not prevent the employee injured from performing his accustomed service for more than three days, in the aggregate, during the ten days immediately following the accident, are not reported.

### DETAILED STATEMENT OF ACCIDENTS TO RAILWAY EMPLOYEES IN NEW JERSEY.

The data in the following detailed statement of injuries to employees of the railroads of New Jersey during the twenty-year period 1888 to 1907 were compiled from the annual reports of the railroads of New Jersey to the state comptroller. The data are classified by specific occupations and arranged chronologically under each occupation title.

**INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907.**

**STATION MEN, ETC.**

**TREASURER.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>FATAL.</b>		
Mar. 30, 1906	Struck by train.		

**STATION AGENTS.**

<b>FATAL.</b>		<b>NONFATAL—concluded.</b>	
Apr. 17, 1892	Walked off platform in front of gravel train.	June 7, 1894	Thumb crushed, coupling.
Feb. 4, 1897	Killed by passing train.	Sept. 14, 1894	Hand hurt by baggage.
May 20, 1898	Stepped directly in front of train; came out of station and walked up platform and on to track.	Jan. 16, 1895	Badly injured; struck by train while removing flag from track.
Sept. 10, 1898	Run over by train at station.	May 7, 1895	Finger hurt by car door.
Nov. 9, 1898	Run over by cars at station.	June 21, 1897	Face slightly cut; struck by train.
May 2, 1900	Struck while standing on track.	June 15, 1898	Toes injured; caught under barrel.
Feb. 24, 1905	Struck by train at station.	Nov. 1, 1898	Leg severely injured; stepped through hole in car floor.
	<b>NONFATAL.</b>	Feb. 20, 1900	Head slightly cut; ear door came off, hitting him.
May 29, 1889	Slight; injured by stone thrown through window of station house by unknown person.	Feb. 2, 1901	Scalp wound; struck by stone thrown by boy.
Oct. 19, 1892	Two scalp wounds and badly bruised; struck by train while attempting to cross tracks ahead of it; age 50.	July 11, 1901	Shot himself in thigh, accidentally, while sealing cars.
		May 15, 1903	Ribs broken by fall.
		Aug. 16, 1904	Injured by flying wedge, from passing train.
		Oct. 10, 1904	Slightly injured; struck by train.

**TELEGRAPH OPERATORS.**

<b>FATAL.</b>		<b>NONFATAL—concluded.</b>	
May 27, 1889	Fell under train while stealing ride on same.	July 24, 1893	Cut on nose by glass from car window broken by a stone.
Feb. 7, 1890	Attempted to cross tracks in front of train and was struck; age 19.	Apr. 24, 1895	One foot slightly injured; caught between cars.
Feb. 6, 1907	Struck by train.	Dec. 30, 1896	Was going to open switch at junction for a train; he slipped on ice and fell across rail; leg bruised.
Feb. 27, 1907	Struck by train.	Apr. 7, 1900	Foot badly bruised; struck by train.
	<b>NONFATAL.</b>	Mar. 15, 1902	Shot in neck at coal docks.
Apr. 28, 1888	Leg broken; walking on track.	Sept. 27, 1902	Ear cut; jumped from moving train.
Aug. 30, 1890	Face and leg cut and back injured; train struck car on switch and shoved it into the station building.	Jan. 14, 1904	Injured by fall from train.
May 18, 1892	Leg broken by fall.	Feb. 10, 1904	Slightly injured by falling coal from passing train.
		Oct. 5, 1906	Face injured by switch lever.

**FERRY TICKET COLLECTORS.**

<b>FATAL.</b>		<b>NONFATAL.</b>	
June 15, 1907	While passing between two cars, engine backed some cars down on track, and he was caught between cars.	Feb. 16, 1900	Tripped over signal wires; fell and broke arm.
		July 4, 1901	Horse stepped on toe, mashing same.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

STATION MEN, ETC.—Concluded.

TRAIN CALLER.

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		
Feb. 23, 1901	Middle finger of right hand squeezed in closing gates in passenger station.		

SPECIAL OFFICERS.

FATAL.		NONFATAL.	
Aug. 31, 1902 Sept. 13, 1907	Killed; "getting on or off train." Found dead; "probably struck by train."	Apr. 8, 1888 Mar. 8, 1906	Finger injured; cause not reported. Fracture of frontal bone and scalp wound; struck by train.

JANITORS.

NONFATAL.		NONFATAL—concluded.	
July 31, 1899	Chin cut and chest bruised by fall from ladder in passenger station.	Oct. 2, 1900	Slightly injured about the head and shoulders by jumping off a moving train. (Ferry-house cleaner.)

BAGGAGE PORTERS.

NONFATAL.		NONFATAL—concluded.	
Mar. 31, 1888	Finger bruised, unloading baggage.	Sept. 8, 1892	Slightly injured, handling baggage.
Apr. 30, 1888	Right hand slightly injured, handling baggage.	Nov. 29, 1892	Slightly injured, handling baggage.
May 2, 1888	Right heel injured by wheel of baggage truck.	Oct. 16, 1893	Injured; baggage truck struck by train.
June 11, 1888	Foot bruised, handling baggage.	May 2, 1894	Finger mashed, unloading baggage.
June 29, 1888	Thumb slightly injured, handling baggage.	Feb. 16, 1896	Breastbone broken; struck by loaded truck.
July 21, 1888	Squeezed between baggage trucks.	June 20, 1896	Hand cut by broken chimney of lamp.
Feb. 1, 1889	Foot slightly injured, handling baggage.	Sept. 13, 1898	Foot crushed; trunk fell on it.
Jan. 24, 1890	Slightly injured, handling baggage.	Aug. 27, 1900	Back bruised; trunk fell against it.
May 2, 1890	Left heel slightly bruised, caught under baggage truck.	Sept. 22, 1901	Toes hurt; trunk fell on them.
Aug. 28, 1890	Slightly injured, handling baggage.	Mar. 21, 1902	Back injured at passenger station.
Dec. 25, 1890	Right ankle bruised; struck by baggage truck.	Nov. 12, 1904	Thigh hurt by tallyho.
Aug. 3, 1891	Slightly injured, loading baggage on car.	Sept. 3, 1906	Head injured by baggage crate.
Jan. 17, 1892	Slightly injured, handling baggage.	Oct. 3, 1906	Arm and leg injured, handling baggage.
Mar. 27, 1892	Finger crushed between trunk and door jamb.	July 5, 1907	Head injured by falling baggage.
May 24, 1892	Slightly injured, handling baggage.	Aug. 1, 1907	Right side injured, handling baggage.
		Aug. 9, 1907	Finger crushed, loading baggage.
		Oct. 11, 1907	Back injured; struck while crossing track ahead of train.

PORTERS (NOT SPECIFIED).

NONFATAL.		NONFATAL—concluded.	
Apr. 6, 1888	Fell over guard chain on ferryboat; leg bruised.	July 20, 1900	Caught between baggage truck and bridge at ferry slip; right eye badly bruised.
Mar. 12, 1891	Two ribs broken; knocked down in car by collision.	Dec. 11, 1900	Run into by team; rib fractured and body severely bruised.
Apr. 29, 1893	Sprained his ankle by jumping from train.	Sept. 22, 1901	Stepped from moving train; leg broken.
Nov. 18, 1898	Eye injured in collision.	Apr. 13, 1902	Fell from moving train; hip bruised.
Dec. 5, 1899	Head hurt; "coupling or handling cars."		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

TRAINMEN.

PASSENGER CONDUCTORS.

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		NONFATAL—concluded.
Oct. 21, 1893	Struck by passenger train while handing his engineer orders. Killed while "boarding or alighting from train."	June 21, 1898	While stooping to throw switch lever flew up; nose fractured and face cut.
Mar. 25, 1907		Oct. 15, 1899 Dec. 12, 1902 July 4, 1903	Fingers caught in door and crushed. Leg injured; cause not reported. Elbow dislocated getting off baggage car.
	NONFATAL.		
Aug. 21, 1889	Fingers crushed by car door.		
Nov. 23, 1890	Ankle sprained; caught in guard rail of switch.		

FREIGHT CONDUCTORS.

	FATAL.		FATAL—concluded.
Dec. 5, 1889	Struck by overhead bridge while walking over car. Collision of freight trains.	May 30, 1900	Fell between cars while uncoupling and run over; attempted to cut moving cars.
Sept. 20, 1890		Sept. 3, 1902	Struck overhead bridge while on top of box car.
Mar. 28, 1891	Fell through bottom of car, canal trestle.	Mar. 17, 1904	Struck top of tunnel while on top of box car.
July 17, 1891	Struck by overhead bridge while walking over train.	Dec. 31, 1904	Coal car had just been placed on trestle; blocking gave way; car collided with engine.
June 24, 1892	Fell between cars while walking over train.	Dec. 6, 1905	Killed while coupling.
Aug. 7, 1898	Struck overhead structure.		
Apr. 11, 1899	Killed on tracks while making flying switch.		
Mar. 13, 1900	Stepping from pilot of engine to couple to a box car, made a misstep, fell in front of engine, and run over.		

YARD CONDUCTORS.

	FATAL.		FATAL—concluded.
Feb. 4, 1889	Attempting to pull a pin between two cars, caught his foot in guard rail, was thrown down, and run over; age 23.	Feb. 15, 1895	Uncoupling between cars in motion, fell under train, and was run over.
Nov. 30, 1890		Right foot caught in switch, causing him to fall while attempting to pull a pin between cars, was run over.	Aug. 27, 1895 Sept. 18, 1897 Sept. 22, 1897
Apr. 7, 1891	Foot caught in guard rail while uncoupling between cars, he fell and was run over; age 35.	Jan. 26, 1901 June 9, 1903	Struck by train. While coupling was caught between bumpers.
May 15, 1891	While working on his own engine in yard stepped in front of another, struck, and run over; age 35.	June 13, 1905 Dec. 29, 1905	Struck by engine while crossing tracks. Struck by engine or cars.

DRILLMASTERS.

	FATAL.		FATAL—concluded.
July 18, 1891	Fell from car.	Feb. 17, 1906	Caught uncoupling cars.
Oct. 11, 1905	Struck by train.	July 25, 1906	Fell from car.
Dec. 1, 1905	Fell from engine.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

TRAINMEN—Continued.

CONDUCTORS (NOT SPECIFIED).

Date of injury.	Nature, extent, and cause of injury	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		FATAL—concluded.
July 27, 1888	Walking on track carrying umbrella, was struck; age 66.	Oct. 17, 1899	Fell from train.
Sept. 5, 1888	Head came in contact with watch-house.	Oct. 28, 1899	Struck by train in yard while on his way to work.
Nov. 7, 1888	Attempting to board moving train, was run over.	Dec. 13, 1899	Attempted to cross track ahead of train; was struck.
Dec. 4, 1888	Waiting to let westbound train pass at east end of tunnel, then stepped over on eastbound track and was struck; age 37.	Jan. 23, 1900	Caught between cars.
May 20, 1889	Fell off cars while putting on brakes.	Mar. 17, 1900	Struck by car while train was being backed.
July 12, 1889	Climbing on train.	Feb. 20, 1901	Fell from train.
Sept. 18, 1889	Fell between cars.	Mar. 23, 1901	Stepped between cars while train was being made up.
Dec. 29, 1889	"Coupling or handling cars."	Apr. 16, 1901	Struck by engine.
Mar. 11, 1890	"Coupling or handling cars."	Apr. 24, 1901	Struck while crossing tracks.
May 31, 1890	Collision.	Nov. 2, 1901	Collision.
July 16, 1890	Leaning out of cab window, struck box car standing on siding.	Dec. 14, 1901	Thrown under car wheels by collision of cars in flying switch.
Sept. 29, 1890	"Coupling or handling cars."	Jan. 9, 1902	Struck by train while standing between tracks.
Dec. 5, 1890	Killed in wreck at street crossing, caused by misplaced switch.	May 26, 1902	"Coupling or handling cars."
May 18, 1891	"Coupling or handling cars."	Oct. 11, 1902	Struck by train.
Oct. 6, 1891	"Coupling or handling cars."	Dec. 1, 1902	Struck by train.
Aug. 30, 1892	Collision.	May 11, 1903	Caught between cars.
Aug. 30, 1892	Struck and instantly killed.	Jan. 31, 1904	Struck by train.
Dec. 3, 1892	"Coupling or handling cars."	May 11, 1904	Coupling cars; was fatally injured as the result of his own carelessness.
Sept. 20, 1893	Collision.	Sept. 10, 1904	Run over at junction.
Oct. 8, 1894	"Coupling or handling cars."	Dec. 14, 1904	"Coupling or handling cars."
Oct. 17, 1894	"Coupling or handling cars."	Apr. 27, 1905	Fell from train.
Feb. 17, 1896	"Coupling or handling cars."	May 18, 1905	Supposed to have been struck by train.
May 19, 1896	Foot caught in frog, run over.	Nov. 29, 1905	Caught between couplings.
June 15, 1896	Thrown from train.	Dec. 1, 1905	Struck by rail.
Jan. 23, 1897	"Coupling or handling cars."	Dec. 2, 1905	Struck by train.
Oct. 21, 1897	Stepped in front of moving train.	May 12, 1906	"Coupling or handling cars."
Nov. 20, 1897	Stepped in front of engine.	May 22, 1906	Struck by intertrack fence.
Sept. 9, 1898	"Coupling or handling cars."	July 30, 1906	Struck by bridge.
Sept. 11, 1898	Collision.	Oct. 19, 1906	Caught between cars.
Apr. 11, 1899	Fell from moving train.	Oct. 9, 1907	Struck and fatally injured.
Apr. 14, 1899	Stepped on side track on which a locomotive was backing.	Nov. 25, 1907	"Coupling or handling cars."

ENGINEMEN.

	FATAL.		FATAL—continued.
Jan. 12, 1888	Struck on head by signal semaphore, leaning out of cab window; age 50.	Nov. 26, 1893	Collision.
Mar. 13, 1888	Engine turned over in snowdrift.	Oct. 12, 1894	Boiler explosion.
Sept. 13, 1888	To avoid collision jumped from his engine and was struck by another; age 50.	Mar. 1, 1895	Collision, caused by parting of coal train.
Nov. 26, 1888	Got off his engine and was struck by another, at junction.	May 18, 1895	Train ran into a wreck.
May 17, 1889	Struck by ladder of semaphore signal.	Aug. 5, 1895	Struck by car while oiling engine.
Jan. 7, 1890	Collision.	Nov. 2, 1895	Suicide; threw himself in front of engine.
Apr. 12, 1890	Collision.	Nov. 12, 1895	Collision.
Aug. 20, 1890	While acting as pilot was struck by some object projecting or falling from passing freight train.	Dec. 23, 1895	Boiler explosion.
Aug. 23, 1890	Struck head against signal while leaning out of cab window looking down at driving boxes.	Jan. 16, 1896	Steam from engine.
Jan. 1, 1891	Collision; misplaced switch.	Nov. 25, 1896	Collision.
Aug. 11, 1891	Caught between cars.	Nov. 28, 1896	Attempted to cross track ahead of approaching passenger train, was struck; bell was ringing.
Aug. 25, 1891	Struck a standpipe.	Feb. 27, 1897	Struck by car while sitting on track.
Aug. 30, 1892	Collision.	Mar. 8, 1898	Run over by engine.
Sept. 11, 1892	Collision.	Feb. 4, 1899	Engine jumped track.
Mar. 28, 1893	Struck a standpipe.	Feb. 9, 1899	Stepped in front of locomotive.
Apr. 10, 1893	Struck by a "tell-tale" post.	Dec. 12, 1899	Collision.
Nov. 19, 1893	Collision.	July 28, 1900	Collision.
		Sept. 25, 1900	Fell from engine.
		Oct. 11, 1900	Collision.
		Dec. 3, 1900	Collision.
		Feb. 21, 1901	Collision.
		Feb. 21, 1901	Collision.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

TRAIN MEN—Continued.

ENGINE MEN—Concluded.

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL—continued.		FATAL—concluded.
Mar. 21, 1901	Collision.	June 29, 1903	Struck by train.
June 22, 1901	Engine turned over.	Aug. 13, 1903	"Coupling or handling cars."
Feb. 12, 1902	Collision.	Dec. 17, 1903	Struck by train.
Mar. 8, 1902	Found dead in passenger yard.	Aug. 14, 1904	Deraiment.
Apr. 27, 1902	Fell from engine and run over.	Oct. 1, 1904	Collision.
Apr. 28, 1902	Boiler exploded and derailed train.	Nov. 24, 1904	"Coupling or handling cars."
June 28, 1902	"Coupling or handling cars."	Jan. 26, 1905	Deraiment.
July 15, 1902	While "crossing out" immediately ahead of express train (running on schedule) was caught in wreck of collision.	Aug. 4, 1905	Deraiment.
		Sept. 17, 1905	Fell from engine.
Sept. 13, 1902	Boiler explosion.	Oct. 29, 1905	Boiler explosion.
Jan. 27, 1903	Collision.	Aug. 14, 1906	Escaping steam.
Mar. 17, 1903	Collision.	Jan. 20, 1907	Boiler explosion.
Mar. 17, 1903	Collision.	Mar. 11, 1907	"Coupling or handling cars."
Apr. 10, 1903	Deraiment.	Oct. 29, 1907	Collision.
May 11, 1903	Deraiment.	Nov. 29, 1907	Struck by train.
		Dec. 20, 1907	"Coupling or handling cars."
		Dec. 31, 1907	Explosion of cylinder head.

FIRE MEN.

	FATAL.		FATAL—concluded.
Dec. 4, 1888	Stepped out from tank house directly in front of train; age 23.	Jan. 13, 1901	Left train to get drink of water; struck by train on opposite track.
Dec. 20, 1888	Went off engine, crossed track, and on returning to engine was struck by train; age 22.	Feb. 6, 1901	Struck by train.
July 12, 1889	Collision; train ran into open switch.	Dec. 21, 1901	Train struck rock in tunnel.
Dec. 16, 1889	Leaned out over tank to look for hot box; was struck by corner of cattle pen; thrown under train.	Jan. 7, 1902	Side rod of engine broke.
		Mar. 27, 1902	Fell from engine.
Feb. 21, 1890	Run over.	Apr. 28, 1902	Fell from engine.
Mar. 7, 1890	Injured fatally at coal elevator.	Aug. 12, 1902	Train ran into open draw.
Sept. 19, 1890	Stepped in front of engine.	Aug. 17, 1902	Struck by overhead bridge while standing on hood of engine.
Dec. 8, 1890	Attempting to get on engine, caught between engine and post at round-house; age 21.	Oct. 6, 1902	Coupling cars.
Jan. 1, 1891	Collision; misplaced switch.	Dec. 19, 1902	Collision.
June 9, 1891	Burned, opening fire box; fire forced out by escaping steam; age 24.	Dec. 19, 1902	Collision.
Sept. 28, 1891	Stuck head out of cab window; hit by bridge; age 26.	Dec. 19, 1902	Collision.
Oct. 9, 1891	Collision; age 43.	Dec. 22, 1902	Headlight exploded while fireman was lighting it.
Sept. 2, 1892	Rounding curve, fell off engine; age 31.	Apr. 10, 1903	Deraiment.
Sept. 17, 1892	Collision.	July 8, 1903	Fell from bridge and was drowned.
Oct. 12, 1894	Boiler explosion.	July 11, 1903	Struck by overhead obstruction.
Aug. 28, 1895	Scalded.	Nov. 17, 1903	Fatally scalded by escaping steam.
Sept. 2, 1895	Deraiment caused by collision with trolley car.	Feb. 12, 1904	Caught between engine and coal bin.
Nov. 22, 1895	Scalded fatally; side-rod strap broke and crushed water grates.	May 16, 1904	Fell from engine.
Feb. 7, 1896	Fell backward from engine tank and run over.	Sept. 2, 1904	Struck by overhead obstruction.
Apr. 7, 1896	Caught between cars at water tank.	Sept. 23, 1904	Fell from engine and was run over.
June 30, 1897	Fell under engine.	Oct. 2, 1904	Collision.
July 14, 1897	Water grate of engine burst; fatally scalded.	Oct. 21, 1904	Collision.
Sept. 3, 1897	Fell from engine and was run over.	Jan. 3, 1905	Fell from engine (supposedly).
Oct. 15, 1897	Fell from engine; fractured skull.	Jan. 19, 1905	Head crushed between cars in yard.
Mar. 17, 1899	Jumped from locomotive.	Mar. 8, 1905	Struck by train.
Apr. 15, 1899	Struck by locomotive.	Sept. 5, 1905	Struck by train.
July 18, 1899	Engine derailed.	Oct. 5, 1905	Coupling.
Apr. 6, 1900	Scalded by flues blowing out.	Jan. 17, 1906	Deraiment.
Sept. 8, 1900	Struck by truss of bridge while draining water from tank of engine.	Mar. 3, 1906	Collision.
		July 5, 1906	Overhead or other obstruction.
Nov. 22, 1900	Leaning out of cab, struck by box car.	July 10, 1906	Coupling or handling cars.
Dec. 23, 1900	Boiler exploded; no water on crown sheet.	July 27, 1906	Overhead or other obstruction.
		Aug. 14, 1906	Escaping steam.
		Sept. 25, 1906	While going through tunnel, stuck his head out of cab window; was struck by wall; fell out and was run over.
		Dec. 31, 1906	Boiler explosion.
		Mar. 5, 1907	Attempting to board moving train, fell under wheels.
		July 31, 1907	While changing markers on rear of engine tender, fell under.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**TRAINMEN—Continued.**

**PASSENGER BRAKEMEN.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		NONFATAL—concluded.
Dec. 23, 1888	Face, neck, and hands burned; explosion of gas when he attempted to light coach in shed.	Feb. 22, 1898	Wrist sprained; ejecting passenger from train.
Mar. 20, 1889	Groin injured; fell and struck end sill of coach while releasing brake.	July 15, 1898	Arm badly squeezed; coupling.
June 6, 1889	Foot bruised; piece of coal fell on it from engine.	July 25, 1899	Arm bruised; collision between engine and cars in yard.
Dec. 4, 1890	Thumb bruised coupling cars; did not use stick.	Nov. 19, 1899	Knee sprained; fell on steps of coach.
Apr. 15, 1891	Leg broken; jumped from train in motion.	Jan. 2, 1900	Slightly injured; slipped from step of coach under train.
Dec. 30, 1891	Leg hurt slightly; express matter slid against it when coach was derailed.	May 28, 1900	Head and neck bruised; struck by passenger.
May 19, 1892	Finger crushed; Pullman car door closed on it.	Apr. 5, 1902	Slightly injured, in shed; collision of engine with cars.
June 16, 1893	Ribs and collar bone broken; coupling cars in yard.	June 20, 1902	Ribs injured; collision in yards.
July 14, 1893	Severely injured; caught between buffers while coupling.	July 7, 1902	Fingers mashed; no particulars reported.
Nov. 6, 1893	Fingers of hand-lacerated and bruised, coupling.	July 7, 1902	Hand cut; no particulars reported.
May 31, 1896	Head severely contused; was coupling air hose and engine backed against train so hard that brake staff broke.	Dec. 21, 1902	Nose injured; coupling.
Aug. 24, 1896	Forehead cut by gas globe breaking.	Jan. 23, 1903	Injured; no particulars reported.
June 30, 1897	Finger cut; coach window broke.	Oct. 24, 1903	Knee injured; getting on coach.
Aug. 25, 1897	Finger bruised; coach window fell on it.	Mar. 27, 1905	Finger bruised by car door.
		Oct. 11, 1905	Injured; struck by train.
		Aug. 31, 1906	Slightly injured; hit switch target while shifting cars in passenger yard.
		Sept. 15, 1906	Injured; no particulars reported.
		Oct. 14, 1906	Injured; coupling.
		Aug. 24, 1907	Injured in train shed; coupling.

**FREIGHT BRAKEMEN.**

	FATAL.		FATAL—continued.
Jan. 10, 1888	While coupling cars fell and was fatally injured.	Nov. 2, 1890	Supposed to have fallen asleep on track; struck by engine.
Feb. 4, 1888	Fell from box car and was run over.	Mar. 1, 1891	Fell from a box car.
Feb. 8, 1888	Fell from top of car and run over.	June 3, 1891	While taking the numbers of some cars was struck by train; was not seen in time by engineman; age 50.
Feb. 13, 1888	In attempting to pull a pin between two cars in a switch train, caught his foot in guard rail, was thrown down and run over; age 27.	June 11, 1891	Fell from train, under wheels.
Mar. 2, 1888	Crushed between locomotive tender and a car of lumber.	June 17, 1891	Fell from top of box car.
Apr. 4, 1888	Struck by overhead bridge.	Sept. 7, 1891	Struck by truss of bridge.
June 21, 1888	Fell from top of train as it was entering tunnel, and was run over, 11.45 p. m.; age 21.	Sept. 10, 1891	While coupling, caught between bumpers.
Aug. 15, 1888	Struck by overhead bridge; age 22.	Sept. 16, 1891	Struck by overhead bridge.
Oct. 31, 1888	Making a coupling in switch train, caught between engine and car; age 21.	Jan. 25, 1892	Fell from top of moving car to ground; fractured skull.
Nov. 20, 1888	Fatally injured while connecting cars in yard.	Feb. 10, 1892	"Coupling or handling cars" in yard.
July 5, 1889	Fell from tank of engine at freight house and was run over.	July 28, 1892	"Coupling or handling cars."
Aug. 21, 1889	Struck by overhead bridge.	Nov. 4, 1892	After having pulled a pin, started to climb up ladder of one of the cars, when he lost his balance, fell down, and was run over; accident occurred at 4 a. m.; age 25.
Sept. 21, 1889	Jumped off construction train while in motion, fell and both feet and one hand cut off; died.	Dec. 4, 1892	Struck by engine while walking on track.
Nov. 3, 1889	Caught between cars while coupling.	Jan. 14, 1893	Remains found near street crossing; evidently fell from freight train; no witnesses; age 40; accident occurred 10.55 p. m.
Apr. 10, 1890	Went in to get a link between two cars in extra freight train; caught between bumpers; age 22.	Feb. 13, 1893	Struck by overhead bridge.
Oct. 2, 1890	While coupling caboose to his train was run into by another train which backed up same track.	Mar. 28, 1893	Knocked down by cars and run over while getting off caboose.
Oct. 13, 1890	Lost his balance while standing on a flat car in work train, fell to ground and evidently struck by truck of car.	June 19, 1893	While making a flying drill, endeavored to catch a coupling pin which had rolled off end sill of car; lost his balance and fell under car.

**INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.**

**TRAINMEN—Continued.**

**FREIGHT BRAKEMEN—Concluded.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
<b>FATAL—continued.</b>		<b>FATAL—concluded.</b>	
Sept. 24, 1893	Fell under pilot of engine of work train.	Jan. 5, 1900	Struck by overhead bridge.
Jan. 16, 1894	Collision of cut-off cars with engine; brakeman to blame, as he was told to apply brakes to hold cars; age 27.	Feb. 2, 1900	Struck by overhead bridge.
May 12, 1894	Struck by overhead bridge.	May 18, 1900	Fell from end of box car and run over while riding draft of cars in on siding.
Jan. 12, 1895	Fell from top of box car.	Jan. 3, 1901	Fell from freight car being drilled.
Jan. 26, 1895	Supposed to have fallen from train.	Jan. 5, 1901	Fell from moving freight car.
Jan. 28, 1895	Found killed on track.	Feb. 13, 1901	While standing on track in yard was struck by passenger train.
June 16, 1895	Fell from train and truck passed over him.	Mar. 6, 1901	Fell from car and run over while riding a draft of cars in yard.
Sept. 5, 1895	Coupling cars.	Mar. 11, 1901	Struck by overhead bridge.
Dec. 11, 1895	Reached down to take out link, fell, and car passed over his thighs.	June 18, 1901	Struck by caboose on the fly.
Dec. 17, 1895	Struck by overhead bridge.	June 23, 1901	Fell from freight train.
Dec. 28, 1895	Fell from train and run over in some unknown manner.	July 22, 1901	Struck overhead obstruction.
Feb. 1, 1896	Alighted from caboose and stepped in front of approaching passenger train.	July 31, 1901	While attempting to couple moving freight cars.
Apr. 10, 1896	Struck by overhead bridge and knocked from car.	Sept. 13, 1901	Struck by overhead bridge.
July 31, 1896	Struck by overhead bridge.	Oct. 19, 1901	While shifting cars at freight house was thrown under wheels.
Sept. 10, 1896	Attempted to repair a drawhead of a freight car without using repairer's signals or otherwise protecting himself; an extra freight train shoved some cars against those between which brakeman was at work; he was knocked down and fatally injured; age 40.	Nov. 19, 1901	Struck by overhead bridge.
Jan. 8, 1897	Fell from top of car and run over.	Nov. 30, 1901	Struck by overhead bridge.
Oct. 6, 1897	Struck by overhead bridge.	Jan. 8, 1902	"Coupling or handling cars" in freight yard.
Oct. 14, 1897	Fell while passing from car to car and went under wheels.	Feb. 12, 1902	Fell from train in freight yard.
Jan. 10, 1898	While drilling cars along platform was caught between platforms and side of car while descending side ladder of car.	July 13, 1902	Struck by overhead bridge.
Oct. 29, 1898	While walking out of caboose door was struck by engine, knocking him through door to track, car passing over him.	July 25, 1902	Fell from train in yard.
Dec. 23, 1898	While pulling pin between cars fell down and was run over.	Oct. 9, 1902	Supposedly fell from train while switching.
Dec. 27, 1898	Was found fatally injured under cars which were being drilled; accident was not witnessed, but it was supposed that he fell from the cars and was run over.	Oct. 26, 1902	Struck by overhead bridge.
Feb. 9, 1899	Fell from freight train.	Mar. 16, 1903	Fell from engine while drilling cars.
Feb. 22, 1899	Struck by caboose.	May 29, 1903	Fell from cupola of caboose.
Dec. 17, 1899	Struck by overhead bridge, riding on box car.	June 4, 1903	Struck by overhead bridge.
Dec. 29, 1899	Found dead in water between piers by switching crew.	Aug. 15, 1903	Struck by overhead bridge.
		Jan. 18, 1904	Fell from freight car in yard.
		Jan. 18, 1904	Burned to death in caboose.
		Feb. 9, 1904	Struck by overhead obstruction.
		Mar. 25, 1904	Burned in caboose after derailment.
		Mar. 25, 1904	Burned in caboose after derailment.
		May 11, 1904	Struck by overhead obstruction.
		Dec. 31, 1904	Coal car, which had just been placed, came down trestle, colliding with engine.
		Feb. 2, 1905	"Coupling or handling cars."
		Mar. 21, 1906	Struck by overhead bridge.
		June 16, 1906	While uncoupling cars at station fell under wheels.
		Nov. 10, 1906	Struck by overhead bridge.
		Jan. 12, 1907	Caught between cars.
		Feb. 1, 1907	Fell under train.
		Feb. 9, 1907	Fell under car.
		Apr. 19, 1907	Fell under car.
		Aug. 10, 1907	Struck by train.
		Sept. 20, 1907	While riding on side of car struck girder of drawbridge.

**DRILLERS AND YARD BRAKEMEN.**

<b>FATAL.</b>		<b>FATAL—continued.</b>	
Mar. 23, 1888	Killed by drill engine while drilling in yard.	Nov. 16, 1889	While uncoupling cars in yard caught his foot in frog and was run over by train.
July 2, 1888	Caught between two cars and crushed while drilling in yard.	Dec. 25, 1889	While pulling a pin in yard was thrown down in some way and run over by cars; age 35.
Nov. 10, 1888	Struck and killed by drill engine in yard.	Jan. 28, 1890	Run over by yard train while switching cars.
Sept. 20, 1889	Fell under train in yard.		
Oct. 5, 1889	Attempted to cross track in yard in front of drill engine; was run over.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1838 TO 1907—Continued.

TRAINMEN—Continued.

DRILLERS AND YARD BRAKEMEN—Concluded.

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL—continued.		FATAL—concluded.
Dec. 10, 1890	Attempted to cross between two cars in a train, was caught between bumpers; age 22.	Jan. 28, 1898	Attempted to alight from engine, caught between engine and cars on adjoining track.
Aug. 3, 1891	"Coupling or handling cars."	Apr. 12, 1898	"Coupling or handling cars."
Dec. 15, 1891	While between two cars, coupling, his head was caught between a protruding broken stake and other car; age 40.	Jan. 31, 1900	Caught between bumpers of cars while switching.
Feb. 17, 1892	Fell from drill engine.	Mar. 4, 1900	Thrown from train while applying brakes.
Mar. 3, 1892	Stepped between cars to pull a pin, slipped, fell down, and was run over; age 23.	Jan. 11, 1901	Run over in freight yard.
Mar. 28, 1892	Run over in yard by unknown train; age 22.	Mar. 26, 1901	Struck by car being drilled in yard. (Driller.)
Apr. 28, 1892	Caught between cars and fatally injured while drilling.	June 11, 1902	Struck by train. (Driller.)
May 3, 1892	While cars were being switched he stepped on track, was knocked down and run over; age 22.	July 17, 1902	"Getting on or off train." (Driller.)
Aug. 23, 1892	While pulling a pin in yard, fell down and was run over; age 36.	July 19, 1902	While switching in yard was caught between cars.
Sept. 24, 1892	Stepped on track in front of train.	Jan. 15, 1903	Car turned over on him in yard.
Oct. 28, 1892	Caught between cars while coupling without a coupling stick.	Mar. 17, 1904	Caught between tank of engine and drawhead of car while coupling.
Nov. 12, 1892	While riding a car without engine attached he allowed it to run into side of another car; he was caught between the cars; age 44.	Mar. 21, 1904	Fell from end of car, wheels of which passed over him.
Dec. 13, 1892	Run over by drill train.	Oct. 25, 1905	Struck by train. (Driller.)
Jan. 25, 1895	Fell from footboard of car while switching cars; age 34.	Mar. 25, 1906	Struck by train in yard.
Jan. 29, 1895	Struck by drill engine while walking on track.	June 26, 1906	"Coupling or handling."
Mar. 5, 1895	Killed while drilling. (Driller.)	Oct. 23, 1906	"While endeavoring to uncouple cars by reaching for cutting lever on opposite side from where he was working his foot was caught in open switch point, causing him to fall, and cars ran over him."
Nov. 18, 1895	Fell from car and run over.	Nov. 12, 1906	Fell from car.
July 22, 1896	Struck by train while drilling in yard. (Driller.)	May 15, 1907	Fell from car. (Driller.)
Nov. 20, 1897	Fell from car to ground and run over.	May 20, 1907	"Piece of flange of wheel of car which he was riding broke off, causing car to tip over, and he was caught under heavy timbers."
Jan. 17, 1898	Running cars.	May 21, 1907	Killed at yard. (Driller.)
		Aug. 18, 1907	"Struck by train while crossing tracks."

BRAKEMEN (NOT SPECIFIED).

FATAL.		FATAL—continued.	
Jan. 14, 1888	Struck by train while walking on track.	Oct. 29, 1889	Caught in frog.
Apr. 24, 1888	Fell from train.	Nov. 12, 1889	Fell from train while intoxicated and was run over; age 25.
May 26, 1888	Struck while standing on another track while his train was being made up; whistle sounded, bell rung; age 38.	Nov. 19, 1889	Fell while making a coupling; run over by two cars.
Aug. 8, 1888	Fell from train.	Dec. 30, 1889	Fell while making a coupling and was run over; age 27.
Sept. 5, 1888	Fell from train and was run over.	Jan. 2, 1890	Fell from car and was run over.
Oct. 2, 1888	Fell between engine and car.	Jan. 20, 1890	While coupling engine to cars.
Oct. 6, 1888	Climbing on train.	Apr. 16, 1890	While connecting cars.
Nov. 3, 1888	Fell from train.	Apr. 24, 1890	Caught between cars and fatally crushed.
Nov. 20, 1888	While pulling pin in train, fell down and was run over; age 23.	May 14, 1890	Fell from car and was run over.
Jan. 5, 1889	Fell from train, run over, both legs cut off; injury was fatal; age 21.	May 22, 1890	Coupling.
Jan. 20, 1889	Attempting to get on car, fell under train; age 31.	June 3, 1890	Brake staff broke while he was setting up brake. He fell in front of cars and was run over.
Feb. 15, 1889	Riding on pilot of engine; engine struck cars with such force as to knock pilot off.	June 7, 1890	Struck by cars.
June 3, 1889	Caught between cars.	June 11, 1890	While changing a link between two cars fell down and was run over, 9.40 p. m.; age 27.
Sept. 14, 1889	Fell from train and was run over; age 40.	Aug. 29, 1890	While pulling a pin caught his foot in frog and was run over; age 30.
Sept. 14, 1889	Run over and killed by some unknown train; age 21.	Sept. 26, 1890	Coupling cars.
		Oct. 15, 1890	While shifting cars.
		Oct. 23, 1890	Fell from train, was run over; age 28.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1838 TO 1907—Continued.

TRAINMEN—Continued.

BRAKEMEN (NOT SPECIFIED)—Continued.

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
FATAL—continued.		FATAL—continued.	
Nov. 7, 1890	Fell between cars and was run over.	Jan. 25, 1894	"Coupling or handling cars."
Dec. 8, 1890	Coupling.	Jan. 29, 1894	Crushed between cars.
Dec. 12, 1890	Stepped from his train at end of tunnel directly in front of another train, 9.22 p. m.; age 25.	Feb. 1, 1894	Run over while cutting cars.
Dec. 18, 1890	Climbing on train.	Feb. 22, 1894	Run over.
Dec. 19, 1890	Stepped in front of train.	Mar. 12, 1894	Coupling.
Jan. 2, 1891	Fell from train.	Mar. 26, 1894	Dropping cars.
Jan. 20, 1891	Climbing on car while it was in motion.	Apr. 11, 1894	Fell from engine.
Feb. 2, 1891	Fell from moving train in yard.	Apr. 14, 1894	Jumped from train in front of another.
Mar. 16, 1891	Fell from train.	Apr. 21, 1894	Coupling.
Apr. 7, 1891	While drilling fell in front of cars.	July 20, 1894	Fell from train and was run over.
Apr. 29, 1891	While coupling was caught between cars.	Aug. 2, 1894	Coupling.
Aug. 12, 1891	Fell from car and was run over.	Aug. 23, 1894	Fell from train.
Aug. 17, 1891	Killed while standing on track.	Aug. 25, 1894	Jumping on train.
Aug. 23, 1891	While alighting from train was fatally injured.	Aug. 31, 1894	Fell from train.
Aug. 30, 1891	Fell from train.	Sept. 17, 1894	Squeezed between cars.
Oct. 3, 1891	While attempting to make coupling, fell and was run over; age 23.	Oct. 19, 1894	Thrown to the ground by car jumping track.
Oct. 20, 1891	Struck by bridge.	Oct. 22, 1894	Caught between cars.
Nov. 11, 1891	Found along the track.	Oct. 26, 1894	Run over by cars while lighting lamp; age 30.
Nov. 15, 1891	Fell from train and was run over; age 24.	Oct. 26, 1894	Coupling.
Nov. 19, 1891	Was talking with men near track, stepped in front of engine; age 30.	Feb. 12, 1895	Caught between cars.
Nov. 23, 1891	Fell from train.	Feb. 21, 1895	"Coupling or handling cars."
Dec. 10, 1891	Climbing on moving train.	Apr. 25, 1895	Struck by butting stick which broke while being used to push cars off siding.
Dec. 20, 1891	Attempted to board a moving switching train, fell under wheels; age 22.	Aug. 15, 1895	Caught between cars while coupling.
Feb. 10, 1892	Struck by a passing train.	Aug. 17, 1895	Struck by butting stick which slipped off staple while being used to push cars off siding.
Feb. 12, 1892	While applying brake, fell between cars.	Aug. 20, 1895	Caught between bumpers; coupling without a stick; age 38.
June 2, 1892	While pulling a pin, tripped on rail, fell and was run over; age 25.	Sept. 16, 1895	Coupling.
June 22, 1892	Struck by engine.	Sept. 30, 1895	While applying brakes, fell and was run over.
June 28, 1892	Coupling cars; head crushed.	Oct. 22, 1895	Foot caught in frog and was run over.
July 4, 1892	Cause not stated.	Jan. 16, 1896	"Coupling or handling cars."
Aug. 5, 1892	Fell from train and was run over.	Feb. 12, 1896	"Coupling or handling cars."
Aug. 21, 1892	Stepping between cars to make a coupling, caught between bumpers; age 18.	Feb. 13, 1896	While getting off train, fell between cars.
Sept. 26, 1892	Struck by engine and run over.	Mar. 14, 1896	While coupling caught foot in guard rail and was run over.
Oct. 30, 1892	Found dead along track.	Mar. 20, 1896	"Coupling or handling cars."
Nov. 22, 1892	Run over.	Mar. 27, 1896	In disconnecting hose, caught between engine and car.
Nov. 25, 1892	Caught between cars while coupling.	Apr. 1, 1896	While standing on rear steps of tender of engine, coupling cars, 60 pound lump of coal rolled on him; he was knocked off the engine, dragged 80 feet by cars, both legs run over; injuries fatal.
Nov. 30, 1892	While coupling, was caught between cars.	Apr. 8, 1896	While coupling, was run over.
Dec. 17, 1892	While coupling, was caught between cars.	Apr. 15, 1896	"Coupling or handling cars."
Feb. 2, 1893	Killed by engine.	June 4, 1896	Found lying across track, dead; supposedly he fell from train.
Feb. 24, 1893	Fell from car.	July 23, 1896	Engine struck him while he was sitting on track.
June 1, 1893	Fell from car.	July 23, 1896	Struck by passing engine.
July 15, 1893	Coupling.	Sept. 7, 1896	Fell between cars and was run over.
July 28, 1893	"Coupling or handling cars."	Oct. 10, 1896	"Coupling or handling cars."
July 30, 1893	Fell from car.	Oct. 13, 1896	Found dead along track; how killed, unknown.
Aug. 25, 1893	Struck while on track.	Oct. 17, 1896	Caught foot in guard rail and thrown under cars.
Sept. 18, 1893	While stepping from one car to another, slipped and fell between cars, train running over him.	Feb. 23, 1897	Fell from train.
Sept. 27, 1893	Fell from train.	Mar. 8, 1897	Fell under train.
Oct. 1, 1893	Attempting to pass between cars, they came together and he was caught.	May 4, 1897	While coupling cars was struck by air hose.
Oct. 11, 1893	Fell from car.	July 1, 1897	Caught between bumpers.
Nov. 9, 1893	Fell under train, both legs cut off; injury fatal.	Sept. 1, 1897	Fell from train and run over.
Nov. 19, 1893	Fell from car.	Sept. 7, 1897	Going from one car to another, fell under moving train.
Nov. 24, 1893	Stepped in front of engine.		
Dec. 26, 1893	Coupling.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

TRAINMEN—Continued.

BRAKEMEN (NOT SPECIFIED)—Continued.

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL—continued.		FATAL—continued.
Oct. 4, 1897	Coupling cars.	Jan. 24, 1902	Fell between cars and was run over.
Oct. 11, 1897	Crushed while coupling.	Jan. 30, 1902	"Coupling or uncoupling."
Oct. 22, 1897	Found killed; how killed, unknown.	Mar. 18, 1902	Fell from car, under train.
Dec. 6, 1897	Collision of engines.	Apr. 18, 1902	Collision.
Dec. 24, 1897	Collision.	May 1, 1902	Fell from train.
Jan. 10, 1898	Fell while trying to board moving train.	May 20, 1902	Struck by overhead obstruction.
Apr. 16, 1898	Killed; cause unknown.	June 4, 1902	"Struck by train, locomotive, or cars."
Apr. 29, 1898	Killed; cause unknown.	June 11, 1902	"Handling cars."
Oct. 5, 1898	Fell under train in yard.	June 21, 1902	Body found in river; fell from train and drowned.
Dec. 12, 1898	Fell from cars and was run over.	Aug. 8, 1902	Struck by overhead obstruction.
Dec. 28, 1898	Found lying under cars at terminal; fatally injured.	Aug. 10, 1902	Washout caused engine to leave track and turn over.
Dec. 28, 1898	Struck while attempting to cross tracks.	Aug. 12, 1902	Train ran into open draw.
Jan. 9, 1899	Run over.	Sept. 13, 1902	"Handling cars."
Mar. 14, 1899	Fell from train and was run over.	Oct. 10, 1902	"Handling cars."
Apr. 12, 1899	Caught between cars.	Dec. 21, 1902	Coupling cars.
June 13, 1899	Fell from car.	Feb. 5, 1903	Struck by train.
June 22, 1899	Struck by cars.	Feb. 15, 1903	Run over by car.
Aug. 20, 1899	Caught between cars.	Feb. 18, 1903	Struck by engine.
Oct. 4, 1899	Fell from moving engine.	Mar. 24, 1903	Body found on track; supposed to have been struck by train during night.
Oct. 5, 1899	Caught between cars.	Apr. 10, 1903	Derailment.
Oct. 24, 1899	Fell from train.	June 16, 1903	Struck by train.
Oct. 31, 1899	While coupling, caught between dead blocks.	June 27, 1903	Cause not stated; "on or about trains."
Nov. 1, 1899	While cutting train, fell between cars.	July 4, 1903	Cause not stated; "on or about trains."
Nov. 2, 1899	Fell from moving engine.	July 7, 1903	Struck by train.
Nov. 12, 1899	Fell from moving engine.	July 15, 1903	Fell from car and was run over.
Nov. 14, 1899	Fell from moving train.	Sept. 16, 1903	Collision.
Nov. 17, 1899	Struck by locomotive while working on track.	Oct. 6, 1903	Struck by train.
Nov. 21, 1899	Fell from train.	Dec. 15, 1903	Slipped from platform of car to ground and was run over.
Nov. 22, 1899	Fell from train by reason of collision.	Dec. 26, 1903	Run over by train.
Nov. 24, 1899	Fell from engine.	Dec. 31, 1903	"Fell from train, locomotive, or cars."
Jan. 11, 1900	Fell from train.	Jan. 31, 1904	Cause not stated; "killed in train accident."
Mar. 8, 1900	Caught between drawheads while coupling.	Feb. 1, 1904	Run over by train.
Mar. 10, 1900	Attempted to jump on engine, fell under.	Feb. 16, 1904	Cause not stated; "on or about trains."
Mar. 10, 1900	Collision between cars.	Feb. 23, 1904	"Coupling or handling cars."
Mar. 15, 1900	While leaving his engine was struck by another and thrown back against his; fatally injured.	Apr. 5, 1904	Fell from car.
Apr. 11, 1900	While standing on brake platform, fell beneath car.	May 30, 1904	While leaning from baggage-car door of moving train was killed.
May 18, 1900	Fell from moving train.	June 1, 1904	Fell from car and was run over.
June 17, 1900	Fell from train.	July 1, 1904	Run over.
June 21, 1900	Struck by train.	Aug. 21, 1904	Cause not stated; "on or about trains."
Oct. 11, 1900	Fell under moving locomotive.	Aug. 30, 1904	Fell from cars and was run over.
Dec. 1, 1900	"Coupling or handling cars."	Sept. 12, 1904	Struck by train.
Dec. 10, 1900	Fell through trestle while drilling cars.	Oct. 6, 1904	Struck by chain from wrecking car.
Feb. 8, 1901	Run over by train.	Oct. 14, 1904	Fell while boarding engine.
Feb. 21, 1901	Collision.	Jan. 1, 1906	"Overhead or other obstruction."
Mar. 5, 1901	"Coupling or handling cars."	Jan. 15, 1906	Caught between cars while opening knuckle.
Apr. 3, 1901	Run over.	Jan. 16, 1906	While cutting cars and hanging on to side of car was struck by switch stand and thrown under cars.
Apr. 24, 1901	While coupling air hose was run over.	Jan. 16, 1906	Fell from car.
June 19, 1901	"Coupling or handling cars."	Feb. 13, 1906	Fell under cars.
June 22, 1901	Fell between cars, head caught between bumpers.	Mar. 5, 1906	Struck by train.
July 15, 1901	Fell between cars.	Mar. 12, 1906	Fell while uncoupling.
Sept. 29, 1901	Train parted and two parts came together.	May 9, 1906	Crushed between cars.
Oct. 7, 1901	Fell from back of train.	May 11, 1906	Struck by train.
Dec. 27, 1901	"Coupling or handling cars."	July 17, 1906	Coupling.
Dec. 28, 1901	Caught between side of car and post.	July 27, 1906	Fell from car.
Jan. 2, 1902	Fell in front of moving car and was run over.	Sept. 3, 1906	Jumped off engine in front of another.
		Oct. 16, 1906	Crushed while coupling cars.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

TRAINMEN—Continued.

BRAKEMEN (NOT SPECIFIED)—Concluded.

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL—continued.		FATAL—concluded.
Nov. 17, 1906	Collision of engine with tank car.	May 15, 1907	Fell from car.
Dec. 31, 1906	Boiler explosion.	May 20, 1907	Cause not stated; "on or about trains."
Jan. 17, 1907	"Boarding or alighting from trains, etc."	May 30, 1907	Fell while attempting to get on engine.
Feb. 6, 1907	Crown sheet of engine blew out and buried him in tank of engine.	June 4, 1907	Cause not stated; "on or about trains."
Feb. 9, 1907	Struck by train.	June 10, 1907	Struck by train.
Feb. 11, 1907	Struck by train.	June 12, 1907	Fell from cars.
Feb. 26, 1907	Struck by train.	Aug. 14, 1907	Cause not stated; "on or about trains."
Mar. 13, 1907	Found killed; probably struck by train.	Sept. 20, 1907	Overhead or other obstructions.
Mar. 22, 1907	Struck by train.	Nov. 15, 1907	Fell from train.
Apr. 5, 1907	"Coupling or uncoupling" in yard.		
Apr. 12, 1907	"Overhead or other obstruction."		

SWITCHMEN.

	FATAL.		FATAL—concluded.
Apr. 3, 1888	Run over.	Sept. 25, 1891	While riding on front end of yard engine fell off and was run over; age 28.
July 16, 1888	Struck by switch train in yard; stepped in front of cars that were being backed down on track; age 39.	Mar. 4, 1892	Jumped from moving train and was run over.
Aug. 22, 1888	In stooping down to couple air pipes, head was caught between end sills; age 25.	Dec. 4, 1892	Climbed on some cars, struck against switch shanty, was knocked down and run over; age 28.
Dec. 27, 1888	While walking over top of a train in yard, fell between cars; age 26.	Apr. 8, 1893	While cutting cars loose in yard caught his foot in guard rail and was run over.
Dec. 28, 1888	While riding some cars in yard, lost his balance and fell to ground; age 30.	Oct. 30, 1893	Struck by train.
Jan. 18, 1889	Stepping from one car to another, slipped and fell to the ground; age 35.	July 2, 1894	Attempted to board a moving yard engine; age 34.
Apr. 17, 1889	Struck by engine in yard.	Dec. 19, 1895	Struck by engine.
Apr. 26, 1889	Attempted to get on engine, his foot caught in switch rail and engine ran over him; age 25.	Apr. 10, 1896	Fell in front of engine and was run over.
May 20, 1889	Stepped in front of moving car.	Oct. 8, 1896	Attempted to cross track ahead of passenger train in yard, was struck and thrown against another train; age 63.
June 15, 1889	Attempted to pull a pin in yard train, caught his foot in guard rail and was run over; age 22.	Nov. 7, 1897	Struck by engine.
Sept. 14, 1889	While coupling in yard he was fatally crushed; age 40.	Nov. 13, 1897	Fell from train.
Oct. 14, 1889	Stepped between two cars in a switching train, on elevator dock, to pull a pin, fell down and was run over; age 48.	Dec. 4, 1897	Attempted to jump on moving cars, fell, and was run over.
Jan. 17, 1890	While pulling a pin in yard train he was killed; just how, not known, as the accident occurred in the dark; age 28.	Apr. 2, 1898	Uncoupling cars.
Mar. 28, 1890	Struck while crossing track; age 33.	May 9, 1898	Run over by cars.
Sept. 12, 1890	While climbing up ladder of box car fell and was run over; age 28.	Sept. 24, 1900	Climbed up embankment and rolled down in front of engine.
Dec. 22, 1890	While pulling a pin, in yard, in train handed by a yard engine, caught his foot in guard rail and was run over; age 27.	Nov. 16, 1900	Struck by train.
		June 20, 1901	Fell from engine.
		Feb. 14, 1902	Fell from car.
		May 9, 1902	Caught between cars while coupling.
		Nov. 29, 1902	Fell from train in motion.
		Jan. 12, 1903	Fell under cars.
		June 4, 1903	Run over by train.
		Nov. 30, 1903	Struck from car.
		Mar. 19, 1904	Thrown by switch engine.
		Aug. 27, 1904	Struck by engine while throwing switch.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**TRAINMEN—Concluded.**

**FLAGMEN (NOT SPECIFIED).**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>FATAL.</b>		<b>FATAL—concluded.</b>
Feb. 27, 1889	Fatally injured while connecting cars.	Aug. 23, 1899	Struck by train while flagging trains near quarry.
Mar. 25, 1889	Train flagman, attempting to board caboose of work train, was run over.	Sept. 15, 1899	Fell from car.
Nov. 1, 1889	Struck and killed by train; it was supposed that he fell asleep on tracks while out with his flag.	June 20, 1900	Run over by train.
Jan. 30, 1890	While cutting loose between two cars he fell and was run over; age 23.	Nov. 20, 1900	Struck and instantly killed while flagging a train.
Apr. 29, 1890	Standing between tracks in yard, stepped in front of train; age 21.	Sept. 20, 1901	Killed while flagging a train.
Sept. 14, 1890	Run over while flagging, on account of a wreck.	Oct. 18, 1901	Signaled engine to back, but failed to notice which track it was on; was struck and killed.
May 30, 1895	Killed while drifting cars.	May 3, 1902	Killed at draw by parting of train.
Mar. 24, 1896	Struck and run over by engine.	Oct. 13, 1902	Struck by train.
Apr. 24, 1897	Struck and instantly killed by stepping in front of engine.	Nov. 10, 1902	Struck by train.
June 1, 1898	Struck by engine.	June 28, 1903	Struck while flagging a train.
Aug. 8, 1899	Struck by train.	Sept. 3, 1903	Killed in collision.
		Oct. 1, 1904	Struck by train while flagging.
		Dec. 5, 1904	Struck and run over by train.
		May 2, 1906	Killed "boarding or alighting from train."
		July 19, 1906	Struck by train.

**BAGGAGE MASTERS.**

	<b>FATAL.</b>		<b>FATAL—concluded.</b>
May 12, 1890	Train hit truck on which he was seated, shued it around, and threw him under the wheels; both legs were cut off and he died May 24; age 40.	July 1, 1895	Killed by drill engine.
		Feb. 21, 1901	Killed in collision.
		June 19, 1901	Struck by false bridge.
		Apr. 19, 1904	Struck and killed at station.

**TRAINMEN (NOT SPECIFIED).**

	<b>FATAL.</b>		<b>FATAL—concluded.</b>
Aug. 24, 1897	Struck by train in tunnel.	Nov. 21, 1906	While uncoupling cars his fingers were bruised; he was taken to a hospital and died from the effects of ether during the operation.
— — 1902	Fell from train.		
— — 1903	Coupling.		
Oct. 25, 1903	Struck by train.	Apr. 13, 1907	Fell from car and under train.
June 13, 1905	Struck by bridge.		
Sept. 10, 1905	Fell under engine.		

**SHOPMEN.**

**SHOP FOREMAN.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>FATAL.</b>		
Feb. 12, 1904	Struck by train.		

**BOLT INSPECTOR.**

	<b>NONFATAL.</b>		
Aug. 25, 1906	Right hand injured handling tools.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**SHOPMEN—Continued.**

**CAR BUILDERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>FATAL.</b>		<b>NONFATAL—concluded.</b>
Sept. 23, 1899	Attempted to cross track ahead of car that was being switched; was knocked down and run over; age 49.	June 2, 1895	Face, hand, and knee bruised; attempted to jump on car.
Feb. 4, 1899	Car that had been jacked up fell on him.	July 13, 1898	Ankle sprained; fell from car.
	<b>NONFATAL.</b>	Jan. 18, 1899	Thumb crushed; stick of timber fell on it.
Nov. 23, 1892	Hand crushed by car at shops.	Feb. 28, 1899	Wrist bruised and sprained while alighting from moving train.
Jan. 20, 1893	Right foot sprained; fell while repairing platform of car.	Mar. 12, 1900	Right arm fractured; caught between cars while making inspection.
May 17, 1893	Received scalp wound; stepped out from between cars he had been repairing and was struck by engine.	Apr. 26, 1900	Arm and leg cut off; struck by train.
June 19, 1894	Right thumb broken; was riding in baggage car; his hat blew off; in reaching for it his thumb hit signal pole.	Sept. 12, 1900	Face bruised repairing cars.
Oct. 11, 1894	Leg hurt by fall.	Sept. 14, 1900	Head slightly cut; bolt struck it.
		Dec. 31, 1900	Ankle sprained at shops.
		Sept. 9, 1902	Hand hurt at shops.
		Oct. 29, 1902	Hand hurt by car truck.
		Feb. 15, 1906	Thumb cut handling tools.
		June 17, 1905	Leg bruised handling tools.
		Feb. 15, 1906	Face cut by fall at shops.

**CAR REPAIRERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>FATAL.</b>		<b>FATAL—concluded.</b>
Jan. 5, 1889	Truck repairer, while at work in yard between two coaches with no signal out, the cars were backed together by switch engine; the repairer was caught between the coaches and squeezed so badly that he died in thirty minutes; age 35.	Jan. 20, 1899	Struck by train.
July 13, 1889	While at work under a car in yard, engine backed against it, catching the repairer under the brake beam; he died the same day; age 22.	Jan. 20, 1900	Fatally injured while coupling.
Jan. 23, 1890	Killed repairing cars.	Feb. 15, 1900	Found dead near car in yard; slight contusion on head.
Dec. 19, 1891	Struck and instantly killed.	July 3, 1901	Fell from car while unloading poles.
June 19, 1892	Jumped from train, fell, was run over, and died the next day; age 52.	Aug. 27, 1901	Struck by engine while walking on track.
Dec. 17, 1894	Run over by float drill.	Sept. 15, 1902	Killed while handling cars.
		Feb. 3, 1903	Fell through trapdoor of moving car, in yard.
		May 27, 1905	Was thrown from cars by jerk and fell under same.
		June 5, 1907	Run over; stepped in front of engine while switching.
		Aug. 21, 1907	While jacking up car to get truck under, jack slipped, catching repairer between car and float ridge, instantly killing him.

**MACHINISTS AND THEIR HELPERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>FATAL.</b>		<b>FATAL—concluded.</b>
Nov. 19, 1891	Jumped from train directly in front of another; age 55.	Sept. 9, 1895	Derrick slipped off smokestack to which it was attached to lift off steam-chest cover of engine; skull was fractured.
May 19, 1893	Struck by train while "coupling or handling cars."	Mar. 8, 1905	Struck by train.
Oct. 10, 1893	Attempted to cross track ahead of yard engine. "Bell was ringing and headlight burning brightly;" age 56.	June 27, 1907	Slipped and fell across rail while attempting to board pilot step of engine; engine passed over him.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

SHOPMEN—Continued.

BLACKSMITHS AND THEIR HELPERS.

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		NONFATAL—concluded.
Feb. 9, 1891	Arm hurt by tool.	May 25, 1901	Left forearm fractured; jumped from moving train. (Helper.)
June 1, 1898	Toe badly bruised; struck by sledge.	June 10, 1902	Eye injured at shop. (Helper.)
Aug. 19, 1898	Hand cut; struck by chip of steel. (Helper.)	Aug. 6, 1902	Breast injured at shop.
Dec. 9, 1898	Eye bruised; fell, walking through yard.	Sept. 4, 1902	Wrist injured at shop.
Sept. 22, 1899	Hand crushed; piece of iron fell on it.	Sept. 9, 1902	Shoulder hurt by bucket.
June 22, 1900	Eye burned; hot metal flew in it.	Sept. 9, 1902	Foot bruised at shop.
Dec. 22, 1900	Eye contused; hit by piece of chisel, which flew off.	Nov. 12, 1902	Arm injured at shop.
Dec. 26, 1900	Thumb crushed; hit with sledge. (Helper.)	Dec. 29, 1902	Finger injured at shop. (Helper.)
Jan. 4, 1901	Left foot slightly bruised; rail which he was cutting fell. (Helper.)	May 22, 1903	Hand hurt at work.
Apr. 9, 1901	Eye burned by flying sparks from welding heat.	Apr. 2, 1904	Right arm squeezed while putting dead engine in engine house.
		July 27, 1905	Hand cut handling tools. (Helper.)
		Aug. 30, 1905	Thumb crushed handling material. (Helper.)

BOILER MAKERS AND THEIR HELPERS.

	NONFATAL.		NONFATAL—concluded.
May 4, 1889	Left arm slightly injured, cutting rivets out of boiler.	Aug. 23, 1901	Side injured; ash pan fell on him.
Aug. 24, 1889	Slightly scalded, taking off hand-hole plate of boiler.	Nov. 3, 1901	Legs hurt; boiler plate fell on them.
May 4, 1898	Eye injured by chip of iron. (Helper.)	Jan. 10, 1902	Eye injured at shop.
July 2, 1900	Eye injured by piece of metal which broke off tool.	Feb. 13, 1902	Eye injured at shop.
Aug. 6, 1900	Finger bruised; hit it with hammer. (Helper.)	Mar. 19, 1902	Hand hurt by grate.
Nov. 2, 1900	Ear punctured, struck by hammer of another workman.	July 12, 1902	Finger injured at shops.
Feb. 8, 1901	Finger mashed; hit it with hammer.	Sept. 19, 1902	Forehead cut at shops.
Mar. 18, 1901	Great toe and side injured; stepped in front of engine.	Sept. 22, 1902	Forehead injured at shops.
May 8, 1901	Injured between the eyes while punching out stay bolts. (Helper.)	Oct. 10, 1902	Hand injured at shops.
		Oct. 16, 1902	Hand injured at shops.
		Nov. 15, 1902	Eye injured at shop.
		July 10, 1905	Hand injured, handling tools. (Helper.)
		July 10, 1905	Little finger crushed, handling tools. (Helper.)
		Feb. 8, 1906	Head cut, handling tools. (Helper.)
		Mar. 12, 1906	Head injured, handling material.

HELPERS (NOT SPECIFIED).

	NONFATAL.		NONFATAL—concluded.
July 20, 1893	Foot hurt by engine pilot.	Apr. 29, 1903	Hand hurt by baggage.
Mar. 20, 1894	Ankle hurt by fall.	June 23, 1907	Injured at passenger yard.
Apr. 19, 1894	Hand hurt; how, not reported.	Sept. 23, 1907	Both hands and arms bruised by jumping from train while it was in motion.
June 27, 1901	Leg cut off; fell from a coach which was being switched.		

PIPE FITTERS OR PLUMBERS.

	FATAL.		NONFATAL—concluded.
Apr. 9, 1888	Fell into river and drowned while repairing gas pipe at bridge.	Apr. 8, 1901	Thumb mashed, cleaning brake cylinder.
	NONFATAL.	May 1, 1901	Scalp cut open; struck head against a bolt in yard.
Apr. 28, 1896	Scalded by bursting of reducer at head of main steam pipe.	July 15, 1902	Injured; particulars not reported.
Dec. 17, 1896	Right ankle sprained, stepping from a coach.	Dec. 20, 1902	Back injured; other particulars not reported.
		Apr. 20, 1905	Wrist sprained; uncoupling cars.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**SHOPMEN—Concluded.**

**TINSMITHS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		NONFATAL—concluded.
May 14, 1894 Nov. 16, 1900	Hand cut; cause not reported. Internal injuries; fell from staging.	Apr. 25, 1902 Nov. 13, 1905	Leg bruised; fell from engine. Arm and leg bruised by fall.

**MESSENGER BOYS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		NONFATAL—concluded.
Apr. 2, 1902 Aug. 27, 1902	Eyes injured at shops. Finger injured at shops.	Sept. 11, 1902	Fingers crushed at shops.

**SHOP EMPLOYEES (NOT SPECIFIED).**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		FATAL—concluded.
Feb. 27, 1888 Aug. 4, 1890	Fell from scaffold at shops. Car loaded with lumber was being pushed off turntable; the jar broke stakes holding lumber, and lumber fell on him.	Sept. 8, 1895 June 23, 1899 Nov. 19, 1903 Oct. 14, 1904 Jan. 10, 1905	Fell from coal trestle. Killed in shops. Killed between cars. Struck by train. Struck by train.

**ROUNDHOUSE MEN.**

**ROUNDHOUSE FOREMEN.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		NONFATAL.
Dec., 1894 Sept. 27, 1907	Struck by engine; was night foreman. Killed by explosion of gasoline tank.	June 18, 1901	Knee sprained; stepped into small hole in ash pile.

**ENGINE DISPATCHERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		NONFATAL—concluded.
May 31, 1894	Foot bruised; caught under pilot of engine.	July 5, 1903	Foot bruised; caught between engine pilot and rail.

**ENGINE HOSTLERS AND HOSTLERS' HELPERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		NONFATAL—continued.
Nov. 30, 1888 Sept. 30, 1892	Head hurt handling engine. Squeezed between cab window and engine-house door; leaned out of window as engine came out.	Mar. 17, 1893	Hand bruised and cut; caught between valve handle and brake lever when brake applied itself while he was turning triple valve.
Jan. 13, 1893	Shoulder, hip, and thigh contused; cab of engine came down on him when cab struck roof of oil house; was backing engine on oil-house track.	June 5, 1893 Jan. 18, 1895 Feb. 16, 1895	Legs injured; struck in yard. Arm broken; jumped from engine. Thumb injured while chocking engine over ash pit.
Jan. 26, 1893	Hip bruised, slipped on ice and fell against engine.	July 5, 1895	Finger crushed; was applying brake shoe.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**ROUNDHOUSE MEN—Continued.**

**ENGINE HOSTLERS AND HOSTLER'S HELPERS—Concluded.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>NONFATAL—continued.</b>		<b>NONFATAL—concluded.</b>
Feb. 8, 1897	Head slightly injured; struck by hoe while assisting in cleaning an engine.	Sept. 14, 1902	Foot bruised; no particulars reported.
June 2, 1897	Foot hurt by fall from engine.	Sept. 29, 1902	Side and wrist sprained; fell between rails.
Jan. 1, 1899	Ankle slightly injured by fall into pit.	Sept. 30, 1902	Hand injured; no particulars reported.
Aug. 23, 1899	Foot crushed; while unloading wheels one dropped.	Mar. 15, 1903	Toe broken; dropped grate on it.
Feb. 5, 1900	Right arm broken; was taking engine on ash pit.	June 7, 1903	Hand bruised; opening fire box.
July 17, 1900	Hose burst; head and face scalded.	Oct. 24, 1903	Burned while working on engine.
Nov. 7, 1900	Finger cut; water glass on engine broke.	Dec. 22, 1903	Head and body contused; fell from engine.
Jan. 28, 1901	Injured; engine moved while he was under it.	Jan. 6, 1904	Hand caught on apron of coal chute.
Feb. 4, 1901	Face and neck scalded; accidentally pushed cylinder cocks open in trying to place frog under derailed engine.	Sept. 24, 1904	Head and back bruised; struck by engine while throwing switch.
Feb. 15, 1901	Groin injured; slipped on ice while getting off engine and fell into ash pit.	May 13, 1905	Ankle sprained; jumped off train while in motion.
Feb. 28, 1901	Hand and shoulders bruised by scraper which was caught and dragged by engine passing on side-track.	Sept. 1, 1905	Side bruised; fell off engine.
Mar. 11, 1901	Arm scalded; hand-hole plate blew open.	Sept. 21, 1905	Injured by falling off engine. (Helper.)
June 9, 1901	Right foot injured; cover of manhole fell on it.	Mar. 9, 1906	Finger bruised; shaker bar slipped. (Helper.)
		Nov. 28, 1906	Face burned; kindling fire in engine.
		Apr. 7, 1907	Ankle sprained while getting off engine.
		May 16, 1907	Concussion of brain; caught between telegraph pole and engine.
		June 2, 1907	Right arm broken; caught between sand house and arm rest of cab while moving engine along coal trestle track.

**ENGINE WIPERS.**

	<b>FATAL.</b>		<b>NONFATAL—concluded.</b>
Aug. 16, 1889	Fell off train.	Dec. 15, 1895	Eye cut; fell off engine.
July 19, 1890	While astride a bar placed between spokes of back driving wheels and frame of engine his head came in contact with bracket under running board of engine; the engine was not permanently placed and it started.	June 6, 1897	Fingers mashed, loading wheels on car.
Jan. 25, 1894	Struck by engine while walking on tracks.	Apr. 23, 1897	Foot bruised; caught between turntable and rail.
Feb. 27, 1900	Struck while standing on track giving signal.	Dec. 5, 1899	Two fingers cut off, coupling engine to train.
	<b>NONFATAL.</b>	Mar. 5, 1900	Struck while walking on track; right foot cut off and arm broken.
Apr. 3, 1889	Was riding on engine going to roundhouse; struck switch stand and arm cut off when he fell under engine; age 18.	Nov. 5, 1901	Hand severely burned; was carrying can of crude oil and lighted torch in same hand, gas from oil exploded.
June 12, 1892	Slightly injured while wiping.	Feb. 11, 1902	Injured; no particulars reported.
July 19, 1892	Slightly injured while wiping.	July 31, 1902	Injured by fall from engine.
July 19, 1892	Slightly injured while wiping.	Aug. 17, 1902	Face and hand burned while at work.
Apr. 29, 1893	Fell from engine; leg crushed.	Nov. 26, 1902	Ankle sprained.
Mar. 28, 1894	Right hand lacerated; caught between side rod and main driver; engine started while he was at work; age 60.	May 14, 1903	Injured; struck by train.
Sept. 28, 1894	Right leg crushed, trying to make coupling.	Mar. 24, 1904	Injured; no particulars reported.
		Mar. 23, 1905	Injured; no particulars reported.
		Apr. 17, 1905	Head and neck burned; fell against smokestack.
		Oct. 25, 1905	Hand burned; waste took fire.
		Nov. 16, 1905	Hand and face badly burned; put oil on fire to start it.
		Mar. 30, 1906	Finger broken; caught it in air brake.

**INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.**

**ROUNDHOUSE MEN—Continued.**

**ENGINE CLEANERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		NONFATAL—concluded.
Dec. 5, 1895	Attempted to get on rear step of drill engine; fell and was dragged 240 feet; his head was found wedged between wheel and side of track.	Mar. 15, 1896	Big toe bruised; wheel which he was helping to move fell on it; age 19.
Jan. 1, 1901	Struck by train.	June 2, 1896	Hand injured while coupling cars.
	NONFATAL.	May 18, 1898	Neck bruised; slipped and fell against engine.
Mar. 3, 1890	Bruised by fall from engine.	Aug. 19, 1898	Hand severely injured while cleaning engine.
Jan. 2, 1894	Nose bruised and left eye hurt; fell into pit while helping to turn engine; age 21.	Dec. 1, 1898	Leg scalded; steam escaped from cylinder cocks.
Jan. 20, 1894	Left wrist broken; fell while cleaning engine.	Feb. 1, 1899	Face burned by explosion of oil can.
May 15, 1894	Right hip sprained; alighting from engine.	Feb. 1, 1899	Face burned by explosion of oil can.
Aug. 2, 1894	Injured, cleaning engine.	Mar. 6, 1899	Cut over eye; slipped while raking fire.
Sept. 2, 1894	Big toe bruised; binder fell on it; age 17.	Feb. 1, 1900	Scalded slightly by steam from engine.
Sept. 2, 1894	Ankle badly bruised; fell while climbing over cars on his way home; age 17.	July 18, 1900	Overcome by heat while cleaning engine.
Sept. 18, 1894	Left foot bruised; caught between tread of back tender wheel and block at end of track.	June 19, 1902	Knee contused; crowbar flew back when he was prying ash can.
Jan. 14, 1896	Wrist sprained; fell while getting down off engine at rest; age 17.	Oct. 27, 1902	Foot hurt by fall.
Mar. 13, 1896	Hands, wrist, and leg burned; overalls caught fire from blaze made of refuse; age 18.	July 21, 1903	Forearm and face burned, explosion of gas in fire box.
		Aug. 10, 1903	Hand hurt while cleaning engine.
		Jan. 27, 1904	Face burned while building fire in engine.
		May 11, 1904	Foot hurt by turntable.
		May 25, 1904	Head cut by piece of coal.
		Jan. 6, 1905	Thumb cut, cleaning engine.
		Jan. 23, 1905	Eye cut by glass.

**ASH PAN CLEANERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		NONFATAL—concluded.
Jan. 28, 1888	Killed by engine which was moved while he was cleaning ash pan.	Feb. 4, 1890	Severely injured; struck by train while cleaning ash pan.
	NONFATAL.	July 18, 1899	Hand injured; caught it under wheel while cleaning ash pan.
Aug. 8, 1888	Overcome by heat while cleaning ash pan.		

**ASH PIT CLEANERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		NONFATAL—concluded.
Jan. 19, 1893	Left arm bruised; slipped on ice in tank of engine while coaling engine.	Oct. 8, 1898	Face, neck, and arms burned by steam from ashes.
Nov. 7, 1894	Right ankle sprained; jumped off engine.	Jan. 6, 1899	Face and hands scalded by steam from ash box of engine which was being cleaned.
May 3, 1895	Foot and fingers crushed; run into by engine while he was cleaning ash pit.	Apr. 5, 1899	Sprained back, shoveling ashes.
Aug. 9, 1895	Right side bruised; struck against car while riding on tank step of engine.	June 25, 1900	Bruised over right eye; fell into engine tank.
Jan. 24, 1896	While shaking grates, caught his hand between shaking bar and boiler head; little finger cut.	Nov. 28, 1900	Leg bruised, coaling up engine.
Mar. 10, 1896	Knee bruised; while cleaning out spark arrester struck his knee against engine.	Jan. 18, 1901	Arm run over by engine.
Aug. 7, 1896	Right arm badly scalded by hot water from engine while he was in the ash pit.	Feb. 18, 1901	Left arm broken; fell into ash pit.
Aug. 27, 1898	Face and arms burned by steam from hot ashes.	Feb. 20, 1901	Injured by engine while in ash pit.
		Aug. 3, 1901	Struck while standing too close to track.
		Sept. 27, 1902	Ankle sprained; no particulars reported.
		Apr. 28, 1904	Face, head, and shoulder contused; struck by engine.
		July 30, 1904	Seriously injured by engine moved by hostler.
		June 16, 1905	Injured, "boarding or alighting from car."

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**ROUNDHOUSE MEN—Continued.**

**FIRE CLEANERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		NONFATAL—concluded.
Dec. 13, 1888	Right hand slightly injured, cleaning fire.	Nov. 8, 1902	Injured; no particulars.
Sept. 10, 1892	Slightly injured, cleaning fire.	June 23, 1903	Contusion of left hand in grate.
Feb. 3, 1893	Face and head injured; struck by engine.	Nov. 4, 1903	Burns of back, neck, and arms; hot water came from smokestack while he was working around engine.
Apr. 12, 1894	Injured, cleaning fire.	Mar. 18, 1904	Scalp wound; fell from train.
Apr. 6, 1895	Injured, cleaning fire.	Sept. 15, 1906	Ankle sprained; fell in turntable pit.
June 21, 1895	Injured, cleaning fire.	Dec. 15, 1906	Bone in hand broken; fell into ash pit.
Aug. 12, 1895	Injured, cleaning fire.	Jan. 8, 1907	Injured, cleaning fire.
Nov. 23, 1895	Injured, cleaning fire.	Mar. 3, 1907	Injured, cleaning fire.
Dec. 16, 1895	Injured, cleaning fire.	Mar. 30, 1907	Injured, cleaning fire.
Dec. 27, 1896	Injured, cleaning fire.	Apr. 13, 1907	Injured, cleaning fire.
Dec. 31, 1897	Injured, cleaning fire.	Aug. 2, 1907	Head injured, fell from engine while shaking grates.
Nov. 3, 1898	Head injured, cleaning fire.	Dec. 11, 1907	Injured, cleaning fire.
Mar. 16, 1902	Left leg broken; other particulars not reported.	Dec. 21, 1907	Injured, cleaning fire.
May 28, 1902	Shoulder wrenched, raking fire.		
July 27, 1902	Injured; no particulars.		

**COAL CHUTE FOREMEN.**

	NONFATAL.		
June 4, 1904	Struck by engine at shops.		

**ENGINE PREPARERS OR ENGINE WATCHMEN.**

	NONFATAL.		NONFATAL—concluded.
Mar. 17, 1891	While assisting in repairing a broken down engine his right thumb was lacerated in machinery.	May 31, 1901	In coupling engines to cars his left hand was caught between the couplers, mashing little finger and cutting index finger and thumb.
Dec. 18, 1896	While tapping pipes conveying steam to steam heat plant was scalded on face and body.	Feb. 13, 1902	Broke rib and cut and bruised head by falling into turntable pit.
Dec. 18, 1896	While drawing coal from pockets, lump rolled on his foot, bruising the instep.	Jan. 4, 1904	Hurt internally by fall.
Apr. 21, 1900	Sight of eye destroyed by piece of coal he was breaking.	May 30, 1904	Body bruised by engine.
July 24, 1900	Lip cut; man on engine threw empty pail for him to catch.	Feb. 5, 1905	Two fingers taken off; frozen sand fell from engine.

**TURNTABLE OPERATORS.**

	FATAL.		NONFATAL—concluded.
Jan. 16, 1906	Grasped arc-lamp wire, shocked fatally.	Feb. 11, 1890	Finger cut while turning engine.
	NONFATAL.	Feb. 25, 1901	Wrenched his knee going into pit to oil wheels of turntable.
Dec. 7, 1889	Hand slightly injured, caught between crosshead and guide of turntable.	Nov. 25, 1905	Hand injured by cogwheel of turntable.

**PUMP MEN AT ROUNDHOUSES.**

	NONFATAL.		NONFATAL—concluded.
May 22, 1894	Right hand and leg burned; after fixing fire on engine went up in cab, was overcome by coal gas and fell against steam pipe; age 67.	Jan. 17, 1896	Arm cut and bruised; while helping to shove engine at roundhouse, caught his arm between top guide and crank pin of engine.
		Oct. 9, 1898	Slightly scalded while attempting to wash out boiler.

**INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1883 TO 1907—Continued.**

**ROUNDHOUSE MEN—Concluded.**

**BOILER WASHERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		NONFATAL—concluded.
Sept. 2, 1883	Arms and back scalded; how, not reported.	Feb. 3, 1901	Scalded on head and neck while unscrewing nuts of blowcock at engine house.
July 18, 1898	Arm bruised, coupling.		

**ROUNDHOUSE JANITOR.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		
Dec. 23, 1904	Hand hurt by engine wheel.		

**ROUNDHOUSE EMPLOYEES (NOT SPECIFIED).**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		NONFATAL—concluded.
Mar. 14, 1888	Slight scalp wound, fell into turntable pit.	Jan. 14, 1902	Severe contusion of shoulder, inspecting coupling of passenger engine.
Nov. 29, 1894	Finger mashed, coupling.	June 18, 1902	Leg scalded; particulars not reported.
Jan. 29, 1895	Head cut and bruises; run down by engine.	Feb. 19, 1904	Caught between engine and post at roundhouse.
Oct. 21, 1900	Right hip, right shoulder, and abdomen contused and sprained, fell into engine pit.	May 23, 1907	Face and chest scalded by escaping steam.
Feb. 1, 1901	Left foot bruised; piece of iron fell on it.	May 24, 1907	Face and arms burned.
Dec. 18, 1901	Three fingers mashed, trying to couple engines.		

**YARD EMPLOYEES.**

**YARDMASTERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		NONFATAL—concluded.
Nov. 25, 1891	Ran over by cars.	Feb. 24, 1896	Thumb bruised; caught between oil box of car and wedge.
Nov. 15, 1902	Fatally injured in freight yard.	Oct. 10, 1898	Thigh bruised, coupling.
	NONFATAL.	Jan. 3, 1900	Rib and breast bone fractured; slipped on ice on step of engine tank.
Feb. 3, 1888	Thumb slightly injured, uncoupling engine.	Sept. 3, 1900	Shin bruised; fell over bumper lying beside track.
July 13, 1890	Bad cut in scalp and hip badly bruised; struck by engine.	Dec. 14, 1900	Knee cap injured; fell, getting off engine in motion.
May 12, 1892	Right hand cut off, coupling cars.	Feb. 12, 1901	Severe scalp wound and internal injuries; fell from bridge.
Dec. 17, 1892	Collar bone broken, coupling cars.	Jan. 22, 1902	Hip dislocated; caught between cars while coupling.
Feb. 15, 1893	Slight concussion of brain; struck overhead bridge.	Feb. 4, 1902	Hip and ankle bruised at shops.
Mar. 2, 1893	Right arm bruised while making up train.	Aug. 26, 1902	Back sprained, body bruised; struck while getting off car.
Mar. 22, 1893	Hand bruised while coupling.	Apr. 9, 1903	Arm cut off, coupling cars.
June 30, 1893	Right foot cut off; ran over, attempting to board moving train.	July 18, 1903	Hand severely lacerated; torpedo exploded.
Nov. 3, 1893	Left arm sprained; fell from rear end of pusher.	Dec. 3, 1903	Injured; fell from train.
Dec. 12, 1893	Forefinger, right hand, mashed, coupling cars without stick.	Apr. 26, 1904	Injured; no particulars.
May 26, 1894	Two fingers right hand crushed, coupling.	Dec. 22, 1904	Knocked down and body squeezed, coupling.
Aug. 25, 1894	Right forearm bruised, coupling without stick.	May 12, 1906	Knee sprained; struck by girder extending over side of car.
Jan. 1, 1895	Finger mashed; turning air-brake cock on engine.	Jan. 13, 1907	Lacerations and contusions of body; struck while crossing track.
Dec. 2, 1895	Right ankle sprained; jumped off moving train.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**YARD EMPLOYEES—Continued.**

**ASSISTANT YARDMASTERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		NONFATAL—concluded.
June 17, 1892	Stepped on track directly in front of engine and was run over; age 45.	Sept. 18, 1897	Hand caught between step of engine and switch lever, fracturing finger; raised switch lever too soon.
Jan. 6, 1897	Fell under cars.	Feb. 20, 1899	Side and leg bruised; fell from freight car.
May 13, 1897	Fell from moving train under wheels.	Mar. 6, 1903	Fell from train.
Nov. 23, 1905	Caught between couplers while coupling.	Jan. 27, 1904	Toe hurt, throwing switch.
Nov. 29, 1905	Jumped off car; was struck by other cars which threw him back under the one he jumped from.	Aug. 2, 1904	Injured; struck by train.
	NONFATAL.	Feb. 14, 1905	Wrist sprained; hit by switch lever.
Mar. 31, 1893	Badly cut about the mouth while uncoupling cars.	Sept. 29, 1905	Injured, coupling.
Mar. 22, 1897	Second finger of right hand cut off, pulling pin while making a running drill.	Jan. 16, 1906	Left hip and left arm injured; struck by engine while crossing track.
		Jan. 31, 1906	Right knee cut; fell on rail while crossing track.
		Aug. 6, 1907	Right hip injured handling machinery.

**YARD FOREMEN.**

	NONFATAL.		NONFATAL—concluded.
Dec. 19, 1893	Slightly injured; knocked down by car.	Dec. 23, 1904	Side hurt, running cars.
Oct. 4, 1898	Slightly injured; caught between pile of brick and freight car.		

**TRAIN INSPECTOR.**

	FATAL.		
July 4, 1891	Struck by engine while inspecting train.		

**AIR-BRAKE INSPECTORS AND REPAIRERS.**

	FATAL.		NONFATAL—concluded.
Sept. 21, 1904	Killed while examining brakes under car.	May 2, 1903	Right hip sprained while walking in yard. (Inspector.)
Sept. 4, 1906	Killed while working under car. (Inspector.)	July 15, 1903	Right foot crushed; train started while he was repairing air hose. (Inspector.)
	NONFATAL.	June 10, 1905	Head badly cut; while examining engine a lump of coal fell on him from engine tank. (Inspector.)
Jan. 1, 1894	Hand crushed, coupling. (Inspector.)	Apr. 10, 1906	Left leg bruised, repairing hose. (Inspector.)
Dec. 10, 1894	Hand bruised; wrench slipped. (Repairer.)	Aug. 3, 1906	Toes crushed; caught between bumpers of cars.
May 4, 1897	Finger bruised, coupling. (Inspector.)	Apr. 30, 1907	Hand injured by piston rod of engine.
Feb. 1, 1899	Shoulder dislocated and hip bruised; fell from engine. (Inspector.)		
Feb. 23, 1900	Shoulders injured, repairing signal hose. (Inspector.)		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**YARD EMPLOYEES—Continued.**

**CAR EXAMINERS OR INSPECTORS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		FATAL—concluded.
Nov. 14, 1890	Drowned; fell in canal while examining car near the same.	July 6, 1903	Struck by engine.
Jan. 13, 1891	Caught between deadwoods of two cars while standing between same.	July 15, 1903	Fell through car door of coal car.
Jan. 15, 1894	Struck by train while crossing track.	Aug. 5, 1905	Struck by train while off duty.
Oct. 2, 1894	While working under car drill engine switched other cars against it.	Sept. 19, 1905	Struck by train.
Aug. 26, 1897	Struck while inspecting car.	Nov. 27, 1905	Killed while coupling.
Nov. 2, 1897	Supposed to have been hit by engine.	Mar. 18, 1906	Struck by engine while inspecting.
Aug. 4, 1898	Run over while working under box car.	Mar. 16, 1907	Cars under which he was at work ran over him; they were moved while he was at work; no blue flag was out.
Sept. 2, 1901	Fell between moving cars while inspecting same.	Mar. 23, 1907	Killed in yards.

**STEAM OR HEAT INSPECTORS.**

	NONFATAL.		NONFATAL—concluded.
Jan. 19, 1894	Slightly scalded about face while uncoupling steam hose.	Jan. 1, 1899	Body slightly bruised; caught between bumping block and car.
Oct. 30, 1895	Quite badly injured by fall from top of Pullman-car.		

**HOSE CUTTERS OR COUPLERS.**

	NONFATAL.		NONFATAL—concluded.
Apr. 13, 1893	Finger injured while coupling.	Dec. 11, 1902	Head injured in train shed; "on or about trains."
July 5, 1895	Finger bruised while coupling.	Dec. 8, 1905	Injured; "on or about trains."
Jan. 31, 1901	Scalded about face while cutting steam hose in train shed.		
Jan. 30, 1902	Finger fractured and bones bruised, "coupling or uncoupling."		

**CAR OILERS.**

	FATAL.		NONFATAL—concluded.
Dec. 31, 1890	Found dead; supposed to have been killed by falling under moving cars while oiling cars on parallel track.	Dec. 15, 1894	Leg cut off and otherwise injured; struck by train while walking on track.
Nov. 23, 1899	Killed by passenger train while packing a hot journal.	June 1, 1895	Finger crushed between bumpers.
	NONFATAL.	July 26, 1895	Bruised about body; was struck by yard engine while walking through yard.
June 5, 1889	Slightly injured by coming in contact with a lamp standard while oiling a hot box on a moving train.	June 19, 1899	Arm and leg bruised; struck by engine.
Aug. 12, 1894	Left shoulder and side bruised; jumped off moving engine.	Mar. 27, 1901	Bruised his finger while placing journal brass in engine.
		Jan. 13, 1902	Knee l'ruised in storeroom.
		Oct. 3, 1905	Chest bruised; caught between car and platform.

**CAR CLEANERS.**

	FATAL.		FATAL—concluded.
Feb. 6, 1890	Attempted to run across track ahead of caboose that was being backed; struck, run over, and instantly killed; age 42.	Mar. 22, 1898	Struck and instantly killed while crossing tracks.
Feb. 10, 1894	Struck by train and killed while crossing tracks. (Female.)	Oct. 5, 1898	Caught between two cars.
Sept. 30, 1896	Struck by train. (Female.)	Feb. 24, 1902	Killed while getting on or off train.
Feb. 8, 1897	Jumped from moving train and went under.	July 17, 1902	Struck by engine.
		Mar. 6, 1905	Struck by train.
		July 1, 1905	Cause not specified.
		Oct. 26, 1905	Struck by train.
		July 31, 1907	Struck by train.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**YARD EMPLOYEES—Continued.**

**CALL BOYS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		NONFATAL—concluded.
Dec. 10, 1895	Struck by train.	Jan. 19, 1906	Injured, "boarding or alighting from train."
	NONFATAL.	Apr. 5, 1906	Fingers lacerated; barrel fell on them.
Mar. 27, 1903	Injured by being struck by train.		

**CAR CHECKERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		NONFATAL—concluded.
Dec. 22, 1905	Struck by train.	Feb. 5, 1891	Head cut, arms and legs bruised; fell from moving car.
	NONFATAL.	Mar. 30, 1905	Back sprained; attempted to hold up car door.
Nov. 20, 1889	Thumb of right hand bruised; attempted to couple cars in motion, without stick.	July 7, 1905	Injured, "on or about trains."
Nov. 24, 1889	Fingers crushed; caught between cars.	Dec. 6, 1905	Injured, "boarding or alighting from car."

**CAR MARKER.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		
June 13, 1898	Arm slightly bruised; caught between cars.		

**CAR NUMBER TAKERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		NONFATAL—concluded.
Nov. 26, 1892	Had climbed up ladder on side of car in freight yard; struck by train and leg cut off.	Nov. 21, 1899	Struck by train and injured while taking numbers.

**CAR TRACER.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		
Jan. 8, 1900	Uncoupling cars.		

**CAR SEALERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		NONFATAL—concluded.
July 9, 1907	Caught between cars while crossing track.	Apr. 14, 1895	Left foot crushed and back injured; struck by train while walking on track.
	NONFATAL.	Jan. 21, 1901	Shoulder sprained and bruised; attempted to jump to ground; foot caught in door rest of car and he was thrown.
Mar. 9, 1893	Right ankle broken; struck by yard engine; was applying seal and stepped too close to next track; age 60.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**YARD EMPLOYEES—Continued.**

**SEAL INSPECTORS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		NONFATAL—concluded.
Oct. 10, 1898	Hip dislocated and fractured; fell to pier.	June 7, 1900	Leg bruised; stepped through opening in platform.

**YARD CLERKS (NOT SPECIFIED).**

	FATAL.		NONFATAL—concluded.
May 24, 1891	Struck by train while asleep on track; age 28.	Apr. 10, 1896	Injured; struck by engine.
Jan. 21, 1895	Struck by engine in yard.	Aug. 9, 1901	Shoulder fractured; fell from cars.
Jan. 26, 1900	Killed while marking cars.	May 23, 1902	Arm hurt by fall in yard.
	NONFATAL.	Dec. 8, 1904	Internal injuries; struck by train.
		June 19, 1905	Injured; fell on tie.
Mar. 29, 1892	Two toes of foot mashed; attempted to jump on moving train.	Aug. 1, 1905	Leg injured; came in contact with switch stand.
Oct. 2, 1895	Slightly injured while marking coal train.	Aug. 10, 1905	Groin injured; jumped from train while it was in motion.
		Feb. 26, 1907	Injured; struck by train.

**YARD MESSENGERS.**

	FATAL.		NONFATAL—concluded.
July 27, 1898	Struck by engine in yard.	Mar. 5, 1900	Foot injured; stepped on rusty nail while walking through yard.
Mar. 2, 1907	Struck by engine in yard.	Mar. 23, 1904	Injured by being caught between cars.
Dec. 1, 1907	Attempting to board yard engine.		
	NONFATAL.		
Sept. 10, 1896	Leg crushed; fell under train while trying to board it.		

**WATER BOY.**

	NONFATAL.		
Nov. 23, 1896	Bruised by cars.		

**ASSISTANT WEIGHMASTER.**

	NONFATAL.		
July 28, 1905	Ankle sprained by misstep.		

**FREIGHT HANDLERS.**

	FATAL.		FATAL—concluded.
Dec. 14, 1891	Run over; fell on track while climbing between cars in motion.	Feb. 13, 1901	Dropped dead while carrying cement from car to truck in freight yard.
June 6, 1892	"Coupling or handling cars."		
May 15, 1893	Struck by car while "coupling or handling cars."		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**YARD EMPLOYEES—Concluded.**

**WAREHOUSEMEN.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		NONFATAL—concluded.
Mar. 20, 1903	Broke his ankle at freight house.	July 14, 1902	Toe mashed.
Dec. 10, 1898	Two toes injured loading car.	July 15, 1902	Leg injured.
June 28, 1899	Neck badly injured; stepped from car just as moving cars struck it; the jar caused the door to fall on him.	Aug. 4, 1902	Leg broken.
		Oct. 14, 1902	Foot injured.
		Oct. 23, 1902	Foot injured.
Jan. 30, 1902	Foot bruised.	Sept. 4, 1906	Leg fractured; fell from station platform.
Feb. 12, 1902	Foot injured.	Oct. 5, 1907	Toe crushed; dropped bundle of iron pipe on foot.
May 9, 1902	Fingers injured.		
July 10, 1902	Fingers bruised.		

**YARD PORTER.**

FATAL.			
Oct. 6, 1905	Struck by train in yard.		

**YARD WATCHMEN.**

FATAL.		NONFATAL.	
Jan. 21, 1888	Attempting to cross track at 12.10 a. m., was struck by cars and run over; age 66.	Nov. 2, 1891	Bruised about spine and head; fell from top of box car while walking over cars.
Feb. 28, 1890	While examining seals on cars stepped back in front of train; age 42.	Mar. 29, 1897	Foot crushed; door of freight car fell on it.
Oct. 30, 1891	Ran over by car which was shoved by switch engine; was standing on track.	Dec. 27, 1897	Two ribs broken, and injured internally; caught between cars.
Dec. 4, 1893	Fell, striking end of tie; injury was fatal.	Sept. 14, 1905	Head badly cut and body bruised; struck by engine while walking across track. (Night watchman.)
Oct. 14, 1902	Struck by train. (Night watchman.)		

**MAINTENANCE-OF-WAY EMPLOYEES.<sup>(a)</sup>**

**CIVIL ENGINEERS AND RODMEN.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		NONFATAL—concluded.
May 24, 1902	Struck by train and killed.	Sept. 5, 1903	Injured in collision.
May 14, 1903	Struck by train and killed.	June 27, 1905	Struck by train and leg cut off.
	NONFATAL.	Oct. 1, 1906	Lip lacerated; struck by timber.
Dec. 6, 1888	Struck by train and severely injured while taking measurements.		

**TRACK SUPERVISOR.**

NONFATAL.			
June 24, 1901	Struck by piece of exploded torpedo.		

<sup>a</sup> In the larger employments details for the fatal injuries only are given.

**INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.**

**MAINTENANCE-OF-WAY EMPLOYEES—Continued.**

**ASSISTANT TRACK SUPERVISOR.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		
June 4, 1892	While standing on track giving instructions to foreman was struck and badly cut about the head, and his skull was fractured.		

**SECTION FOREMEN.**

FATAL.		NONFATAL—concluded.	
Aug. 25, 1891	Killed by passing train.	June 20, 1896	While cutting a rail his men let it fall on the large toe of his right foot, bruising it.
Sept. 1, 1897	Stepped immediately in front of train.	Nov. 30, 1897	Bar cut; bar which he was using fell.
Aug. 20, 1898	Crossing tracks in front of moving train.	Mar. 6, 1898	Back bruised; fell from car.
Dec. 15, 1898	While attempting to get hand car out of the way of a pay train was struck by a passenger train.	May 23, 1899	Left arm dislocated, body and face bruised; struck by engine in yard.
Feb. 13, 1900	Was struck by pusher engine as he was getting off train.	July 31, 1899	Ribs injured; was struck by a piece of timber.
Jan. 21, 1901	Run over.	Sept. 18, 1899	Head badly cut; struck by derrick.
Jan. 21, 1905	Struck by train which entered a misplaced switch.	Nov. 22, 1899	End of finger cut off while fixing track.
Oct. 1, 1907	Struck and fatally injured.	Nov. 29, 1899	Scalp cut; struck on head by crowbar.
	NONFATAL.	Oct. 19, 1900	Badly bruised about the body; struck while standing on track.
Apr. 3, 1890	Struck and slightly injured by train.	June 18, 1902	Thumb injured, working on track.
Aug. 10, 1891	While sitting asleep on end of tie was hit by yard engine; back bruised and sprained.	Oct. 26, 1902	Ear injured and two teeth knocked out by piece of flying coal, while working along track.
Jan. 10, 1893	Struck and slightly injured while walking on the track.	Nov. 10, 1902	Eye injured, working along track.
Jan. 29, 1893	While changing frogs in yard, he let a frog slip from his hand; three fingers of left hand crushed.	Oct. 5, 1903	Foot crushed; stepped from car in motion.
Dec. 30, 1893	Stepped in way of tie thrown by trackman; back bruised and sprained.	Mar. 15, 1904	Struck by rail; injured; no particulars.
Feb. 7, 1894	Left ankle sprained, stopping hand car.	May 29, 1905	Hip bruised, handling tools.
May 3, 1895	Middle finger of left hand crushed by bar which slipped while he was trying to raise a piece of switch timber.	Jan. 22, 1906	Struck by train; injured; no particulars.
May 18, 1895	Ankle sprained while running a grampus loaded with rail; caught foot between grampus and crossing plank.	Apr. 7, 1906	Body and head bruised; bank caved in while working in a ditch.
May 21, 1895	Foot crushed unloading ties.	Aug. 1, 1906	Squeezed across stomach; engine moved cars while he was unloading cans of milk.
June 8, 1896	Big toe broken; his men let one end of a rail, which they were moving, drop on his foot.	Feb. 11, 1907	Eye and nose cut while jumping off car.
		Apr. 17, 1907	Struck by train; injured; no particulars.
		Oct. 3, 1907	Leg injured; struck by piece of pipe which burst and flew from engine of train.

**SECTION HANDS.**

FATAL.		FATAL—continued.	
June 2, 1888	Thrown from work train while same was in motion.	Aug. 24, 1889	Fell from car and was run over.
June 22, 1888	Struck by train while working on track.	Nov. 11, 1889	Struck by train while working on track with gang; age 27.
Aug. 1, 1888	Killed while working on track.	Dec. 7, 1889	Thrown from work train by sudden jerk and was run over.
Sept. 4, 1888	Stepped in front of train and was struck.	Dec. 19, 1889	Jumped from hand car and was killed.
Nov. 5, 1888	Struck by train while tamping ties.	Dec. 19, 1889	Attempted to cross between two cars of construction train and was caught between bumpers; in yard—age 22.
Nov. 5, 1888	Struck by train while tamping ties.		
Feb. 18, 1889	Struck by train while sitting on track.	Apr. 2, 1890	Struck by cars while walking through freight yard; age 30.
May 29, 1889	Struck by train; stood too near track; age 35.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**MAINTENANCE-OF-WAY EMPLOYEES—Continued.**

**SECTION HANDS—Continued.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL—continued.		FATAL—continued.
May 1, 1890	Attempting to get on car of construction train; fell off and was run over; age 34.	Nov. 15, 1893	Struck by passenger train; was oiling switches and attempted to cross track ahead of train; bell rang, whistle blew; age 45.
Sept. 3, 1890	Struck by train while working on track.	Dec. 1, 1893	Struck by train.
Sept. 16, 1890	Struck by train while working on track; age 35.	Dec. 5, 1893	Body found; evidently struck by unknown train; age 36.
Aug. 13, 1890	Struck by train.	Dec. 6, 1893	Struck by train.
Nov. 13, 1890	Train backed against some cars he was trying to move.	Feb. 12, 1894	Killed by cars while at work on track.
Jan. 2, 1891	Caught between bumpers of engine and flat car of work train; collision.	Feb. 14, 1894	Struck while working on track.
Jan. 2, 1891	Struck by train while working on track; it was very foggy; age 60.	Mar. 1, 1894	Struck by train.
Apr. 15, 1891	Stepped from behind one train in front of another; age 55.	Apr. 2, 1894	Stepped in front of engine and was struck.
Apr. 30, 1891	Fell under train leaving gravel pit while trying to get out of way of sliding bank.	Sept. 25, 1894	Struck by engine while walking between tracks; age 33.
May 26, 1891	While trying to board train in yard fell between cars and was run over.	Sept. 26, 1894	Struck by engine in yard; age 48.
June 4, 1891	Struck by train while working on track; age 25.	Feb. 8, 1895	Struck and run over while cleaning snow from crossing.
June 19, 1891	Struck by train while oiling switches; age 45.	May 11, 1895	Struck while working on track.
July 30, 1891	Struck by train while working on track; foreman shouted to him in vain; age 23.	Sept. 23, 1895	Struck while working on track.
Aug. 5, 1891	Struck by car of derailed train while working on track.	Jan. 11, 1896	Run over by drill engine.
Aug. 31, 1891	Struck by train while working on track.	Mar. 15, 1896	Struck while at work on track.
Sept. 9, 1891	Struck by train while working on track.	Mar. 24, 1896	Struck and run over by cars while cleaning switches.
Oct. 9, 1891	Struck by a flying step which broke from engine.	June 10, 1896	Struck and was run over; age 25.
Dec. 3, 1891	Attempted to get on train after it started; fell and was run over; age 22.	June 20, 1896	Struck by train.
Jan. 20, 1892	While cleaning snow from tracks in yard was struck by engine; age 28.	July 2, 1896	Struck while pulling weeds along track.
Mar. 7, 1892	Struck by train while working on track in yard; whistle sounded and bell rang; age 30.	Dec. 16, 1896	Struck while at work on tracks.
May 3, 1892	Struck by engine while at work in tunnel; bell rang and headlight was burning; age 29.	Dec. 22, 1896	Jumped off a work train while it was in motion and was run over; age 32.
June 15, 1892	Struck by freight train.	Apr. 29, 1897	Struck by engine.
Aug. 26, 1892	Struck while pulling spikes.	May 29, 1897	Struck while working along tracks.
Sept. 26, 1892	Struck by train while walking on track picking up tools.	June 18, 1897	Ran against side of moving train.
Dec. 15, 1892	Struck while working on track.	July 15, 1897	Fell from work train; back bruised.
Jan. 10, 1893	Struck by train while at work on tracks.	Sept. 3, 1897	Struck and instantly killed while walking on track.
Jan. 10, 1893	Struck by train while at work on tracks.	Sept. 4, 1897	Struck while walking on track.
Jan. 12, 1893	Struck by train while driving a dog off the track.	Sept. 9, 1897	Struck by engine.
Jan. 13, 1893	Struck by train while shoveling snow off the track.	Sept. 11, 1897	Struck by train.
Apr. 18, 1893	Struck by train while at work on tracks.	Nov. 2, 1897	Crossing under moving cars.
Apr. 26, 1893	Struck while at work on tracks.	Jan. 20, 1898	Struck by a train while at work on tracks.
May 12, 1893	Coupling.	Jan. 29, 1898	Run over.
June 12, 1893	Struck by train.	Feb. 11, 1898	Struck by a train while at work on tracks.
June 14, 1893	Was crossing tracks after finishing work; was struck by passenger train; bell rang and whistle blew; age 20.	Feb. 16, 1898	Struck by a train while at work on tracks.
July 3, 1893	Struck by passenger train while working on track; bell rang and whistle blew; age 25.	Apr. 8, 1898	Struck by a train while at work on tracks.
Aug. 16, 1893	Killed while working on track.	May 20, 1898	Struck by engine.
Aug. 19, 1893	Struck in yard.	June 25, 1898	Struck while working on track.
		July 7, 1898	Struck by an engine while at work on tracks.
		Aug. 6, 1898	Struck by an engine while at work on tracks.
		Aug. 26, 1898	Struck by a train while at work on tracks.
		Sept. 9, 1898	Run over by engine.
		Sept. 17, 1898	Struck by a train while at work on tracks.
		Nov. 18, 1898	Struck by a train while at work on tracks.
		Nov. 18, 1898	Struck by a train while at work on tracks.
		Nov. 18, 1898	Struck by a train while at work on tracks.
		Nov. 18, 1898	Struck by a train while at work on tracks.

**INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.**

**MAINTENANCE-OF-WAY EMPLOYEES—Continued.**

**SECTION HANDS—Continued.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>FATAL—continued.</b>		<b>FATAL—continued.</b>
Nov. 18, 1898	Struck by a train while at work on tracks.	Aug. 10, 1901	Struck by passenger train.
Nov. 18, 1898	Struck by a train while at work on tracks.	Oct. 26, 1901	Struck by engine while crossing track.
Nov. 18, 1898	Struck by a train while at work on tracks.	Dec. 6, 1901	While working in deep cut was struck by passenger train.
Nov. 18, 1898	Struck by a train while at work on tracks.	Feb. 7, 1902	Struck by engine.
Nov. 18, 1898	Struck by a train while at work on tracks.	Feb. 18, 1902	Struck by train during snowstorm.
Nov. 18, 1898	Struck by a train while at work on tracks.	Feb. 19, 1902	Struck by engine while working on track.
Nov. 18, 1898	Struck by a train while at work on tracks.	Mar. 12, 1902	Struck by train.
Nov. 18, 1898	Struck by a train while at work on tracks.	Apr. 18, 1902	Struck by train.
Nov. 18, 1898	Struck by a train while at work on tracks.	May 15, 1902	Struck by train while crossing track.
Nov. 30, 1898	Struck by a train while at work on tracks.	June 3, 1902	Struck by train while working along track.
Nov. 30, 1898	Struck by a train while at work on tracks.	July 10, 1902	Struck and run over by car.
Jan. 2, 1899	Struck by engine.	July 19, 1902	Struck by train while walking on track.
Jan. 17, 1899	Struck while at work on track.	Aug. 4, 1902	Was struck by train while working on track at night.
Jan. 17, 1899	Struck while at work on track.	Sept. 5, 1902	Struck by engine.
Jan. 27, 1899	Fell from hand car while in motion.	Sept. 17, 1902	Struck by train.
Mar. 3, 1899	Struck by train while working on track.	Sept. 23, 1902	Fell from moving work train.
June 19, 1899	Struck while at work on tracks.	Oct. 7, 1902	Struck by train while on hand car.
June 19, 1899	Struck while at work on tracks.	Dec. 6, 1902	Struck by train during night.
Aug. 1, 1899	Killed while at work on tracks.	Dec. 19, 1902	Caught between gravel train and gravel bank at gravel pit.
Aug. 3, 1899	Attempted to board a wild-cat freight train.	Jan. 14, 1903	Struck by train.
Aug. 9, 1899	Struck by train while at work on tracks.	Jan. 19, 1903	Struck by switch engine.
Nov. 21, 1899	Struck by train.	Feb. 17, 1903	Struck by train while clearing snow from track.
Jan. 12, 1900	Struck by train.	May 13, 1903	Struck by train while working on track.
Jan. 16, 1900	Struck by train while working on tracks.	Aug. 18, 1903	Struck by train.
Jan. 17, 1900	Struck by engine which backed against him.	Oct. 22, 1903	Struck by train.
Jan. 17, 1900	Struck by engine which backed against him.	Oct. 28, 1903	Struck by train.
Jan. 30, 1900	Struck by train while working on track.	Dec. 21, 1903	Struck by train.
Apr. 11, 1900	Struck while working on track.	Dec. 22, 1903	Struck by train.
May 9, 1900	Struck by wild-cat engine while walking on track.	Jan. 13, 1904	Struck by train while working on track.
May 24, 1900	Laborer on gravel train; stone rolled on him.	Jan. 19, 1904	Struck by train.
June 29, 1900	Struck by train while working on track.	Jan. 21, 1904	Struck by train.
June 29, 1900	Struck by train while working on track.	Feb. 17, 1904	Struck by train.
June 29, 1900	Struck by train while working on track.	Feb. 19, 1904	Laborer on work train; while loading dirt in cut was killed by landslide.
July 28, 1900	Struck by train while standing too close to track.	May 12, 1904	Struck by train.
Sept. 12, 1900	Struck by train.	May 12, 1904	Struck by train.
Oct. 2, 1900	Struck by train while standing too close to track.	Oct. 5, 1904	Struck by train in tunnel.
Oct. 11, 1900	While loading gravel into work train bank caved in on him.	Dec. 27, 1904	Struck by train.
Oct. 25, 1900	Struck by train.	Jan. 13, 1905	Struck by extra while working on track.
Nov. 2, 1900	Struck by train.	Jan. 24, 1905	Struck by car in yard.
Jan. 16, 1901	Struck by train while working on the track.	June 29, 1905	Struck by train while working on track.
Jan. 29, 1901	Struck by train.	Sept. 30, 1905	Struck by extra while working on track.
Apr. 17, 1901	Stepped from one train in front of another.	Oct. 6, 1905	Struck by train.
Apr. 23, 1901	Found dead near track; supposed to have been struck.	Jan. 22, 1906	Struck by engine while working on track.
Apr. 29, 1901	Laborer on work train; struck by passenger train.	Feb. 17, 1906	Struck by train while working on track.
May 6, 1901	Stepped on track in front of engine.	Mar. 14, 1906	Struck by train while working on track.
June 4, 1901	Fell from construction train while it was in motion.	May 29, 1906	Thrown from hand car which was derailed at bridge.
Aug. 10, 1901	Struck by passenger train while crossing track.	June 2, 1906	Lump of coal fell on him.
		June 6, 1906	Struck by train.
		July 12, 1906	Struck by train.
		Sept. 14, 1906	Struck by train.
		Sept. 16, 1906	Struck by train while working on tracks.
		Oct. 3, 1906	Struck by train while working on tracks.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**MAINTENANCE-OF-WAY EMPLOYEES—Continued.**

**SECTION HANDS—Concluded.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL—continued.		FATAL—concluded.
Oct. 19, 1906	Struck by engine while working on tracks.	June 27, 1907	Laborer on work train; fell between cars.
Jan. 18, 1907	Struck while cleaning snow from tracks.	July 5, 1907	Struck by train.
Jan. 19, 1907	Struck while cleaning snow from ditch.	July 27, 1907	Struck by train while working on track.
Jan. 18, 1907	Struck by train while sweeping track at tower.	Sept. 18, 1907	Struck by train in yard.
Feb. 19, 1907	While working on trestle bridge, fell into ravine.	Nov. 8, 1907	Struck by train while at work on track.
Mar. 25, 1907	Struck by train while working on track.	Nov. 8, 1907	Struck by train while at work on track.
Apr. 2, 1907	Struck by train.	Nov. 16, 1907	Struck by train in tunnel.
Apr. 8, 1907	Struck by train while at work on tracks.	Dec. 6, 1907	Struck by train.
Apr. 12, 1907	Struck by train while at work on tracks.	Dec. 23, 1907	Struck by train.

**TUNNEL WORKMEN.**

	FATAL.		NONFATAL—concluded.
Feb. 7, 1889	Laborer; struck by train; age 32.	Sept. 20, 1895	Laborer; injured; struck by train.
July 2, 1890	Watchman; struck by train; age 48.	Apr. 26, 1896	Laborer; hand bruised; rail fell on it.
Nov. 2, 1891	Watchman; struck by train; age 55.	Nov. 23, 1896	Watchman; left hip bruised; struck by engine.
Dec. 15, 1892	Tunnel superintendent; struck by passenger train.	Dec. 7, 1898	Laborer; hip bruised; fell from scaffold.
Apr. 1, 1894	Watchman; struck by train; age 57.	Jan. 17, 1900	Section foreman; slightly injured; struck by engine.
—, 1896	Watchman; struck by engine.	Feb. 25, 1903	Watchman; three toes crushed; stone fell on them.
June 3, 1902	Watchman; struck by train.	June 22, 1907	Laborer; ankle out and bruised; rock fell as train passed.
	NONFATAL.		
Sept. 21, 1889	Watchman; right arm broken, side bruised; struck by train.		

**TRACK WALKERS, INSPECTORS, OR PATROLLERS.**

	FATAL.		FATAL—continued.
Jan. 20, 1888	Struck while patrolling track.	May 6, 1896	Struck while patrolling track.
Mar. 24, 1888	Struck while patrolling track.	July 15, 1896	Stepped in front of an engine and was run over.
Apr. 11, 1888	Struck while patrolling track.	Oct. 9, 1896	Struck by train.
May 10, 1888	Struck while patrolling track.	Feb. 2, 1897	Struck by train. (Track watchman.)
July 17, 1888	Struck while patrolling track.	June 26, 1897	Struck while patrolling track.
Sept. 6, 1888	Struck while patrolling track.	July 1, 1897	Struck while crossing track.
Oct. 18, 1888	Struck while patrolling track.	Nov. 23, 1897	Struck while patrolling track.
Dec. 14, 1888	Struck while patrolling track.	Mar. 27, 1898	Struck while patrolling track.
July 15, 1889	Struck while patrolling track.	June 20, 1898	Struck while patrolling track.
Sept. 1, 1889	Struck while patrolling track.	Apr. 3, 1899	Struck while patrolling track.
Jan. 4, 1890	Struck while patrolling track.	Nov. 18, 1899	Struck while patrolling track.
Jan. 6, 1890	Struck while patrolling track. (Track watchman.)	Jan. 1, 1900	Struck while patrolling track.
Feb. 1, 1890	Struck while patrolling track.	Mar. 15, 1900	Struck while patrolling track.
Sept. 19, 1890	Struck while patrolling track.	June 14, 1900	Struck while patrolling track.
Apr. 10, 1891	Struck while patrolling track.	Oct. 29, 1900	Struck while patrolling track.
Aug. 6, 1892	Struck while patrolling track.	Nov. 3, 1900	Struck while patrolling track.
Jan. 7, 1893	Struck while patrolling track.	Dec. 21, 1900	Struck while patrolling track.
Nov. 8, 1893	Struck while patrolling track.	Oct. 9, 1901	Struck while patrolling track.
May 4, 1894	Struck while patrolling track.	Sept. 13, 1902	Struck while patrolling track.
May 5, 1894	Struck while patrolling track.	Sept. 18, 1902	Struck while patrolling track.
July 11, 1894	Struck while patrolling track.	Dec. 6, 1902	Struck while patrolling track.
Dec. 12, 1894	Struck while patrolling track.	Jan. 20, 1903	Struck by train. (Track watchman.)
Feb. 13, 1895	Struck while patrolling track.	May 18, 1903	Struck while patrolling track.
Mar. 5, 1895	Run over by gravel train.	Jan. 17, 1905	Struck while patrolling track.
Nov. 15, 1895	Struck while walking on track.		
Nov. 14, 1895	Struck while patrolling track.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**MAINTENANCE-OF-WAY EMPLOYEES—Continued.**

**TRACK WALKERS, INSPECTORS, OR PATROLLERS—Concluded.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>FATAL—concluded.</b>		<b>NONFATAL—concluded.</b>
Aug. 5, 1905	Struck while patrolling track.	July 22, 1898	Chest injured; tripped and fell over wheelbarrow.
Jan. 11, 1906	Struck while patrolling track.	June 4, 1895	Head out and side bruised; struck by engine.
Mar. 15, 1906	Fell from train.	Jan. 28, 1897	Leg bruised and ankle sprained; struck by train.
July 8, 1906	Struck while patrolling track.	Oct. 29, 1898	Arm hurt by car door.
Sept. 6, 1906	Struck while patrolling track.	Oct. 28, 1898	Arm broken in two places; struck by train.
Dec. 2, 1906	Struck while patrolling track.	Oct. 7, 1899	Injured while patrolling tracks; was struck by train.
July 23, 1907	Struck while patrolling track.	Aug. 9, 1900	Slightly injured about head; struck by object thrown from passing excursion train.
	<b>NONFATAL.</b>	Dec. 24, 1900	Leg slightly injured; struck by lump of coal from passing train.
Apr. 12, 1888	Struck and slightly injured while patrolling tracks.	Dec. 28, 1903	Slightly injured; hit by coal from passing train.
Mar. 3, 1890	Ankle run over; struck by draft of cars.	Jan. 2, 1904	Injured; struck by train.
Jan. 16, 1891	Accidentally shot in leg by policeman.	Feb. 5, 1904	Lacerated scalp wound; struck by bolt from passing train.
Feb. 25, 1891	Right leg injured; fell through draw-bridge.	Apr. 13, 1904	Injured; struck by train.
July 21, 1891	Head and arm hurt by passing train.	Jan. 7, 1906	Injured; struck by train.
Sept. 11, 1891	Rib broken and other bruises; collision.	Jan. 28, 1906	Hand injured by car door.
Jan. 10, 1892	Struck and slightly injured on side of head.	May 8, 1906	Foot slightly injured by coal.
Mar. 12, 1892	Head, leg, and arm injured; struck by cars in freight yard while performing his duties.	July 20, 1906	Seriously injured; struck by train.
May 13, 1892	Struck and slightly injured.	Nov. 3, 1906	Back sprained by fall.
May 6, 1893	While in caboose engine hit same and "knocked him senseless."	June 28, 1907	Injured; struck by train.
June 1, 1893	Slightly injured while patrolling tracks; struck by train.	Sept. 17, 1907	Injured; struck by train.

**BRIDGE WATCHMAN.**

<b>FATAL.</b>			
Oct. 11, 1898	Struck and instantly killed while walking on bridge.		

**BRIDGE INSPECTOR.**

<b>NONFATAL.</b>			
Dec. 4, 1893	In stepping out of the way of a passenger train he slipped and fell from masonry of bridge, fracturing ribs and bruising head and sides.		

**BRIDGE FOREMAN.**

<b>NONFATAL.</b>			
Dec. 18, 1892	Foot and leg bruised; stick of timber fell on foot.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**MAINTENANCE-OF-WAY EMPLOYEES—Continued.**

**BRIDGE CARPENTERS AND WORKERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>FATAL.</b>		<b>FATAL—concluded.</b>
Apr. 3, 1890	Struck by train while working on a bridge.	Apr. 8, 1901	Fell from bridge.
Jan. 14, 1892	Found dead along track; probably jumped from moving train.	Apr. 9, 1901	Fell from bridge.
Jan. 19, 1897	Struck by train while working on bridge.	June 8, 1901	Struck by train on bridge.
Sept. 4, 1900	Derrick car toppled over on him.	Apr. 15, 1903	Struck by engine while at work on bridge.
		May 18, 1904	Struck in throat by falling timber.

**CARPENTERS.**

	<b>FATAL.</b>		<b>FATAL—concluded.</b>
May 16, 1888	While picking up spikes near bridge was struck by train; "whistle was blown and bell rung, but he did not get far enough out of the way."	Feb. 13, 1892	Struck while walking on track.
Dec. 1, 1888	Found dead near crossing; "It was supposed that he was trying to get on a coal train that was passing, and fell under the wheels."	Feb. 6, 1899	Struck while on tracks.
Sept. 11, 1889	Was run over by locomotive in yard.	Oct. 16, 1901	Struck by train while standing on track.
		Sept. 6, 1902	Ship carpenter; explosion of gas in pontoon.
		Feb. 9, 1903	Working under car when truss fell and crushed him.
		Sept. 25, 1904	Struck by train.

**MASONS.**

	<b>NONFATAL.</b>		<b>NONFATAL—concluded.</b>
Mar. 28, 1903	Foot hurt by stone.	Aug. 14, 1905	Left foot punctured by nail.
Dec. 5, 1903	Leg broken by stone.		

**PAINTERS.**

	<b>FATAL.</b>		<b>NONFATAL—concluded.</b>
Mar. 30, 1903	Found dead; struck by train.	Nov. 10, 1899	Hip bruised; fell while painting smokestack.
Oct. 5, 1907	Struck while painting fence.	Aug. 3, 1900	Skull fractured; fell from bridge.
	<b>NONFATAL.</b>	Jan. 23, 1901	Slightly squeezed between cars in yard.
June 25, 1888	Leg crushed; climbing on train.	June 24, 1901	Leg crushed so amputation was necessary; caught in drawbridge when it opened.
Oct. 18, 1892	Injured by fall from ladder while painting.	June 27, 1901	Leg broken; fell from plank.
Mar. 13, 1893	Fell from top of car when ladder slipped, and was injured (at shops).	May 16, 1902	Back and left shoulder sprained; struck by train while painting bridge.
June 10, 1893	Leg broken by scaffold falling at bridge.	Aug. 30, 1902	Arm and side bruised; struck by train.
Oct. 20, 1893	Collar bone broken; caught between draw and plank while he was painting draw.	Oct. 9, 1902	Wrist cut (at shops).
Jan. 24, 1898	Ribs and hip injured; struck while painting car in yard.	May 19, 1906	Leg fractured by fall from ladder.
Dec. 9, 1898	Bruised hip; fell from ladder.	Sept. 1, 1906	Right ankle sprained by fall.

**WRECK-MASTER.**

	<b>NONFATAL.</b>		
Oct. 25, 1897	Hand injured, coupling cars.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**MAINTENANCE-OF-WAY EMPLOYEES—Continued.**

**DERRICK FOREMAN.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury
	NONFATAL.		
Mar. 9, 1901	Finger mashed while adjusting blocking under jack; was struck with sledge hammer.		

**HOISTING ENGINEER.**

	NONFATAL.		
Aug. 29, 1904	Wrist sprained by fall.		

**WRECK REMOVERS.**

	NONFATAL.		NONFATAL—concluded.
July 3, 1888	Back and side injured; fell from wreck train.	Aug. 18, 1897	Head cut, back bruised; fell from wreck train.
July 27, 1888	Thigh severely injured; struck by tackle thrown from wrecking car.	Dec. 15, 1897	Head hurt; fell getting off wreck train.
Feb. 8, 1889	Hand severely injured, assisting in placing car on track.	Feb. 24, 1898	Back bruised; fell on rail while at work at wreck.
Nov. 16, 1889	Slightly injured, assisting in handling derrick car.	Feb. 24, 1898	Back and breast bruised; fell into overturned car while at work at wreck.
Nov. 28, 1889	Slightly injured, assisting to clear wreck.	Nov. 22, 1899	Finger broken, working with wreck gang.
Dec. 4, 1890	Slightly injured working at wreck.	Aug. 28, 1901	Skull fractured; stake broke and piece struck him while assisting in placing engine on rails.
Jan. 14, 1892	Slightly injured, assisting to clear wreck.	Oct. 14, 1901	Injured; jumped when wreck car toppled over.
Mar. 29, 1893	Slightly injured; derrick car overturned.	Oct. 14, 1901	Injured; jumped when wreck car toppled over.
Mar. 29, 1893	Slightly injured; derrick car overturned.	Oct. 14, 1901	Injured; jumped when wreck car toppled over.
Mar. 29, 1893	Slightly injured; derrick car overturned.	Oct. 14, 1901	Injured; jumped when wreck car toppled over.
Mar. 29, 1893	Slightly injured; derrick car overturned.	Mar. 23, 1903	Thumb bruised; lever slipped out of jack.
Mar. 29, 1893	Slightly injured; derrick car overturned.	July 29, 1906	Fingers badly bruised; hand caught in wrecking machinery.
Mar. 1, 1895	Leg broken, clearing away wreck.		
Mar. 2, 1895	Thigh broken, clearing away wreck.		

**FOREMEN PILE DRIVERS.**

	NONFATAL.		NONFATAL—concluded.
Dec. 4, 1902	Finger mashed at Passaic bridge.	July 17, 1907	Thumb fractured; jack slipped and timber fell on thumb.

**IRON WORKERS.**

	NONFATAL.		NONFATAL—concluded.
Sept. 22, 1902	Foot injured while at work on bridge.	Feb. 1, 1906	Leg broken; fell from terminal structure.
Oct. 5, 1902	Leg bruised; loading timber at bridge.	Feb. 17, 1906	Finger crushed; heavy iron fell on same at terminal structure.
Oct. 5, 1902	Foreman of iron gang; leg injured loading timber at bridge.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**MAINTENANCE-OF-WAY EMPLOYEES—Continued.**

**DRAWBRIDGE TENDERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury
	FATAL.		NONFATAL—concluded.
June 16, 1888	Head caught in drawbridge.	May 10, 1888	Fingers cut off while turning draw.
Aug. 12, 1891	Struck by extra passenger engine.	July 29, 1892	Gash cut in head and hand lacerated; struck by car.
Oct. 1, 1892	Struck by an engine while sitting on end of draw.	Nov. 14, 1892	Ribs and leg broken; struck by train.
May 26, 1894	Caught between cars and float.	Dec. 2, 1898	Leg wrenched and bruised; was riding on engine. (Assistant draw tender.)
Jan. 6, 1904	Struck by train at draw.	Apr. 17, 1899	Hand cut by piece of wire which he seized to save himself from falling from ladder. (Drawbridge oiler.)
June 6, 1904	Struck by train and drowned at draw.		
June 18, 1904	Struck by train.		
	NONFATAL.		
Feb. 24, 1888	Hand caught in hydraulic lift and severely injured.		

**CROSSING GATEMEN AND FLAGMEN.**

	FATAL.		FATAL—concluded.
June 15, 1888	Struck by light engine which was backing across main tracks; age 32.	Mar. 1, 1897	Stepped in front of train.
Aug. 26, 1888	Struck by extra at 8.50 p. m.; age 67.	Mar. 3, 1897	Struck while flagging at crossing.
Nov. 8, 1888	Struck by train.	July 20, 1897	Struck by train.
Aug. 30, 1889	Struck by train; age 54.	Nov. 10, 1897	Struck while standing too close to track at crossing.
Mar. 5, 1890	Struck while walking on track.	Dec. 3, 1897	Struck while walking on track.
Nov. 14, 1890	Struck by train while on duty at crossing.	Nov. 19, 1898	Knocked down and run over by train.
Dec. 8, 1890	Struck by light engine while getting out of the way of one backing up.	Dec. 17, 1898	Struck by a shifting engine at crossing.
Dec. 30, 1890	Run over.	Aug. 8, 1899	Struck by a passenger train.
Jan. 8, 1891	Struck by train.	Nov. 7, 1899	Struck by engine while walking on track.
Mar. 17, 1892	Struck by extra engine.	Jan. 27, 1900	Struck while flagging a train at crossing.
Sept. 9, 1892	While attempting to drive a cow from the track was struck by engine running very slowly; age 60.	July 11, 1900	Struck while flagging a train at crossing.
Nov. 13, 1892	While avoiding cars backing up he stepped in front of others; age 48.	Dec. 7, 1902	Fell on crossing, collar bone fractured; died three days later.
Feb. 2, 1893	Found dying, 12.05 a. m.; struck probably by light engine; age 60.	May 31, 1903	Struck by train.
May 15, 1893	Struck by train.	Aug. 30, 1903	Struck by engine.
May 31, 1893	Struck by train at crossing.	Sept. 21, 1903	Struck by engine at crossing.
July 4, 1893	Run over.	Nov. 14, 1903	Struck by train.
June 26, 1894	Struck by train.	Nov. 22, 1903	Struck by train.
Nov. 3, 1894	Struck by train; age 57.	Mar. 7, 1904	Struck at crossing.
Nov. 21, 1895	Struck by train; "trespassing on track."	Oct. 18, 1905	Struck by train.
May 15, 1896	Struck by train.	Dec. 22, 1905	Struck by train.
Nov. 28, 1896	Found dead; it was supposed that he was run over while attempting to board a passenger train in motion; age 29.	Feb. 15, 1907	Struck by train at crossing.

**ELECTRICIANS, LINEMEN, ETC.**

	FATAL.		NONFATAL—continued.
Aug. 14, 1900	Dropped dead while repairing wires. (Lineman.)	Jan. 6, 1892	Slightly injured; thrown from step-ladder while fixing electric wires in train house.
June 29, 1903	Electric shock. (Electrician.)	Dec. 19, 1900	Punctured wound of leg; spike broke off of pole he was climbing. (Electrician.)
	NONFATAL.	Mar. 6, 1901	Both ankles sprained; was pulled from pole by engine which took up slack of wire that he was hanging across track. (Wireman.)
July 9, 1889	Head cut; jumped in front of train. (Telegraph lineman.)		
Jan. 27, 1891	Hip bruised; struck by passing coach while repairing wires on bridge.		

**INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.**

**MAINTENANCE-OF-WAY EMPLOYEES—Continued.**

**ELECTRICIANS, LINEMEN, ETC.—Concluded.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL—continued.		NONFATAL—concluded.
Mar. 31, 1902	Scalp wound and left foot lacerated; fell from hand car. (Wireman.)	April 28, 1905	Foot cut while handling tools.
June 23, 1903	Arm bruised; thrown against engine. (Wireman.)	June 7, 1905	Both hands burned at switchboard.
Sept. 15, 1903	Scalp wounds; struck by train. (Lineman.)	Sept. 10, 1906	Side and neck burned by electric wire. (Electrician.)
Oct. 21, 1903	Fracture of thigh; electric-light pole broke.	Jan. 30, 1907	Elbow dislocated; spurs slipped and he fell from pole. (Lineman.)
		Mar. 31, 1907	Injured; thrown from small motor car. (Lineman.)

**SWITCH TENDERS.**

	FATAL.		FATAL—concluded.
Oct. 13, 1888	Struck by car while throwing switch.	Sept. 13, 1893	Stepped in way of cars in yard and was run over; age 60.
Nov. 23, 1890	Found dead; supposed to have been struck while attending switches.	Nov. 26, 1893	Attempted to cross tracks ahead of switch engine and was struck; age 35.
Dec. 16, 1890	Struck by a light engine while attending switches.	Dec. 28, 1893	Attempted to couple cars while in motion; fell and was run over; age 34.
May 31, 1891	After having turned a switch in yard, stepped back in front of engine and was run over; age 26.	Dec. 14, 1895	Struck by yard engine; attempted to cross track ahead of engine.
Dec. 25, 1891	While tending switches in yard stepped in front of engine and was run over; age 28.	Oct. 10, 1897	Struck by engine while attending switches.
June 4, 1892	Stepped in front of some cars that were being switched; was knocked down and run over; age 39.	Nov. 9, 1903	Struck by cars while throwing a switch.
July 21, 1892	Stepped on track in front of some cars that were being switched and was run over; age 42.	Dec. 15, 1903	Struck by engine while throwing switch.
		Aug. 27, 1907	Stepped in front of freight train and was run over.

**SWITCH REPAIRERS.**

	FATAL.		NONFATAL—concluded.
Nov. 27, 1903	Struck and instantly killed by yard engine while working on switches.	Mar. 17, 1892	Slightly injured while repairing a switch.
	NONFATAL.	Aug. 3, 1892	Was struck and head cut open while repairing a switch.
Feb. 6, 1888	Right hand slightly injured while assisting in repairing an interlocking switch.	Jan. 23, 1901	Injured while repairing switch.
Nov. 1, 1890	Slightly injured while repairing an interlocking switch.	July 23, 1901	Finger on left hand crushed by plunger in interlocking switch while repairing it.
Aug. 5, 1891	Slightly injured by his hand being caught while repairing a switch.	June 18, 1903	Struck by car while repairing switch in yard; nature of injury not reported.
Aug. 18, 1891	Slightly injured by his hand being caught while repairing a switch.	June 5, 1905	Struck on head by car step while repairing switch.
Sept. 16, 1891	Slightly injured while at work on interlocking switches.	Feb. 26, 1907	Burned while filing switch blades at substation.
Feb. 7, 1892	Slightly injured while repairing a switch.		

**SWITCH OILERS.**

	NONFATAL.		NONFATAL—concluded.
Mar. 22, 1905	Struck by light engine while oiling switch; head injured.	July 17, 1906	Struck by train while oiling switches; nature of injury not reported.
Apr. 8, 1905	Struck by car while oiling switch; nature of injury not reported.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**MAINTENANCE-OF-WAY EMPLOYEES—Continued.**

**SWITCH CLEANERS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>FATAL.</b>		<b>NONFATAL.</b>
Mar. 8, 1890	Found lying on track fatally injured; supposed to have been struck by train while cleaning switches.	Nov. 7, 1891	While cleaning switches stepped on track in front of engine; received a scalp wound over left eye.
Dec. 18, 1901	Struck and killed by train while cleaning a switch.	Sept. 20, 1895	While cleaning switches was struck by engine; shoulder slightly injured.
July 7, 1903	Struck by engine and killed while cleaning a switch.		
Jan. 4, 1905	Struck by train.		
Nov. 16, 1905	Struck by engine while cleaning switch.		

**SUPERVISOR OF SIGNALS.**

	<b>FATAL.</b>		
July 31, 1907	While on motor car near station was struck and instantly killed by passenger train.		

**SIGNAL FOREMAN.**

	<b>NONFATAL.</b>		
Feb. 6, 1899	Piece of steel lodged in left eye; was repairing signals.		

**SIGNAL INSPECTOR.**

	<b>NONFATAL.</b>		
April 4, 1902	Head cut; cause not reported.		

**SIGNAL REPAIRERS.**

	<b>FATAL.</b>		<b>NONFATAL—concluded.</b>
Jan. 1, 1897	Fell from signal pole.	Mar. 12, 1901	Leg lacerated by explosion of torpedo by track velocipede.
July 20, 1907	Struck by train.	Apr. 27, 1901	Finger badly lacerated; switch was moved from tower while he was repairing a signal.
	<b>NONFATAL.</b>		
May 23, 1892	Slightly injured by falling from a signal pole.	May 27, 1901	Foot cut; adz slipped while cutting timber.
July 8, 1892	While working on boxing for new signals in freight yard was struck and seriously injured about the head.	Oct. 20, 1902	Finger broken at tower; manner not reported.
July 23, 1898	Head, leg, and rib bruised by fall from signal pole.	Jan. 29, 1903	Injured by flying window glass.
Jan. 29, 1900	Knee lacerated; fell on point of nail while dragging a tie along the ground.	July 2, 1903	Legs bruised while working on signals.
		Oct. 19, 1905	Bicycle jumped track; sprain of knee.
		June 19, 1907	Burned by third rail.

**TOWER MEN.**

	<b>NONFATAL.</b>		<b>NONFATAL—concluded.</b>
Apr. 10, 1899	Back bruised by derailment of car.	Nov. 8, 1907	While waiting for train was struck by bundle of papers thrown from train; leg was broken.
Mar. 12, 1906	Fell from tower; jaw fractured and concussion of brain.		
Oct. 29, 1907	While getting off engine while same was in motion in yard; head cut and both feet crushed.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**MAINTENANCE-OF-WAY EMPLOYEES—Concluded.**

**LAMP CLEANERS, LAMPLIGHTERS, ETC.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>FATAL.</b>		<b>NONFATAL—concluded.</b>
Apr. 1, 1893	Struck while coming out of lamp house. (Lamp man.)	Aug. 9, 1892	Slightly injured while cleaning a lantern.
Jan. 3, 1895	Struck by an engine while examining a switch lamp.	Sept. 18, 1893	Leg and hip bruised; struck by yard engine while crossing tracks. (Lamp cleaner.)
June 6, 1902	Killed by fall. (Lamp lighter.)	Mar. 14, 1896	Body slightly bruised; struck by train. (Lamp cleaner.)
Nov. 30, 1903	Struck in yard. (Lamp man.)	Sept. 24, 1897	Arm and both legs broken; fell off trestle. (Signal lamp man.)
Aug. 21, 1906	Run over by engine while crossing track. (Headlight filler.)	Dec. 16, 1897	Body squeezed; caught between platform and box car in yard. (Lamp trimmer.)
Sept. 4, 1906	Fell from car and was run over. (Lamp man.)	Nov. 13, 1901	Side injured; fell while getting down from cars to light lamp.
	<b>NONFATAL.</b>	Dec. 1, 1902	Two ribs broken; fell from ladder.
June 12, 1889	Hand slightly injured; globe of gauge lamp broke while cleaning it.	July 6, 1903	Struck by engine while filling switch lamps; injury not reported.
Sept. 19, 1889	Slightly injured; lamp globe broke while cleaning it.	Aug. 18, 1903	Leg cut off; struck in yard by drill engine. (Lamp man.)
Dec. 13, 1889	Hand slightly injured; globe broke while lighting lamp.	Sept. 7, 1903	Foot cut off; struck by cars in yard (Lamp man.)
Sept. 20, 1890	Slightly injured while cleaning a train signal lamp.		
July 9, 1891	Slightly injured while cleaning a hand lamp.		

**SIGNALMEN (NOT SPECIFIED).**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>FATAL.</b>		<b>NONFATAL—concluded.</b>
June 29, 1896	Struck by stepping in front of engine.	Feb. 28, 1899	Arm broken, head cut; struck by engine while walking on track.
Nov. 1, 1900	Struck by train while at work.	June 12, 1902	Ankle injured; cause not reported.
Jan. 29, 1904	Struck by train.	June 30, 1902	Finger crushed; trunk slipped while loading baggage.
Oct. 31, 1904	Struck by train.	Nov. 4, 1904	Scalp wound; struck gateman's shanty while leaning out of passenger coach.
	<b>NONFATAL.</b>	July 13, 1907	Hand burned while throwing light signal.
Apr. 28, 1893	Head badly cut and right leg broken trying to board train.		
June 18, 1896	Face and hand bruised; knocked down by switch target.		

**EMPLOYEES IN CONNECTION WITH FLOATING EQUIPMENT.**

**WHARF CAPTAIN.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>NONFATAL.</b>		
Oct. 17, 1905	Right foot injured by rope.		

**FERRYBOAT BRIDGE MEN.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>NONFATAL.</b>		<b>NONFATAL—concluded.</b>
Nov. 14, 1888	Finger burned; particulars not reported.	Sept. 11, 1901	Head and hand injured by wheel on ferry-slip bridge.
Feb. 10, 1891	Instep of left foot bruised; run over by baggage truck.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**EMPLOYEES IN CONNECTION WITH FLOATING EQUIPMENT—Continued.**

**FERRY SLIP MEN.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		NONFATAL—concluded.
Jan. 1, 1904	Foot hurt by freight slip.	Feb. 15, 1904	Hand hurt by freight slip.

**FERRYBOAT FIREMEN.**

	NONFATAL.		
Nov. 27, 1897	Struck by engine in yard; face slightly bruised.		

**FERRYBOAT DECK HANDS.**

	NONFATAL.		NONFATAL—concluded.
Aug. 10, 1891	Bruised about the hips by being caught between ferry rack and rail of ferryboat while drawing in hawser.	Oct. 1, 1891	Thumb cut; caught between bucket and cart while hoisting ashes from fireroom.

**TUGBOAT PILOTS.**

	NONFATAL.		NONFATAL—concluded.
Feb. 19, 1905	Hand bruised by steering wheel.	Mar. 17, 1905	Body squeezed by tug.

**TUGBOAT CAPTAIN.**

	NONFATAL.		
Feb. 2, 1900	Sprained his legs; fell over the deck guard.		

**TUGBOAT ENGINEERS.**

	NONFATAL.		NONFATAL—concluded.
Mar. 19, 1888	Right hand severely injured; caught in the bearing of the tug engine.	Feb. 1, 1905	Right arm bruised by lever.

**TUGBOAT FIREMAN.**

	NONFATAL.		
June 20, 1891	Slightly injured by fire hose falling from rack in the fireroom.		

**TUGBOAT EMPLOYEES (NOT SPECIFIED).**

	NONFATAL.		NONFATAL—concluded.
Apr. 24, 1888	Leg slightly injured; caught in turn of line.	Mar. 1, 1892	Right foot pulled off at the ankle; he was caught in turn of line and drawn around the steam head several times.
Dec. 31, 1888	Severely injured; steering wheel slipped from the becket.	Jan. 13, 1893	Ankle bruised; caught in towline while shifting a float.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**EMPLOYEES IN CONNECTION WITH FLOATING EQUIPMENT—Concluded.**

**BARGE CAPTAINS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL.		NONFATAL—concluded.
June 8, 1898	Face bruised; fell from boat to dock.	June 7, 1901	Injured knee cap; broke through a rotten plank on dock.

**FLOAT MEN.**

	NONFATAL.		NONFATAL—concluded.
July 21, 1900	Hand injured; particulars not reported.	Sept. 10, 1904 Jan. 28, 1905	Head and back hurt; handling cars. Thigh fractured; handling towline.

**PILOT (NOT SPECIFIED).**

	NONFATAL.		
July 28, 1891	Hip injured slightly; coat caught in revolving steering wheel and he was thrown to floor.		

**BOATMEN (NOT SPECIFIED).**

	FATAL.		NONFATAL.
Nov. 26, 1895	Killed while taking up towline.	June 1, 1895	Face and neck bruised by fall from ladder.

**DECK HANDS (NOT SPECIFIED).**

	NONFATAL.		NONFATAL—concluded.
July 28, 1901	Leg caught and badly squeezed in a line at docks.	July 4, 1905 Mar. 3, 1906 Aug. 29, 1906	Arm sprained by fall. Thumb crushed by fall. Stomach injured by fall.
June 22, 1903	Hand hurt while at work.		

**MISCELLANEOUS AND UNCLASSIFIED OCCUPATIONS.**

**BELLMAN.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		
Dec. 10, 1895	Struck by train.		

**CHAIR MEN.**

	NONFATAL.		NONFATAL—concluded.
Mar. 29, 1892 Aug. 23, 1892	Hips bruised by fall from car. Arm bruised, uncoupling cars.	Sept. 23, 1892	Hips bruised; thrown from car against bumper.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

**MISCELLANEOUS AND UNCLASSIFIED OCCUPATIONS—Continued.**

**CLEERKS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	<b>FATAL.</b>		<b>NONFATAL—concluded.</b>
July 13, 1904	Run over by car.	Aug. 8, 1903 Dec. 15, 1903 Feb. 5, 1904	Finger bruised; trunk fell on it. Foot hurt by fall. Injured; attempting to board engine.
	<b>NONFATAL.</b>		
May 4, 1892	End of little finger cut off in door of coach.	July 1, 1904	Body and legs hurt; struck by engine.
Sept. 14, 1892	Foot cut off; fell under car when trying to board it.	Sept. 8, 1904	Injured, "boarding or alighting from car."
June 14, 1893	Toes cut off; fell under car when trying to board it.	May 27, 1906 June 11, 1906 July 20, 1906	Hand and face injured by fall. Injured; struck overhead bridge. Back and head injured; struck by engine.
July 30, 1895	Leg broken, jumping off car.	Nov. 9, 1906	Injured by fall.
July 11, 1898	Cut on head; struck by iron bar which fell from car.	Oct. 23, 1907	Injured; struck by train.
Mar. 22, 1902	Injured; particulars not given.		
Dec. 19, 1902	Wrist injured and forehead cut by fall from train.		

**COAL HEAVERS.**

	<b>FATAL.</b>		<b>NONFATAL—concluded.</b>
Nov. 1, 1899	Coal-bin partition gave way.	Jan. 11, 1899	Ankle dislocated; caught between a board and small coal car.
	<b>NONFATAL.</b>	Jan. 15, 1899	Hand lacerated, wiping machinery of gas engine at coal pockets.
Apr. 5, 1899	Hand squeezed; coupling engine to car.	July 29, 1903	Injured; further particulars not reported.
Dec. 4, 1891	Arm bruised; coupling.		
Jan. 28, 1896	Right foot bruised; lump of coal bounded over edge of car while helping to fill small dumps at coal pockets.		

**COAL TRIMMERS.**

	<b>FATAL.</b>		<b>NONFATAL—concluded.</b>
Oct. 15, 1896	Struck by engine.	July 12, 1905 Aug. 26, 1905 Sept. 21, 1905 Oct. 25, 1905 June 28, 1907 Nov. 15, 1907 Nov. 27, 1907	Leg hurt by coal. Foot bruised by coal. Head cut, handling tools. Hand bruised by coal. Side bruised by fall. Leg injured by fall. Foot injured while handling coal.
Mar. 8, 1892	Side hurt by iron bar.		
Jan. 17, 1903	Hand hurt by coal.		
Aug. 15, 1903	Hand hurt by coal.		
Oct. 29, 1904	Hand hurt by coal.		

**DOOR SWINGERS.**

	<b>FATAL.</b>		<b>NONFATAL.</b>
Mar. 1, 1895	Collision caused by parting of coal train.	Aug. 3, 1895	Cut on hand by stone thrown by boys.

**FOREMEN (NOT SPECIFIED).**

	<b>FATAL.</b>		<b>NONFATAL.</b>
Sept. 1, 1897	Killed by passing train.	June 18, 1888	Leg broken while attempting to lift hand car onto siding.
Aug. 18, 1900	Struck by train.	June 3, 1893	Both ankles sprained; jumped from engine.
May 17, 1901	Struck by engine.	Feb. 16, 1894	Leg broken by train.
Feb. 10, 1902	Run over by train.		
Aug. 25, 1906	Struck by engine at shop.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

MISCELLANEOUS AND UNCLASSIFIED OCCUPATIONS—Continued.

FOREMEN (NOT SPECIFIED)—Concluded.

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL—continued.		NONFATAL—concluded.
Jan. 2, 1896	Injured about the head; jumped from moving train in passenger yard.	Jan. 14, 1903	Injured; no other particulars.
Oct. 27, 1898	Face severely cut; struck by floating lever.	Feb. 9, 1904	Injured at coal docks; no other particulars.
Oct. 15, 1900	Slightly injured, taking coal on engine.	Jan. 4, 1905	Foot hurt by crowbar.
Oct. 15, 1901	Severely hurt by train.	Apr. 23, 1906	Head, body, and limbs injured, handling timber.
Jan. 21, 1902	Contusion of shoulder; tripped and fell between tracks.	Apr. 27, 1906	Both legs fractured; caught between cable and drum of derrick.
Nov. 15, 1902	Arm bruised; caught while coupling cars.	Jan. 21, 1907	Left knee injured getting off car.
Dec. 12, 1902	Head, shoulders, hips, and legs bruised by fall into coal pocket.	Jan. 23, 1907	Head injured by fall.
		Jan. 29, 1907	Head injured, handling machinery.
		Aug. 1, 1907	Body injured by baggage crate.
		Sept. 13, 1907	Injured by tie thrown from car.

ASSISTANT FOREMEN (NOT SPECIFIED).

	FATAL.		NONFATAL.
June 23, 1902	Struck by train.	Apr. 5, 1903	Injured; other particulars not reported.
		July 5, 1904	Hand hurt by tie.

INSPECTORS.

	NONFATAL.		NONFATAL—concluded.
Jan. 2, 1896	Injured about the head; jumped from moving train, in yard. (Foreman inspector.)	Oct. 27, 1898	Face severely cut; floating lever struck it. (Night inspector.)

LABORERS.

	FATAL.		FATAL—continued.
Jan. 27, 1888	Caught between cars.	Dec. 22, 1892	Attempted to run across tracks in front of train; age 33.
Mar. 23, 1888	Jumping on train.	Jan. 31, 1893	While walking on track was struck and instantly killed.
May 17, 1888	While walking on track was struck and instantly killed; age 40.	Apr. 6, 1893	Struck and instantly killed while trying to cross track in front of train.
June 6, 1888	Attempted to cross tracks ahead of train; was struck and received injuries from which he died two hours afterwards; age 23.	Apr. 29, 1893	Came from behind some cars and attempted to cross track ahead of passenger train; struck and instantly killed; age 24.
July 31, 1888	Attempted to cross bridge ahead of train; was struck; received injuries from which he died shortly afterwards; age 60.	Oct. 25, 1893	Unknown man; struck by engine while walking on trestle over the Erie Railroad.
Sept. 27, 1888	Struck by engine.	Jan. 3, 1895	Thrown from trestle by rope used to guide rails.
Dec. 21, 1888	Struck by train.	July 11, 1896	Caught between drawheads of cars and squeezed while passing between cars.
Jan. 8, 1889	Crossing tracks; was struck.	July 24, 1896	Stood on track at coal dock; failed to notice approach of an empty coal car; was run over by it; age 47.
Dec. 5, 1889	Walking on track; was struck.	Aug. 19, 1896	Struck by engine.
May 31, 1890	Killed in collision.	Oct. 10, 1896	Struck by train.
July 5, 1890	Struck by train and instantly killed; age 46.	Apr. 13, 1897	Decapitated; struck by engine.
Sept. 14, 1890	Was struck and instantly killed while walking on track; age 45.	Apr. 24, 1897	Attempted to cross between cars being drilled; was squeezed.
Oct. 10, 1890	Fell off car to coal dock.	July 16, 1897	Struck by train; fatally injured.
Dec. 26, 1890	Struck by train.	Sept. 30, 1897	Jumping from freight train, fatally injured.
Jan. 26, 1891	Caught between cars; age 24.		
Oct. 10, 1891	Caught between cars; age 32.		
Nov. 24, 1891	Body found; struck and killed by unknown train; age 57.		
Aug. 13, 1892	Found dead, lying near track.		
Aug. 19, 1892	Struck by locomotive.		
Oct. 23, 1892	While crossing track, struck and fatally injured.		

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

MISCELLANEOUS AND UNCLASSIFIED OCCUPATIONS—Continued.

LABORERS—Concluded.

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL—continued.		FATAL—concluded.
Nov. 22, 1897	Struck by drill engine while at work in yard.	Aug. 21, 1903	Killed; stepped in front of engine.
Jan. 1, 1899	Run over by engine.	Nov. 22, 1903	Fell from engine.
Feb. 9, 1899	Struck by engine.	Nov. 30, 1903	Killed by engine.
Mar. 22, 1899	Struck by train.	Jan. 2, 1904	Struck by cars.
Apr. 2, 1899	Killed under engine.	Jan. 2, 1904	Struck by train.
Aug. 3, 1899	Run over by coal car; fatally injured.	Apr. 9, 1904	Struck by train.
Aug. 26, 1899	Struck by train.	Aug. 1, 1904	Struck by train.
Oct. 21, 1899	Killed; laid on track.	Sept. 15, 1904	Struck by train.
Jan. 9, 1900	Struck by engine.	Feb. 24, 1905	While crossing track was struck and run over.
Apr. 16, 1900	Struck while crossing tracks.	Apr. 4, 1905	Struck by engine.
Jan. 28, 1901	Struck by drill engine.	Apr. 10, 1905	Struck by train.
Feb. 1, 1901	Struck by train.	Aug. 26, 1905	Struck by cars.
Mar. 1, 1901	Struck by train; died shortly after.	Sept. 9, 1905	Struck and killed
Mar. 28, 1901	Struck by derrick handle.	Nov. 22, 1905	Struck by train.
Apr. 21, 1901	Killed; supposed to have been struck by train.	Jan. 16, 1906	Struck by train.
June 20, 1901	Killed; went between cars while train was being made up; cars came together and he was squeezed.	Jan. 16, 1906	Struck by train.
July 9, 1901	Fell from or struck by train.	Jan. 25, 1906	While going between two cars they came together, throwing him into coal pocket.
Aug. 15, 1901	Employee; killed while walking on track.	June 28, 1906	Struck by train.
Aug. 23, 1901	Tried to climb over cars and was killed.	July 14, 1906	Struck by train.
Oct. 22, 1901	Jumped off moving car and fell under wheels.	July 26, 1906	Struck by train.
Nov. 2, 1901	Killed while walking on tracks.	Aug. 8, 1906	Struck by train.
Dec. 16, 1901	Struck by train while walking on tracks.	Aug. 11, 1906	Struck by train.
Mar. 17, 1902	Fatally injured; no particulars.	Aug. 16, 1906	Struck by train.
Aug. 26, 1902	Fatally injured at docks; no particulars.	Jan. 18, 1907	Struck by train.
Sept. 3, 1902	Struck by train.	Feb. 1, 1907	Struck by train.
Dec. 5, 1902	Killed by cars being drilled.	Feb. 26, 1907	Struck and fatally injured.
Dec. 5, 1902	Struck by train.	Mar. 6, 1907	Struck by train.
Dec. 5, 1902	Struck by train.	Mar. 8, 1907	Struck by train.
Dec. 5, 1902	Struck by train.	Apr. 15, 1907	Killed at transfer yard; no particulars.
Feb. 17, 1903	Struck by train.	May 1, 1907	Struck while crossing track; fatally injured.
June 12, 1903	Killed at coal docks; no particulars.	June 4, 1907	Struck by train.
		Sept. 4, 1907	Struck by train.
		Sept. 16, 1907	Killed, "boarding or alighting."
		Sept. 17, 1907	Instantly killed, by falling from stocking-ground trestle into coal bin.
		Nov. 15, 1907	Struck and fatally injured.

PIER AND DOCK LABORERS.

	FATAL.		NONFATAL—continued.
Jan. 24, 1888	Found dead; supposed to have fallen from dock.	Jan. 3, 1899	Wrist broken; fell into boat from pier while wheeling coal.
Jan. 10, 1895	Struck by engine. (Dock builder.)	Jan. 18, 1899	Scalp wound and leg bruised; fell into boat from pier while wheeling coal.
Nov. 8, 1900	Drowned. (Pier laborer.)	Apr. 10, 1899	Back bruised; fell from dock to car track.
June 9, 1904	Killed while running cars. (Pier foreman.)	June 6, 1899	Back bruised; fell from pier to car track.
Apr. 11, 1907	Struck by cars while walking across track. (Pier laborer.)	Sept. 25, 1899	Hand crushed; caught under wheel while blocking a car on dock.
	NONFATAL.	Apr. 24, 1900	Middle finger bruised, throwing rail from car or pier.
Aug. 23, 1892	Badly bruised; struck by passenger train.	July 1, 1900	Fingers injured, handling timber. (Dock builder.)
May 28, 1894	Hand bruised, coupling.	July 6, 1900	Arm bruised by fall of timber.
Sept. 29, 1894	Hand crushed, coupling.	July 11, 1900	Fingers injured, handling rails.
Jan. 28, 1895	Right leg cut off; struck by engine while walking on track.	July 19, 1900	Finger bruised, taking iron from car.
Mar. 18, 1895	Hand bruised by car.	Aug. 22, 1900	Face contused; fell from coal trestle.
June 16, 1895	Bruised by fall.	Sept. 3, 1900	Back sprained; fell on dock.
Nov. 21, 1895	Thumb mashed, coupling.	Sept. 5, 1900	Hand badly bruised; barrel he was moving fell on it.
Feb. 19, 1896	Face bruised; struck by car.		
Feb. 18, 1897	Hand lacerated, coupling.		

**INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.**

**MISCELLANEOUS AND UNCLASSIFIED OCCUPATIONS—Continued.**

**PIER AND DOCK LABORERS—Concluded.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	NONFATAL—continued.		NONFATAL—concluded.
Oct. 1, 1900	Foot slightly bruised; run over while shoving a grampus. (Dock builder.)	Aug. 23, 1901	Arm dislocated at elbow by fall while transferring ice.
Oct. 15, 1900	Two fingers injured; caught between beam and post, while beam was being moved. (Dock foreman.)	Sept. 1, 1901	Eye and nose injured; coal-chute apron dropped on him.
May 14, 1901	Foot injured by ax while working on pile driver.	Feb. 3, 1902	Forehead cut; no particulars.
June 4, 1901	Face and arms burned; explosion in trunk.	Aug. 5, 1902	Head hurt by fall.
June 4, 1901	Face and arms burned; explosion in trunk.	Oct. 2, 1902	Head hurt by fall.
June 4, 1901	Face and arms burned; explosion in trunk.	May 16, 1903	Leg cut off, working on coal dock.
		June 1, 1903	Toe centused; plank fell on it. (Dock builder.)
		Sept. 14, 1903	Wrist sprained; fell from pile driver.

**MESSENGER.**

	NONFATAL.		
Sept. 10, 1896	Trying to get on train, lost his hold and fell under; leg crushed.		

**PORTERS (NOT SPECIFIED).**

	NONFATAL.		NONFATAL—concluded.
Apr. 6, 1888	Leg bruised; fell over guard chain on ferryboat.	July 20, 1900	Eye badly bruised; caught between baggage truck and bridge at ferry ship.
Mar. 12, 1891	Two ribs broken; knocked down in car by collision.	Dec. 11, 1900	Rib fractured and body severely bruised; run into by team.
Apr. 29, 1893	Sprained his ankle by jumping from train.	Sept. 22, 1901	Leg broken; stepped from moving train.
Nov. 18, 1898	Eye injured in collision.	Apr. 13, 1902	Hip bruised; fell from moving train.
Dec. 5, 1899	Head hurt, "coupling or handling cars."		

**PUMP MEN (NOT SPECIFIED).**

[See also roundhouse employees.]

	FATAL.		NONFATAL—concluded.
June 20, 1904	Drowned by falling into well.	Mar. 7, 1903	Sprained ankle; fell from ladder.
	NONFATAL.	Aug. 24, 1907	Injured by debris when water tank collapsed.
Jan. 2, 1902	Overcome by gas.		

**SUPERINTENDENT (NOT SPECIFIED).**

	NONFATAL.		
Aug. 18, 1902	Right leg injured above the ankle; side rod of engine broke.		

**TOPMEN.**

	FATAL.		FATAL—concluded.
Mar. 4, 1900	Foot injured by locomotive while walking on track; died of lockjaw March 14.	Apr. 28, 1900	Killed by collision of coal cars.
		May 16, 1902	Killed by fall from pier.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1883 TO 1907—Continued.

MISCELLANEOUS AND UNCLASSIFIED OCCUPATIONS—Continued.

WATCHMEN (NOT SPECIFIED).

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL.		NONFATAL—concluded.
Feb. 15, 1889	Attempted to cross tracks in front of train and was struck; age 50.	Oct. 13, 1893	Leg hurt by crank.
Oct. 14, 1892	Struck by car and was run over.	Feb. 7, 1896	Head slightly cut; attempted to cross track ahead of yard engine and was struck; age 70.
July 7, 1893	Struck.		
Aug. 15, 1894	Struck by overhead bridge while standing on top of box car.	Sept. 11, 1896	Injured by fall from top of box car.
May 24, 1896	Found dead; struck by train.	Jan. 27, 1897	Left side sprained; fell from tank of engine.
Aug. 7, 1897	Stepped in front of train in yard.	Mar. 7, 1897	Scalp wound; fell on track.
July 22, 1898	Struck by engine.	Apr. 11, 1897	Finger badly mashed; was helping to unload horses from a car.
Dec. 15, 1898	Struck by train.	Dec. 10, 1898	Knee sprained; slipped on ice.
Feb. 20, 1899	Struck by train.	Jan. 18, 1899	Breast bruised; struck by push pole.
Feb. 20, 1899	Stepped in front of engine in yard.		
May 21, 1901	Fell from moving freight train.	June 6, 1901	Shoulder, hand, and ankle injured by iron falling on him.
Mar. 31, 1902	Struck while walking on track.	Oct. 4, 1901	Hips slightly injured; was walking on track and hit by empty cars that were being placed.
Aug. 20, 1902	Struck by engine in yard.		
May 31, 1903	Struck by train.	Oct. 22, 1901	Two ribs broken; struck by a package thrown from train.
Apr. 23, 1904	Struck by train.	Feb. 22, 1902	Ankle sprained, assisting to unload freight.
	NONFATAL.	Oct. 15, 1902	Ankle broken by fall from train.
June 4, 1888	Head cut while walking on track.	Dec. 3, 1902	Arm hurt by boy stealing coal.
July 12, 1889	Face and back badly bruised; crossing tracks was hit by engine; age 72.	Dec. 29, 1902	Side hurt by fall in the dark.
Oct. 17, 1890	Toes crushed while climbing on engine.	Sept. 21, 1903	Head hurt by engine.
Dec. 20, 1890	Left thumb broken, attempting to get off yard train; age 56.	Dec. 1, 1904	Pelvis fractured; struck by train.
Aug. 16, 1891	Right ankle broken and scalp wound; struck by engine while crossing track; age 60.	Feb. 13, 1905	Side sprained, jumping on engine.
		June 26, 1906	Chest bruised by fall from engine.
June 7, 1892	Severely bruised; struck by engine.	Aug. 20, 1906	Hip contused while unloading a can of milk from car; car was moved by engine and can fell on him.
Sept. 21, 1893	Several ribs broken; attempted to signal engine to stop so that he could get on and was struck; age 50.	Feb. 4, 1907	Hand injured, throwing switch.
		Feb. 11, 1907	Leg injured by fall on ice.

EMPLOYEES (NOT SPECIFIED), EXCEPT THOSE KILLED IN COUPLING OR UNCOUPLING.

	FATAL.		FATAL—continued.
Jan. 11, 1888	Struck and killed while crossing tracks.	Sept. 27, 1888	Killed by engine.
Jan. 18, 1888	Killed by fall from train.	Oct. 4, 1888	Struck by train and killed while crossing tracks.
Jan. 21, 1888	Killed by running car.	Nov. 14, 1888	Killed by engine.
Feb. 1, 1888	Caught between cars and fatally injured.	Dec. 24, 1888	Fatally injured while alighting from a train in motion.
Feb. 17, 1888	Found dead; supposed to have been struck and killed by a train.	Jan. 9, 1889	Killed in coal elevator.
Feb. 22, 1888	Ran over and fatally injured by cars being drilled.	Jan. 16, 1889	Fatally injured; struck by a train while crossing tracks.
Apr. 1, 1888	Fatally injured by falling from a train in motion.	Feb. 7, 1889	Killed; struck by train while walking on track.
May 10, 1888	Killed by striking overhead bridge.	Feb. 23, 1889	Fatally injured; struck by train while walking on track.
May 30, 1888	Struck and killed by a train while crossing tracks.	Mar. 29, 1889	Struck and killed by train while standing on track.
July 16, 1888	Found dead; supposed to have been struck by train while walking on track.	Apr. 17, 1889	Struck and killed by car being drilled.
July 20, 1888	Struck by an engine and killed while crossing tracks.	Apr. 26, 1889	Caught between cars and killed while crossing track.
Aug. 15, 1888	Drowned by falling into river while watching a boat.	July 29, 1889	Fatally injured by falling from train in motion.
Sept. 1, 1888	Killed by overhead signal.	Aug. 17, 1889	Killed, striking station.
Sept. 5, 1888	Struck by train and fatally injured while crossing tracks.	Sept. 11, 1889	Killed on tracks.
Sept. 14, 1888	Struck by train and killed while walking on track.	Nov. 1, 1889	Killed, falling from train while it was in motion.
Sept. 22, 1888	Killed by escaping gas while draining a tank.	Dec. 18, 1889	Killed, falling from train while in motion.
		Jan. 4, 1890	Struck by train and killed while walking on track.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

MISCELLANEOUS AND UNCLASSIFIED OCCUPATIONS—Continued.

EMPLOYEES (NOT SPECIFIED), EXCEPT THOSE KILLED IN COUPLING OR UNCOUPLING—Continued.

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL—continued.		FATAL—continued.
Feb. 27, 1890	Struck by train and killed while walking or standing on track.	Mar. 30, 1892	Found dead.
Mar. 1, 1890	Found lying on track; supposed to have been run over and killed by freight cars being drilled.	Apr. 5, 1892	Struck by a train.
Mar. 13, 1890	Killed crossing tracks.	Apr. 9, 1892	Struck by train.
Mar. 24, 1890	Fatally injured by striking coal bin when drawing water from tank of moving engine.	Apr. 13, 1892	Caught between cars.
Mar. 26, 1890	Killed by falling from moving freight train.	May 13, 1892	Struck by a train.
May 17, 1890	Fatally injured by jumping from a moving train.	May 30, 1892	Fell from a moving train.
May 18, 1890	Found lying along track fatally injured; supposed to have been struck by a train while walking on track.	June 8, 1892	Fell from a scaffold.
June 14, 1890	Fatally injured by cars being moved while sitting under them.	June 12, 1892	Struck by train.
July 3, 1890	Killed; struck by train while standing on track.	June 15, 1892	Struck by train.
Aug. 18, 1890	Killed; struck by engine while walking on track.	June 20, 1892	Struck by train.
Sept. 2, 1890	Killed attempting to put a trunk on moving train.	July 12, 1892	Struck by train.
Sept. 12, 1890	Caught while attempting to pass between moving cars.	July 13, 1892	Struck by a car.
Sept. 17, 1890	Drowned by falling from a float.	July 16, 1892	Struck by a train.
Nov. 11, 1890	Killed; fell through trestle.	July 21, 1892	Knocked down from scaffold; caused by engine striking it.
Dec. 3, 1890	Struck by train by reason of falling from a moving train.	July 25, 1892	Struck by a train.
Dec. 9, 1890	Fell from incline to wharf floor at coaling station.	Aug. 12, 1892	Struck by a train.
Dec. 12, 1890	Fatally injured, attempting to get on moving freight train.	Aug. 17, 1892	Struck by a car.
Feb. 21, 1891	Fell from train shed by reason of being seized with an epileptic fit.	Aug. 31, 1892	Run over by a car while asleep on car float.
Feb. 23, 1891	Drowned by falling overboard from a float.	Sept. 13, 1892	Killed by derailed car.
Apr. 4, 1891	Killed loading lumber.	Sept. 22, 1892	Struck by an engine.
Apr. 27, 1891	Fatally injured; piece of iron falling on him.	Sept. 24, 1892	Struck by a train.
May 14, 1891	Fatally injured; struck by a train.	Sept. 28, 1892	Struck by train.
June 1, 1891	Clothing caught in hoisting-engine machinery.	Oct. 2, 1892	Struck by an engine.
June 22, 1891	Fatally injured; struck by a car.	Oct. 26, 1892	Killed by being struck by a train.
July 4, 1891	Body found; he probably went out on platform and in some unknown manner lost his footing and fell off.	Dec. 15, 1892	Struck by an engine.
Sept. 5, 1891	Killed while walking on track.	Dec. 25, 1892	Found; supposed to have been struck by a train.
Sept. 11, 1891	While passing over train was struck by an overhead bridge and instantly killed.	Dec. 27, 1892	Found dead; supposed to have been struck by a train.
Sept. 21, 1891	Fatally injured by falling from scaffold.	Jan. 10, 1893	Struck by a train.
Sept. 24, 1891	Struck by train.	Jan. 20, 1893	Struck by a train.
Nov. 14, 1891	Struck by train.	Jan. 30, 1893	Killed by a train while standing on the track.
Dec. 13, 1891	Struck by train.	Feb. 10, 1893	Killed by engine while crossing the tracks.
Jan. 17, 1892	Fatally injured by deflector pipe of an engine bursting.	Apr. 15, 1893	Fell from a moving train.
Jan. 27, 1892	Breaking of coupling between an engine and tender.	May 11, 1893	Fatally injured by being struck by plank thrown by engine.
Feb. 1, 1892	Fell from moving train.	May 18, 1893	Fatally injured jumping from train.
Feb. 11, 1892	Struck by train.	May 19, 1893	Fell from a car.
Feb. 15, 1892	Struck by train.	May 30, 1893	Fatally injured while walking between cars.
Mar. 10, 1892	Struck by an engine.	June 20, 1893	Fell from a moving train.
Mar. 17, 1892	While placing car of coal on chute one of the ties gave way under his feet, throwing him head first to ground.	July 4, 1893	Killed by a train while walking on track.
Mar. 18, 1892	Struck by a car.	July 22, 1893	Killed by a train while crossing tracks.
		Dec. 4, 1893	Struck by a train.
		Dec. 21, 1893	Struck by a train.
		Jan. 20, 1894	Killed; crossing tracks.
		Jan. 27, 1894	Killed; struck by car.
		May 22, 1894	Killed; struck by engine.
		July 14, 1894	Killed; struck by train.
		Sept. 14, 1894	Killed; fell from train.
		Oct. 2, 1894	Killed; collision.
		Jan. 16, 1895	Killed by fall from moving train.
		Jan. 24, 1895	Killed; struck by engine.
		Feb. 8, 1895	Killed; struck by car.
		Mar. 6, 1895	Killed by being struck by train.
		Mar. 30, 1895	Struck by engine.
		May 5, 1895	Fatally injured while crossing track.
		May 12, 1895	Killed; struck by engine.
		May 13, 1895	Killed; struck by train.
		June 26, 1895	Fell from moving train.
		July 11, 1895	Killed; struck by train.
		July 27, 1895	Struck by deflector bar of engine as train pulled out from station.
		Sept. 20, 1895	Struck by train.
		Oct. 12, 1895	Crossing tracks.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

MISCELLANEOUS AND UNCLASSIFIED OCCUPATIONS—Continued.

EMPLOYEES (NOT SPECIFIED), EXCEPT THOSE KILLED IN COUPLING OR UNCOUPLING—Continued.

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL—continued.		FATAL—continued.
Nov. 24, 1895	Struck by train.	July 15, 1899	Killed by stepping in front of a moving train.
Nov. 28, 1895	Struck by engine while boarding a moving train.	Aug. 16, 1899	Fell from an engine.
Dec. 25, 1895	Killed while walking on track.	Aug. 21, 1899	Fell from a car.
Jan. 17, 1896	Killed while crossing the tracks.	Oct. 4, 1899	Fatally injured while crossing tracks.
Jan. 24, 1896	Killed while standing on track.	Oct. 10, 1899	Fell from a moving train.
Feb. 12, 1896	Killed while crossing tracks.	Oct. 13, 1899	Fatally injured by falling from a moving train.
Feb. 13, 1896	Fatally injured by falling under an engine.	Nov. 21, 1899	Killed while crossing track.
Apr. 4, 1896	Killed while walking on track.	Nov. 23, 1899	Fell under a moving train.
July 30, 1896	Killed; no particulars.	Dec. 12, 1899	Killed; collision.
July 30, 1896	Killed; no particulars.	Dec. 12, 1899	Killed; collision.
Aug. 6, 1896	Killed while crossing tracks.	Jan. 19, 1900	Killed while removing flag from track.
Sept. 15, 1896	Struck by overhead bridge.	Mar. 19, 1900	Killed while walking on tracks.
Oct. 3, 1896	Fatally injured while crossing tracks.	Apr. 2, 1900	Killed while crossing tracks.
Nov. 25, 1896	Killed; collision.	Apr. 10, 1900	Killed while crossing tracks.
Jan. 16, 1897	Killed; collision.	Apr. 13, 1900	Struck by passenger train while walking on track.
Jan. 17, 1897	Fatal; struck by an eastbound train.	May 8, 1900	Struck by train.
Mar. 5, 1897	Fell from car.	May 26, 1900	Killed while walking on track.
Apr. 16, 1897	Run over by cars.	July 17, 1900	Killed while crossing tracks.
Apr. 23, 1897	Struck by a car while crossing tracks.	July 28, 1900	Killed while picking up papers.
May 28, 1897	Struck by an engine.	Sept. 9, 1900	Fell from train.
June 15, 1897	Both legs cut off, falling under cars.	Sept. 18, 1900	Caught between cars.
June 19, 1897	Struck by an engine while asleep on track.	Oct. 8, 1900	Fell from train.
Aug. 14, 1897	Found dead; supposed to have been struck by a train while walking on track.	Oct. 8, 1900	Crossing tracks, was struck by train.
Aug. 23, 1897	Right leg crushed; fatal; engine ran over him.	Oct. 23, 1900	Killed while walking on track.
Sept. 1, 1897	Struck by train while walking on track.	Nov. 4, 1900	Found lying between tracks; probably due to his attempting to board a moving freight train.
Nov. 4, 1897	Thrown under engine.	Nov. 21, 1900	Walking on track, was struck by engine.
Nov. 16, 1897	Right leg crushed; ribs broken; fatal; run over by engine.	Nov. 26, 1900	Killed in collision.
Dec. 25, 1897	Struck by engine.	Jan. 20, 1901	Killed while crossing tracks.
Feb. 10, 1898	Struck by engine.	Jan. 28, 1901	Train collided with work train, caused by misplaced switch.
Feb. 17, 1898	Fell from a moving train.	Jan. 28, 1901	Train collided with work train, caused by misplaced switch.
Mar. 31, 1898	Struck and killed while crossing tracks.	Feb. 25, 1901	Fatally injured; scalded.
June 28, 1898	Struck by engine.	Apr. 9, 1901	Killed while crossing tracks.
July 30, 1898	Struck by engine.	Apr. 19, 1901	Fatally injured while crossing between cars.
Aug. 6, 1898	Fell from train.	May 5, 1901	Killed while walking on track.
Aug. 20, 1898	Struck by engine and killed while walking on track.	May 21, 1901	Killed; no particulars.
Sept. 11, 1898	Killed; collision.	June 5, 1901	Struck by train.
Nov. 7, 1898	Killed; fell from train.	June 25, 1901	Struck by train.
Nov. 10, 1898	Struck by a car while walking on track.	July 1, 1901	Fatally injured; no other facts.
Nov. 11, 1898	Struck by a train and killed.	July 2, 1901	Killed; no other facts.
Nov. 20, 1898	Struck by train, walking on track.	July 3, 1901	Killed while working near track; struck by light engine.
Nov. 20, 1898	Struck by train, walking on track.	July 11, 1901	Fatally scalded by steam.
Dec. 5, 1898	Fatally injured in jumping from train.	July 20, 1901	Killed; no particulars.
Dec. 21, 1898	Killed; collision.	Aug. 17, 1901	Killed; no other facts.
Jan. 3, 1899	Killed while walking on track.	Aug. 19, 1901	Instantly killed; struck by train.
Jan. 17, 1899	Killed by jumping from an engine in front of a train.	Aug. 24, 1901	Fatally injured; struck by train.
Feb. 14, 1899	Struck by train, walking on track.	Sept. 2, 1901	Killed; no particulars.
Feb. 14, 1899	Struck by train, walking on track.	Sept. 7, 1901	Struck by engine.
Mar. 4, 1899	Fell from a moving train.	Sept. 8, 1901	Struck by train.
Mar. 9, 1899	Fell from a moving train.	Sept. 16, 1901	Killed while crossing tracks.
Mar. 9, 1899	Fatally injured by falling from train.	Oct. 11, 1901	Killed while walking on track.
Apr. 5, 1899	Fatally injured in jumping on train.	Oct. 21, 1901	Killed; no other facts.
June 16, 1899	Fatally injured while crossing tracks.	Dec. 9, 1901	Stepped in front of detached end of train to display red signal and was killed.
June 20, 1899	Killed while walking on track.	Dec. 30, 1901	While working on derrick car a body bolster fell on him and he received fatal injuries.
July 1, 1899	Fatally injured in falling from car.	—, 1901	Killed; no particulars.
		Jan. 13, 1902	Caught between a car and platform.

INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Continued.

MISCELLANEOUS AND UNCLASSIFIED OCCUPATIONS—Continued.

EMPLOYEES (NOT SPECIFIED), EXCEPT THOSE KILLED IN COUPLING OR UNCOUPLING—Continued.

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL—continued.		FATAL—continued.
Feb. 22, 1902	Struck by train.	Nov. 12, 1904	Crushed between engine and cars while riding on pilot of engine.
Feb. 26, 1902	Killed; fell from train.	Nov. 21, 1904	Struck by train while walking on track.
Mar. 18, 1902	Struck by an engine.	Nov. 22, 1904	Killed while jumping on train.
May 1, 1902	Killed in collision.	Nov. 24, 1904	Caught between building and a derailed car.
June 12, 1902	Killed while crossing tracks.	Dec. 1, 1904	Struck by engine while crossing tracks.
June 24, 1902	Fell from car.	Dec. 13, 1904	Crushed between two cars.
July 4, 1902	Killed; supposed to have been struck by train.	Dec. 31, 1904	Struck by train while crossing over the tracks.
July 4, 1902	Killed; supposed to have been struck by train.	—, 1904	Killed; no particulars.
July 14, 1902	Killed; no other facts.	—, 1904	Killed; no particulars.
Aug. 12, 1902	Instantly killed while carelessly working under freight cars.	—, 1904	Killed; no particulars.
Aug. 18, 1902	Fell from train.	Jan. 13, 1905	Fell between cars.
Sept. 1, 1902	Struck by pole.	Jan. 18, 1905	Fell from car.
Oct. 8, 1902	Killed while walking on tracks.	Jan. 19, 1905	Struck by train.
Oct. 8, 1902	Killed in collision.	Jan. 28, 1905	Fell under car.
Oct. 29, 1902	Killed while crossing tracks.	Jan. 29, 1905	Caught and killed while working between cars, when engine coupled up.
Nov. 10, 1902	Run over by an engine.	Feb. 11, 1905	Struck by engine.
—, 1902	Killed; no particulars.	Feb. 13, 1905	Fell under car.
Jan. 6, 1903	While passing in between cars, was caught between buffers and squeezed to death.	May 6, 1905	Fell from car while walking over train.
Jan. 28, 1903	Stepped off front step of engine directly in front of cars being switched and was run over.	June 15, 1905	Run over by cars.
Feb. 26, 1903	Fell under car.	July 1, 1905	Caught between cars.
Mar. 10, 1903	Struck and killed by train.	July 4, 1905	Struck by train while walking on track.
Mar. 11, 1903	Struck and killed while crossing tracks.	July 31, 1905	Collision.
Apr. 14, 1903	Killed while walking on track.	Aug. 18, 1905	Struck by engine.
May 20, 1903	Fatally injured while working on engine.	Aug. 25, 1905	Struck and killed by train.
May 29, 1903	Killed; in wreck.	Oct. 5, 1905	Caught between cars.
May 29, 1903	Killed; in wreck.	Oct. 29, 1905	Killed; boiler explosion.
June 8, 1903	Killed while walking on track.	Oct. 29, 1905	Killed; boiler explosion.
June 10, 1903	Run over by cars.	Nov. 14, 1905	Fell from train.
July 25, 1903	Struck by engine and killed.	Dec. 15, 1905	Struck by engine.
July 31, 1903	Struck by engine and killed while crossing tracks.	Jan. 19, 1906	Fell from a freight train.
Nov. 7, 1903	Struck by train and killed while walking on track.	Feb. 2, 1906	Fell between cars.
Dec. 26, 1903	Struck by engine and killed while picking coal.	Feb. 9, 1906	Struck and killed while crossing tracks.
—, 1903	Killed; no particulars.	Mar. 4, 1906	Struck and killed by train while walking on track.
—, 1903	Killed; no particulars.	Mar. 20, 1906	Cave in of bank in cut.
Jan. 6, 1904	Caught between car and pile of wood.	Mar. 20, 1906	Cave in of bank in cut.
Jan. 21, 1904	Struck by car while crossing tracks.	Mar. 20, 1906	Cave in of bank in cut.
Mar. 20, 1904	Struck by engine while walking alongside of track in train shed.	Mar. 31, 1906	Killed; fell from train.
Mar. 29, 1904	Struck by engine while jumping from workmen's train.	May 13, 1906	Killed; supposed to have been struck by some unknown train.
May 3, 1904	Struck by train.	May 21, 1906	Fell under car.
May 27, 1904	Run over by cars.	July 8, 1906	Struck by engine.
July 2, 1904	Struck by engine while walking on track.	July 25, 1906	Killed; run over by engine.
July 10, 1904	Fell from car.	Aug. 21, 1906	Struck by engine.
July 13, 1904	Thrown from platform of car and killed.	Sept. 7, 1906	Struck by train while crossing tracks.
Aug. 10, 1904	Struck and killed while walking on bridge.	Sept. 10, 1906	Struck by train while crossing tracks.
Sept. 14, 1904	Found drowned.	Sept. 23, 1906	Killed; struck by engine.
Sept. 18, 1904	Struck by unknown train and killed.	Sept. 28, 1906	Killed; struck by engine.
Oct. 22, 1904	Fell from train.	Oct. 6, 1906	Struck and killed by train.
Oct. 28, 1904	Killed; collision.	Nov. 14, 1906	Struck by train while walking on track.
Nov. 3, 1904	Fell from hole in dock; drowned.	Dec. 27, 1906	Struck by freight train.
Nov. 6, 1904	Caught between cars.	Jan. 20, 1907	Killed; engine boiler exploded.
Nov. 10, 1904	Struck by three cases of machinery falling out of sling.	Jan. 20, 1907	Killed; engine boiler exploded.
		Feb. 5, 1907	Struck by unknown train and killed while crossing tracks.
		Feb. 19, 1907	Caught between cars while crossing tracks; fatally injured.
		Mar. 3, 1907	Struck by car while crossing tracks.

**INJURIES TO EMPLOYEES OF THE RAILROADS OF NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907—Concluded.**

**MISCELLANEOUS AND UNCLASSIFIED OCCUPATIONS—Concluded.**

**EMPLOYEES (NOT SPECIFIED), EXCEPT THOSE KILLED IN COUPLING OR UNCOUPLING—Concluded.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
	FATAL—continued.		FATAL—concluded.
Mar. 22, 1907	Struck by cars while crossing tracks.	Aug. 23, 1907	Struck by engine.
May 15, 1907	Struck by train.	Aug. 23, 1907	Killed while crawling under cars while engine was drilling.
May 20, 1907	Walking on track; struck and fatally injured.	Sept. 16, 1907	Struck by train while walking on track.
May 31, 1907	Struck by train.	Oct. 15, 1907	Struck by overhead bridge.
June 7, 1907	Struck by train while walking on track; man was deaf and apparently did not hear the train.	Oct. 16, 1907	Struck by engine while crossing tracks.
June 8, 1907	Killed by fall from scaffolding while on duty.	Nov. 12, 1907	Caught between cars in making flying switch.
July 1, 1907	Struck and killed by an unknown train.	Dec. 5, 1907	Struck and killed while crossing tracks in yard.
July 14, 1907	Struck by train while walking on track.	Dec. 28, 1907	Caught between cars.
July 18, 1907	While passing between car and butting block was caught between the block and car and killed.		

To make these data complete for employees not otherwise specified, the following statistics showing the fatal accidents, by years, as the result of "coupling or handling cars" are presented:

**EMPLOYEES NOT SPECIFIED BUT REPORTED AS HAVING BEEN KILLED WHILE "COUPLING OR HANDLING CARS."**

Year.	Number killed.	Year.	Number killed.
1888.....	12	1899.....	6
1889.....	13	1900.....	7
1890.....	10	1901.....	9
1891.....	6	1902.....	12
1892.....	6	1903.....	13
1893.....	8	1904.....	6
1894.....	4	1905.....	19
1895.....	4	1906.....	7
1896.....	7	1907.....	16
1897.....	6		
1898.....	10	Total.....	181

**NONEMPLOYEES OF RAILROADS CUSTOMARILY CARRIED UNDER CONTRACT.**

Pullman-car employees, mail clerks, express agents, messengers, etc., are exposed to train accidents, but are not, properly speaking, railway employees. They are not on the pay rolls of the railroads and are not reported as railway employees in case of injury by accident. The Interstate Commerce Commission expressly excludes these men from railroad employees and requires the accidents to this class to be reported separately.

The instructions to the railroads read as follows:

Class *bb* is to include persons (not ordinary passengers on passenger or freight trains) who are customarily carried or allowed on trains

under special arrangements or privileges, such as postal clerks, express messengers, conductors, porters, and other employees on Pullman cars; employees on private or special cars; newsboys; baggage or transfer solicitors; peddlers; live-stock tenders; men not in the employ of reporting company in charge of locomotives, cars, machinery, or other freight, etc.<sup>(a)</sup>

Injuries to this class of persons have been excluded from those for railway employees proper, and the few returns under Pullman employees, mail clerks, and express agents are presented separately in the following detailed statements:

**NONFATAL INJURIES TO PULLMAN EMPLOYEES, MAIL CLERKS, AND EXPRESS MESSENGERS INJURED IN ACCIDENTS IN NEW JERSEY, CLASSIFIED BY SPECIFIC OCCUPATIONS AND ARRANGED CHRONOLOGICALLY UNDER EACH OCCUPATION TITLE, 1888 TO 1907.**

**PULLMAN-CAR CONDUCTORS.**

Date of injury.	Nature, extent, and cause of injury.	Date of injury.	Nature, extent, and cause of injury.
Oct. 14, 1893	Thumb fractured; head bruised; fell from steps of train while it was moving.	Feb. 12, 1907 Feb. 12, 1907	Back injured by derailment of train. Side, head, and back injured by derailment of train.

**PULLMAN-CAR PORTERS.**

Nov. 6, 1892 Oct. 14, 1893	Back bruised by collision of cars. Injured by falling from train.	Feb. 12, 1907 Oct. 14, 1907	Hand hurt in derailment. Injured instep while boarding train.
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**DINING-CAR EMPLOYEES.**

Feb. 19, 1902	Scalded while cooking.	July 5, 1906	Chef scalded by pail of hot water, spilled while cars were being drilled in yard.
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**MAIL CLERKS.**

Feb. 2, 1889	Cheek bone fractured and gash over eye; catching mail bag.	Sept. 13, 1901	Hips bruised; struck by engine. Injured; no other particulars.
Nov. 12, 1889	Arm broken; struck by timber on bridge.	June 1, 1904	Injured; no other particulars.
Jan. 24, 1894	Injured; collision.	July 19, 1904	Neck strained; thrown in car.
Sept. 11, 1898	Knee injured; collision.	Aug. 7, 1905	Cut in face with glass.
		Aug. 1, 1907	Injured; collision.
		Sept. 4, 1907	Scalp wound; fell from train.

**EXPRESS MESSENGERS.**

June 4, 1894	Leg bruised; collision.	Sept. 23, 1901	Injured by fall from car.
Aug. 19, 1894	Leg bruised; head-on collision.	Sept. 8, 1902	Legs and feet injured; no particulars.
July 8, 1899	Leg and side bruised; collision of engine with standing car.	Sept. 8, 1902	Legs and feet injured; no particulars.
	Right leg slightly injured; case fell on it, caused by jar when coupling.	Sept. 28, 1904	Injured; no particulars.
May 1, 1900		Aug. 1, 1907	Injured in collision.
		Aug. 1, 1907	Injured in collision.

<sup>a</sup> Interstate Commerce Commission. Instructions to be followed in filling up blanks, Form of 1905.

## THE MINNESOTA IRON RANGES.

BY G. O. VIRTUE, PH. D.

### INTRODUCTION.

The primacy in iron and steel production which the United States has acquired in recent years has been possible only because of the development of the vast deposits of iron ore found in the vicinity of Lake Superior. These deposits lie in widely separated ranges of hills, nowhere mountainous in character, which stretch across the western counties of Michigan from 25 to 100 miles south of the south shore of the lake. The earliest of these ranges to be developed, the Marquette, has produced ore since 1854, and during the fifty-five years to and including 1908 had produced 88,938,069 long tons of ore.<sup>(a)</sup> The Menominee range during the thirty-two years from 1877 to 1908, inclusive, in which its mines have been active, produced 66,617,796 long tons.<sup>(a)</sup> The third iron district to be developed on the south side of the lake was the Gogebic range. Its 20 to 25 mines ship annually about 5,000,000 tons of ore, and from 1884 to 1908 they produced 57,979,774 long tons.<sup>(a)</sup>

These mines had made Michigan first among the States in the production of iron ore by 1890, a position it maintained till 1901, when Minnesota took the leading place. The Lake Superior mines had already produced a profound influence on the iron industry of the country before the Minnesota mines, with which this article deals, became large producers. The Minnesota deposits are found in two ranges of hills, which together extend in a southwesterly direction from the international boundary line at Gunflint Lake to the Mississippi River at Grand Rapids. For a considerable portion of their extent the two ranges are parallel.

The northern one, the Vermilion, was the first to be developed. While explorations had shown as early as 1848 that there was iron in this region, it was not till after 1880 that steps were taken to develop the ore body. During the early eighties, eastern capitalists were interested in the development of the iron country, and an outlet,

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<sup>a</sup> Production of Iron Ores, Pig Iron, and Steel in 1908, page 18. Advance chapter from Mineral Resources of the United States, published by the United States Geological Survey.

the Duluth and Iron Range Railroad, was built between the mine and the lake at Two Harbors, a distance of 68 miles. In 1884, the Vermilion range produced 62,122 tons of ore. Production in this region has had a steady normal growth. In 1888 the region produced half a million tons; in 1892 it for the first time passed the million point, and its maximum output of 2,057,532 tons was reached in 1902. For the past five years the average annual production has been a little less than a million and a half tons.

The region that has attracted most attention during the past eighteen years has been the Mesabi range. In a district about 100 miles long, varying from 2 to 10 miles in width, and containing about 400 square miles, lie the most remarkable deposits of iron ore yet discovered. In 1907 the Minnesota tax commission made an examination of the district for the purpose of placing a valuation on the ore lands. They had access to the records of the mining companies, which showed the borings made in locating the ore bodies on their properties as far as they had then proceeded. By these records the commission found 1,182,550,219 tons of merchantable ore of various grades, as compared with 9,959,538 tons on the Vermilion range. This enormous deposit is as a matter of fact found within much narrower limits than those described above; for from the easternmost mine on the range to Coleraine on the west the distance does not exceed 75 or 80 miles, and there are considerable stretches within this limit in which no ore in paying quantities and of merchantable quality has been found. It was stated by a writer<sup>(a)</sup> in 1906 that fully one-half of the merchantable ore on the Mesabi range lies within a radius of 6 miles of Hibbing. From the opening of this range in 1892, when 29,245 tons were produced, to the close of 1908, the Mesabi range had produced an aggregate of 168,483,661 tons.<sup>(b)</sup> Of this quantity, more than one-half had been produced since the beginning of 1905.

### PRODUCTION.

The marvels of rapid exploitation have not ceased. According to the biennial reports of the bureau of labor of Minnesota, in the third year of operations on the Mesabi range (1894), 1,793,052 tons of ore were produced by the 11 mines reporting, and of this the Mountain Iron mine shipped one-third and the Oliver (now called the Virginia) sent out nearly one-third. In 1899 the Mountain Iron mine alone produced 1,137,970 tons and has not since, with the exception of 1908, fallen below the one million level; while in each of the two years 1905 and

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<sup>a</sup> Joseph Sellwood in the Duluth News-Tribune, November 29, 1906.

<sup>b</sup> Production of Iron Ores, Pig Iron, and Steel in 1908, page 18. Advance chapter from Mineral Resources of the United States, published by the United States Geological Survey.

1906 it produced 2,500,000 tons. In 1906, 8 out of 78 mines operating in the region were producing more than a million tons each. In 1907 there were only 11 iron mines in the world that produced more than a million tons. Of this number 9 were in the Mesabi range, and 2 of these produced more than two millions, one of them, the Hull Rust at Hibbing, reaching the enormous output of 2,900,624 tons, a figure that was slightly surpassed by the same mine in 1908.

In the following table is given for certain years the production of the various Lake Superior ranges, and for comparison the production of the United States and of other countries, is presented:

PRODUCTION OF IRON ORE (IN LONG TONS) FOR THE SEVERAL LAKE SUPERIOR RANGES, THE UNITED STATES, GREAT BRITAIN, AND GERMANY, FOR THE YEARS 1895, 1900, AND 1905 TO 1908.

[Data from the United States Geological Survey, Mineral Resources for 1908 of the United States, and official mining reports of Great Britain and Germany.]

Region.	1895.	1900.	1905.	1906.	1907.	1908.
Lake Superior ranges:						
Marquette.....	1,982,080	3,945,068	3,772,645	4,070,914	4,167,810	3,309,917
Menominee.....	1,794,970	3,680,738	4,472,630	4,962,357	4,779,592	2,904,011
Gogebic.....	2,625,475	3,104,033	3,344,551	3,484,023	3,609,519	3,241,931
Vermilion.....	1,027,103	1,675,949	1,578,626	1,794,186	1,724,217	927,206
Mesabi.....	2,839,350	8,158,450	20,156,566	23,564,891	27,245,441	17,725,014
Total.....	10,268,978	20,564,238	33,325,018	37,876,371	41,526,579	28,108,079
United States.....	15,957,614	27,553,161	42,526,133	47,749,728	51,720,619	35,983,336
Great Britain.....	12,615,414	14,028,208	14,590,703	15,500,406	15,731,604	15,031,025
Germany and Luxemburg.....	12,349,600	18,964,294	23,444,073	26,734,000	27,697,128	24,224,762

The production of iron ore in Minnesota as elsewhere, and especially in the Lake Superior region, is under the control of a small number of producers. From the beginning of operations on the Vermilion range it was necessary to make large outlays in order to open the mines at all; for the pioneers on that range had not only the problem of developing a mining property but of furnishing a railway as well for marketing the production. This union of mining and transportation interests, which was begun by the building of the Duluth and Iron Range Railroad in 1892, has become an established feature of the industry on both the Vermilion and the Mesabi ranges. With the movement for the control of ore supplies by eastern iron and steel manufacturers which marked the decade 1890 to 1900, not only the Vermilion mines, but the newly discovered deposits on the Mesabi range quickly passed, by purchase or lease, into the hands of a few concerns, which were primarily steel producers rather than producers of ore.<sup>(a)</sup>

The United States Steel Corporation, organized in 1901, became, by the consolidation of many companies holding ore lands, the same important factor in the production of ore that it has in the

<sup>a</sup> For an account of these consolidations see Berglund, The United States Steel Corporation, New York, 1907; Mussey, Combination in the Mining Industry, and the files of the Engineering and Mining Journal.

production of steel. Its mines in the Lake Superior region are managed under the charter of one of its constituent companies, the Oliver Iron Mining Company, first organized in the interest of the Carnegie Steel Company in 1892. It controls all the mines now operating on the Vermilion range, and in every part of the Mesabi it is all but supreme. When in 1907 the Minnesota tax commission made its valuation of the ore lands, it was found that the Oliver Iron Mining Company controlled a tonnage amounting to 912,768,830 tons out of a total of 1,192,509,757 tons, and that its properties represented a taxable value of \$137,500,000 out of a total of \$186,000,000. The true value of these properties was more than twice the assessed valuation, since the commission in determining the taxable value applied to the ore lands the ratio of assessment to true value for the whole State, namely, 43.48 per cent. Of the 27,245,441 tons of ore produced on the Mesabi in 1907 the Oliver Iron Mining Company produced 16,500,000 tons. While the printed list of mining companies on the Mesabi is large, it should be understood that the number of interests concerned is very much less; and, as before said, these companies are, generally speaking, the mining end of iron and steel companies, mainly in the East.

#### TRANSPORTATION.

The product of the Minnesota mines is transported to the lake by three railroads. The first constructed was the Duluth and Iron Range Railroad. The same group of capitalists that opened the first mines on the Vermilion range built this road. The road extends from Duluth and Two Harbors, its extensive ore docks being situated at the latter place, to Winton, 5 miles beyond Ely. It is the only road reaching the Vermilion range. From Allen Junction a branch extends well into the eastern and central portions of the Mesabi, from which it derives a large tonnage. Its 6 docks have an aggregate of 1,064 pockets and a storage capacity of 234,292 tons. The Mesabi range is also served by the Duluth, Missabe and Northern Railway. This road, like the Duluth and Iron Range Railroad, is owned by the United States Steel Corporation. The road has an excellent double track from Duluth to Hibbing, a distance of 82 miles. Its maximum southbound grade is 0.3 per cent, and the maximum northbound grade is 2 per cent. The road reaches every part of the range. The Missabe Railway Company owns extensive docks at West Duluth, with a storage capacity of 269,034 tons.

The Great Northern Railway traverses the richest sections of the Mesabi from the western end as far east as Virginia, Minn. It is also the owner of large ore properties, but these have since 1906 been leased to the United States Steel Corporation. It has a less direct haul to the lake than the other roads have. From Virginia, Minn.,

to Allouez, Wis., across the bay from Duluth, where its docks are situated, is a distance of 138 miles; by the Duluth, Missabe and Northern it is 97 miles. Its 3 docks have a storage capacity of 283,500 tons.

During the last seven years the three ore roads have carried the following tonnage:

SHIPMENTS OF IRON ORE (LONG TONS) FROM THE MINNESOTA MINES BY THE THREE ORE-CARRYING ROADS, 1902 TO 1908.

[Data supplied by the Oliver Iron Mining Company.]

Year.	Iron ore (long tons), shipped by—			Total.
	Duluth, Missabe and Northern Railway.	Duluth and Iron Range Railroad.	Great Northern Railway.	
1902.....	5,598,408	5,605,181	4,180,568	15,384,157
1903.....	5,344,635	5,125,341	4,013,469	14,483,445
1904.....	4,650,772	4,563,399	4,219,990	13,434,161
1905.....	8,807,559	7,779,850	5,118,385	21,705,794
1906.....	11,220,991	8,178,048	6,100,718	25,499,757
1907.....	13,445,977	8,188,905	7,443,471	29,078,353
1908.....	8,808,254	5,710,361	3,572,750	18,091,365
Total.....	57,876,596	45,151,085	34,649,351	137,677,032

Each of the steel cars in which most of the ore is carried has a capacity of 50 tons. Trains are made up of about 50 of these cars, making a train load of 2,500 tons, though the Iron Range road averages but three-fifths of this amount.

These railroads deliver the ore to the great docks at the end of their respective lines, where it is loaded on vessels for shipment down the lakes. The same large-scale method of handling the ore that characterizes the industry elsewhere is observed here. The combined docks of the three roads have a storage capacity of 786,826 tons, and there are unusual facilities for shifting the cars to and from the docks. The same consolidation of control seen in the mining and rail shipments of the ore is seen in the lake transportation also. The commanding figure here, as elsewhere, is the United States Steel Corporation, which owns, through its subsidiary company, the Pittsburg Steamship Company, 76 steamships and 29 barges. These vessels carry from 55 to 60 per cent of the Steel Corporation's output, the remainder being carried by chartered vessels. A dozen of the other ore-producing companies also own vessels, aggregating 65 or 70 in number. A remarkable development in the size of these vessels has taken place during the past few years. The average load of the vessels taking cargo at the Duluth, Missabe, and Northern docks in 1895 was 1,809 long tons; in 1900 it had risen to 3,873; and in 1905 it was 6,101, while in 1908 it was 8,325 tons. The high average of 1908 was due no doubt to the fact that in consequence of its being a slack

year the larger boats of the ore producers did most of the business. Nevertheless, the tendency is still toward boats of the larger type of 10,000 to 12,000 tons capacity. In 1900 the largest single cargo of ore was 8,463 tons; in 1907 it was 13,800. Not less remarkable than the increased size of the boats are the improvements in loading and unloading the vessels. In 1895 the average time for loading at the Duluth, Missabe and Northern docks was, per 1,000 tons, two hours thirteen minutes; in 1900, one hour forty-three minutes; and in 1907, one hour twenty-one minutes. The devices for unloading at the eastern lake ports are equally remarkable.

Everywhere, therefore, we see a highly developed organization for the mining and shipping of ore. Everywhere one is struck by the vastness of the work that is being done. The mine workers with whom this account is primarily concerned are a very important part of this great complex organization.

### POPULATION AND NATIONALITY.

The mines have attracted a population remarkable in several ways. The increase of numbers has been rapid. The following table shows the population of the chief range communities in 1895, 1900, and 1905:

POPULATION IN THE CHIEF MINING COMMUNITIES OF ST. LOUIS COUNTY, MINN.,  
1895, 1900, AND 1905.

[From the Fifth Decennial Census of Minnesota, 1905, p. 42.]

Locality.	1895.	1900. <sup>(a)</sup>	1905.	
			Number.	Per cent of increase over 1895.
Aurora village.....			336	.....
Biwabik township.....	365	500	541	48.2
Biwabik village.....	1,011	1,299	940	<sup>b</sup> 6.4
Breitung (including Soudan).....	1,954	2,034	1,344	<sup>b</sup> 31.2
Buhl village.....			788	.....
Chisholm village.....			4,231	.....
Ely city.....	2,260	3,717	4,045	79.0
Eveleth city.....	764	2,752	5,352	597.9
Fayal township.....	222	1,016	1,316	492.8
Hibbing village.....	1,085	2,481	6,566	505.2
McKinley village.....	136	262	232	70.6
Mesabi Mountain township.....	708	1,296	940	32.8
Mountain Iron village.....	443	470	604	36.3
Sparta village.....		950	960	.....
Stuntz township.....	68	1,083	1,749	2,472.1
Tower city.....	1,265	1,366	1,340	5.9
Virginia city.....	3,647	2,962	6,056	66.1
St. Louis County (excluding Duluth).....	19,199	29,963	52,571	173.8

<sup>a</sup> Figures from the Twelfth Census of the United States.

<sup>b</sup> Decrease.

Several of these communities show an enormous increase in population from 1895 to 1905, while only two show a decline.

Of the population of St. Louis County, 84 per cent reside in cities or villages, which is very conclusive as to the predominance of the iron-ore industry.

The leading nationalities were Finnish, Austrian, Swedish, Canadian, and Norwegian, in the order named. As shown by the state census of 1905, the nationalities represented and their respective numbers in the chief mining centers were as follows:

PRINCIPAL FOREIGN-BORN ELEMENTS OF THE POPULATION IN THE CHIEF RANGE COMMUNITIES OF MINNESOTA, 1905.

[Data from the Fifth Decennial Census of Minnesota, 1905, p. 177.]

Locality.	Country of birth.							
	Germany.	Sweden.	Norway.	Denmark.	Canada.	Ireland.	England.	Russia.
<b>Vermilion range:</b>								
Breitung (including Soudan).....	7	130	21	2	7	3	20	..... 12
Ely city.....	22	101	29	5	55	9	104	..... 6
Tower city.....	10	156	67	1	85	9	23	..... 7
<b>Mesabi range:</b>								
Aurora village.....	8	26	7	1	16	4	12	..... 3
Biwabik township.....	2	37	20	2	18	2	16	..... 6
Biwabik village.....	12	57	26	2	38	8	19	..... 4
Buhl village.....	9	64	23	.....	24	1	6	..... 7
Chisholm village.....	21	206	93	2	110	19	87	..... 47
Eveleth city.....	38	325	77	6	151	39	119	..... 65
Fayal township.....	14	85	22	1	16	10	20	..... 8
Hibbing village.....	72	516	314	9	498	.....	78	..... 47
McKinley village.....	1	15	21	.....	1	2	6	..... 1
Mesabi Mountain township.....	7	38	2	.....	20	11	37	..... 5
Mountain Iron village.....	5	20	17	5	34	13	14	..... 4
Sparta village.....	5	17	8	.....	42	5	9	..... 24
Stuntz township.....	12	65	47	2	148	10	3	..... 10
Virginia city.....	120	557	296	7	337	53	71	..... 89
St. Louis County outside Duluth.....	770	4,226	1,898	112	2,433	312	763	..... 400

Locality.	Country of birth.				Total foreign born.	Total native born.	Total population.
	Poland.	Finland.	Austria.	All other.			
<b>Vermilion range:</b>							
Breitung (including Soudan).....		280	180	9	659	685	1,344
Ely city.....		911	852	122	2,222	1,823	4,045
Tower city.....		184	29	19	593	747	1,340
<b>Mesabi range:</b>							
Aurora village.....	1	62	44	14	198	138	336
Biwabik township.....		111	98	14	320	221	541
Biwabik village.....		237	44	17	516	430	946
Buhl village.....		200	64	50	448	340	788
Chisholm village.....	43	1,197	693	187	2,705	1,526	4,231
Eveleth city.....	1	1,145	676	333	2,975	2,357	5,332
Fayal township.....	5	152	430	164	927	389	1,316
Hibbing village.....	30	1,169	323	481	3,537	3,029	6,566
McKinley village.....		31	34	4	116	116	232
Mesabi Mountain township.....		250	130	31	531	409	940
Mountain Iron village.....		127	14	37	290	314	604
Sparta village.....		347	116	11	584	376	960
Stuntz township.....		9	229	299	1,104	645	1,749
Virginia city.....	77	1,193	136	123	3,059	2,997	6,056
St. Louis County outside Duluth.....	296	9,945	4,461	2,313	27,929	24,642	52,571

No statistics as to nationality are regularly kept by the mining companies, but the Oliver Iron Mining Company has taken a census of its own employees at different times, the results of which are given below:

LENGTH OF RESIDENCE IN THE UNITED STATES OF FOREIGN-BORN EMPLOYEES OF THE OLIVER IRON MINING COMPANY, MAY 1, 1907, BY RACE OR PEOPLE.

[Data supplied by the Oliver Iron Mining Company.]

Race or people.	Number living in the United States—											Years not reported.	Total foreign born.	
	Under 1 year.	1 year.	2 yrs.	3 yrs.	4 yrs.	5 yrs.	6 yrs.	7 yrs.	8 yrs.	9 yrs.	10 yrs.			Over 10 yrs.
Arabian.....								1						1
Austrian.....	135	199	155	92	76	55	29	19	16	5	4	27	2	814
Bohemian.....	3	14	8	3	4	3	3					11		49
Bosnian.....	24	58	39	11	9	3	1						1	146
Bulgarian.....	79	57	41	23	2	5		1	1					210
Croatian.....	280	496	419	240	141	103	56	25	29	13	12	59	8	1,881
Czech.....	2	5	1	1	1							1		11
Dalmatian.....	43	34	25	4	10	4	1	4	3		1			129
Dutch.....												2		2
English.....		9	6	1	4	9	5	2	5		5	114		160
Finnish.....	263	389	464	244	271	263	134	127	73	35	43	216	3	2,525
Flemish.....		2										1		3
French.....	3	4	4	1	2	2	3	2	2	1	1	44	1	69
French-Canadian.....	1	2		1	2	2	2	1	4	1		8		22
German.....	49	27	30	16	7	4	4	3	3	2	3	42		190
Greek.....				1	1							1		3
Hebrew.....		1						1				3		5
Hervat.....	2	3	4	2	3	2	3	1						20
Hungarian.....	8	8	12	5	3	3	1		3			5		48
Indian.....												1		1
Irish.....		1		1	2	1	2	1	1			71	1	81
Italian.....	27	39	40	19	37	24	14	12	3	1	3	15	1	235
Italian (north).....	23	65	50	23	31	30	19	9	9	5	5	26	3	298
Italian (south).....	43	79	101	50	47	54	35	26	12	5	8	35		495
Japanese.....			2											2
Korean.....						1								1
Lithuanian.....	1		1									1		3
Macedonian.....	1													1
Magyar.....	19	34	46	21	36	24	10	1	4	4	2	9		210
Montenegrin.....	35	40	21	5	1									102
Polish.....	12	22	33	20	16	10	6	9	1		5	15	2	151
Roumanian.....	1	1	2	1										5
Russian.....	3	11	8	9	7	4		1	2			5		50
Ruthenian.....						1	1					1		3
Scandinavian.....	29	23	44	30	35	28	26	14	23	12	11	241	5	521
Scotch.....	1	1	1	1	2		2	2	2			41		53
Scotch-Irish.....												1		1
Servian.....	16	29	18	15	7	6	2	1				1		95
Slav.....	26	30	26	23	20	12	12	10	7	4	3	18		191
Slovak.....	46	47	68	29	33	40	20	18	11	2	6	38	1	359
Slovenian.....	25	66	85	42	47	44	27	19	12	3	8	34	3	415
Syrian.....						1						1		1
Tyrollese.....	5	10	18	13	18	11	9	1	4	2	1	17		109
Welsh.....												3		3
Not reported.....	56	73	84	29	44	27	25	14	5	4	4	98	2	465
Total.....	1,261	1,879	1,856	976	917	776	452	323	236	100	125	1,205	33	10,139

Of the 12,018 employees of this company in 1907 only 1,879 were native born, those of foreign birth being 84.4 per cent of the total number employed. Almost half of the foreign-born, 49.3 per cent, had not resided in the United States over two years. The races showing a large proportion who had resided in this country ten years and over were the Irish, with 87.7 per cent; Scotch, 77.4 per cent; English, 74.4 per cent; Scandinavian, 48.4 per cent, and German, 23.7

per cent. Those with a small proportion were Bulgarians, with less than one-half of one per cent; Austrians and Croatians, with only 3.8 per cent; Italians, 8.9 per cent; Finns, 10.3 per cent; and Slavs, 11 per cent. Of all the foreign-born employees but 13.1 per cent had resided in the United States ten years and over. The principal races with a residence of less than a year were the Montenegrins, with 34.3 per cent; Austrians, 16.6 per cent; Croatians, 14.9 per cent; Slavs, 13.6 per cent, and Slovaks, 12.8 per cent. Of all the foreign-born employees 12.4 per cent had resided in the United States less than one year.

In the following tabulation, which was furnished by the Oliver Iron Mining Company, American includes Canadians, English, Irish, and Scotch; Austrian includes, among others, Bulgarians, Bohemians, Hungarians, and Montenegrins; French and German includes Belgians, Swiss, and Hollanders; Finnish includes Russians; and Scandinavian includes Norwegians, Swedes, and Danes.

NATIONALITY OF THE EMPLOYEES OF THE OLIVER IRON MINING COMPANY ON THE VARIOUS RANGES OF THE LAKE SUPERIOR REGION JULY 1, 1908, BY LOCALITY.

[Data supplied by the Oliver Iron Mining Company.]

Locality.	American.		Austrian.		French and German.		Finnish.		Italian.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Mesabi range:										
Hibbing district.....	628	21.9	1,326	46.2	140	4.9	212	7.4	378	13.2
Mountain Iron district.....	217	22.9	446	47.1	16	1.7	100	10.6	79	8.4
Eveleth (Fayal) district.....	296	27.4	316	29.2	40	3.7	125	11.6	165	15.3
Eveleth (Adams) district.....	225	18.9	544	45.8	12	1.0	188	15.8	123	10.3
Biwabik district.....	74	20.9	204	57.5	4	1.1	53	14.9	3	.8
Canisteo district.....	383	28.2	606	44.6	77	5.7	92	6.8	51	3.7
Total.....	1,823	23.4	3,442	44.1	289	3.7	770	9.9	799	10.2
Vermillion range.....	85	15.3	291	52.2	13	2.3	100	18.0	21	3.8
Marquette range.....	680	49.2	20	1.5	10	.7	415	30.0	108	7.8
Menominee range.....	195	16.5	120	10.2	141	12.0	81	6.9	201	17.0
Gogebic range.....	442	28.3	109	7.0	38	2.4	405	26.0	162	10.4
Grand total.....	3,225	25.8	3,982	31.9	491	3.9	1,771	14.2	1,291	10.4

Locality.	Polish.		Scandinavian.		Miscellaneous.		Total.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Mesabi range:								
Hibbing district.....	65	2.2	116	4.0	6	0.2	2,871	100.0
Mountain Iron district.....	1	.1	88	8.3	.....	.....	946	100.0
Eveleth (Fayal) district.....	1	.1	135	12.5	2	.2	1,080	100.0
Eveleth (Adams) district.....	20	1.7	69	5.8	8	.7	1,189	100.0
Biwabik district.....	2	.6	15	4.2	.....	.....	1,355	100.0
Canisteo district.....	5	.4	143	10.5	2	.1	1,359	100.0
Total.....	93	1.2	566	7.3	18	.2	7,800	100.0
Vermillion range.....	.....	.....	47	8.4	.....	.....	557	100.0
Marquette range.....	7	.5	142	10.3	.....	.....	1,382	100.0
Menominee range.....	79	6.7	362	30.7	.....	.....	1,179	100.0
Gogebic range.....	199	12.7	204	13.1	1	.1	1,560	100.0
Grand total.....	378	3.0	1,321	10.6	19	.2	12,478	100.0

## NATIONALITY OF THE EMPLOYEES OF THE OLIVER IRON MINING COMPANY, ON THE VARIOUS RANGES OF THE LAKE SUPERIOR REGION JUNE 1, 1909, BY LOCALITY.

[Data supplied by the Oliver Iron Mining Company.]

Locality.	American.		Austrian.		Finnish.		German.		French.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Mesabi range:										
Hibbing district.....	472	29.5	671	41.9	67	4.2	52	3.3	47	2.9
Chisholm district.....	149	9.1	1,002	61.5	154	9.5	5	.3	2	.1
Mountain Iron district.....	178	24.7	236	32.8	170	23.6	.....	.....	12	1.7
Eveleth (Fayal) district.....	262	20.7	377	29.8	256	20.2	17	1.3	.....	.....
Eveleth (Adams) district.....	283	21.4	603	45.7	140	10.6	9	.7	4	.3
Biwabik district.....	53	16.6	193	60.5	45	14.1	4	1.3	.....	.....
Canisteo district.....	355	22.8	733	47.1	131	8.4	31	2.0	80	5.2
Total.....	1,752	20.8	3,815	45.4	963	11.5	118	1.4	145	1.7
Vermilion range.....	99	12.9	402	52.6	175	22.9	2	.3	4	.5
Marquette range.....	739	49.5	40	2.7	372	24.9	13	.9	5	.4
Menominee range.....	228	15.8	165	11.5	98	6.8	33	2.3	122	8.5
Gogebic range.....	435	22.7	137	7.1	625	32.5	12	.6	37	1.9
Grand total.....	3,253	23.2	4,559	32.5	2,233	15.9	178	1.3	313	2.2

Locality.	Italian.		Scandinavian.		Polish.		Total.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Mesabi range:								
Hibbing district.....	209	13.1	59	3.7	23	1.4	1,600	100.0
Chisholm district.....	155	9.5	104	6.4	58	3.6	1,629	100.0
Mountain Iron district.....	36	5.0	88	12.2	.....	.....	720	100.0
Eveleth (Fayal) district.....	224	17.7	108	8.5	23	1.8	1,267	100.0
Eveleth (Adams) district.....	177	13.4	84	6.4	20	1.5	1,320	100.0
Biwabik district.....	3	.9	21	6.6	.....	.....	319	100.0
Canisteo district.....	33	2.1	179	11.5	14	.9	1,556	100.0
Total.....	837	10.0	643	7.6	138	1.6	8,411	100.0
Vermilion range.....	30	3.9	53	6.9	.....	.....	765	100.0
Marquette range.....	178	11.9	145	9.7	.....	.....	1,492	100.0
Menominee range.....	284	19.7	407	28.3	102	7.1	1,439	100.0
Gogebic range.....	232	12.1	184	9.6	260	13.5	1,922	100.0
Grand total.....	1,561	11.1	1,432	10.2	500	3.6	14,029	100.0

This company had 12,478 employees on July 1, 1908. The Americans were 25.8 per cent of this number. The Austrians were the most numerous, with 31.9 per cent. On the Vermilion range 52.2 per cent of the employees were Austrians.

On June 1, 1909, this company had 14,029 employees, of whom 23.2 per cent were Americans, 32.5 per cent Austrians, 15.9 per cent Finnish, etc. Those nationalities that showed an increased proportion employed in 1909 compared with 1908 were Austrians, Finnish, Italians, and Polish. Those that decreased were Americans, French, German, and Scandinavians.

NUMBER AND PER CENT OF FOREIGN-BORN EMPLOYEES OF THE OLIVER IRON MINING COMPANY WHO SPEAK ENGLISH, MAY 1, 1907, BY RACE OR PEOPLE.

[Data supplied by the Oliver Iron Mining Company. Figures do not include 25 persons not reporting as to whether they do or do not speak English.]

Race or people.	Speak English.		Do not speak English.	Total.	Race or people.	Speak English.		Do not speak English.	Total.
	Number.	Per cent.				Number.	Per cent.		
Arabian.....	1	100.0	.....	1	Japanese.....	2	100.0	.....	2
Austrian.....	244	30.0	570	814	Korean.....	1	100.0	.....	1
Bohemian.....	25	51.0	24	49	Lithuanian.....	3	100.0	.....	3
Bosnian.....	29	19.9	117	146	Macedonian.....	1	100.0	.....	1
Bulgarian.....	24	11.4	186	210	Magyar.....	72	34.3	138	210
Croatian.....	580	30.8	1,310	1,881	Montenegrin.....	28	27.5	74	102
Czech.....	2	18.2	9	11	Polish.....	70	46.4	81	151
Dalmatian.....	44	34.1	85	129	Roumanian.....	2	40.0	3	5
Dutch.....	2	100.0	.....	2	Russian.....	22	44.0	28	50
English.....	160	100.0	.....	160	Ruthenian.....	3	100.0	.....	3
Finnish.....	1,372	54.4	1,151	2,523	Scandinavian.....	451	87.6	64	515
Flemish.....	1	33.3	2	3	Scotch.....	53	100.0	.....	53
French.....	64	92.8	5	69	Scotch-Irish.....	1	100.0	.....	1
French-Canadian.....	20	90.9	2	22	Servian.....	14	14.7	81	95
German.....	84	44.2	106	190	Slav.....	71	37.2	120	191
Greek.....	2	66.7	1	3	Slovak.....	145	40.4	214	359
Hebrew.....	4	80.0	1	5	Slovenian.....	327	79.0	87	414
Hervat.....	9	45.0	11	20	Syrian.....	1	100.0	.....	1
Hungarian.....	23	47.9	25	48	Tyrolese.....	68	62.4	41	109
Indian.....	1	100.0	.....	1	Welsh.....	3	100.0	.....	3
Irish.....	81	100.0	.....	81	Not reported.....	240	53.5	209	449
Italian.....	146	62.1	89	235					
Italian (north).....	164	55.0	134	298	Total.....	4,917	48.6	5,197	10,114
Italian (south).....	257	51.9	238	495					

Only 48.6 per cent of the employees considered in this table can speak English. A considerable number of the races reported 100 per cent able to speak English, but the number of persons involved is too small upon which to base a conclusion. Austrians report 30 per cent; Croatsians, 30.8 per cent; Magyars, 34.3 per cent; Slavs, 37.2 per cent; and Slovaks, 40.4 per cent speaking English, while the Italians report 55.2 per cent; Finnish, 54.4 per cent; Slovenians, 79 per cent; and Scandinavians, 87.6 per cent who speak English.

NUMBER AND PER CENT OF FOREIGN-BORN EMPLOYEES OF THE OLIVER IRON MINING COMPANY, FIVE YEARS IN THE UNITED STATES, WHO HAVE BECOME NATURALIZED, MAY 1, 1907, BY RACE OR PEOPLE.

[Data supplied by the Oliver Iron Mining Company. Figures do not include 68 persons not reporting as to naturalization.]

Race or people.	Naturalized.		Not naturalized.	Total.	Race or people.	Naturalized.		Not naturalized.	Total.
	Number.	Per cent.				Number.	Per cent.		
Arabian.....	.....	.....	1	1	Flemish.....	.....	.....	1	1
Austrian.....	52	33.5	103	155	French.....	40	81.6	9	49
Bohemian.....	9	52.9	8	17	French-Canadian.....	9	50.0	9	18
Bosnian.....	.....	.....	4	4	German.....	41	68.3	19	60
Bulgarian.....	2	25.0	6	8	Greek.....	1	100.0	.....	1
Croatian.....	73	24.6	224	297	Hebrew.....	3	100.0	.....	3
Czech.....	1	100.0	.....	1	Hervat.....	.....	.....	6	6
Dalmatian.....	2	15.4	11	13	Hungarian.....	6	50.0	6	12
Dutch.....	2	100.0	.....	2	Indian.....	.....	.....	1	1
English.....	114	83.2	23	137	Irish.....	65	87.8	9	74
Finnish.....	310	34.9	578	888	Italian.....	22	30.6	50	72

NUMBER AND PER CENT OF FOREIGN-BORN EMPLOYEES OF THE OLIVER IRON MINING COMPANY, FIVE YEARS IN THE UNITED STATES, WHO HAVE BECOME NATURALIZED, MAY 1, 1907, BY RACE OR PEOPLE—Concluded.

Race or people.	Naturalized.		Not naturalized.	Total.	Race or people.	Naturalized.		Not naturalized.	Total.
	Number.	Per cent.				Number.	Per cent.		
Italian (north) .....	35	34.3	67	102	Servian.....	1	11.1	8	9
Italian (south) .....	53	30.5	121	174	Slav.....	21	31.8	45	66
Korean .....			1	1	Slovak.....	42	31.1	93	135
Lithuanian.....			1	1	Slovenian.....	34	28.6	85	119
Magyar.....	7	13.0	47	54	Syrian.....			1	1
Polish.....	11	25.0	33	44	Tyrolese.....	27	60.0	18	45
Russian.....	5	41.7	7	12	Welsh.....	3	100.0		3
Ruthenian.....	1	35.3	2	3	Not reported.....	83	48.5	88	171
Scandinavian.....	242	69.5	106	348	Total.....	1,351	42.9	1,798	3,149
Scotch.....	33	82.5	7	40					
Scotch-Irish.....	1	100.0		1					

There have been naturalized 42.9 per cent of those who have been in the United States five years. About one-third of the Austrians, Finns, Italians, Slavs, and Slovaks have availed themselves of citizenship through the naturalization laws. Over 80 per cent of the English, Irish, and Scotch and 69.5 per cent of the Scandinavians are naturalized.

NUMBER AND PER CENT OF FOREIGN-BORN EMPLOYEES OF THE OLIVER IRON MINING COMPANY, 21 YEARS OF AGE AND OVER, REPORTING CONJUGAL CONDITION, MAY 1, 1907, BY RACE OR PEOPLE.

[Data supplied by the Oliver Iron Mining Company.]

Race or people.	Married.		Single.	Total.	Race or people.	Married.		Single.	Total.
	Number.	Per cent.				Number.	Per cent.		
Arabian.....			1	1	Japanese.....			1	1
Austrian.....	343	52.3	312	656	Korean.....	1	100.0		1
Bohemian.....	21	52.5	19	40	Lithuanian.....	1	33.3	2	3
Bosnian.....	78	68.4	36	114	Macedonian.....	1	100.0		1
Bulgarian.....	118	64.8	64	182	Magyar.....	100	54.9	82	182
Croatian.....	903	58.4	642	1,545	Montenegrin.....	26	34.7	49	75
Czech.....	4	40.0	6	10	Polish.....	65	47.4	72	137
Dalmatian.....	73	74.5	25	98	Roumanian.....	4	80.0	1	5
Dutch.....	1	50.0	1	2	Russian.....	23	53.5	20	43
English.....	89	58.2	64	153	Ruthenian.....	2	100.0		2
Finnish.....	902	39.3	1,392	2,294	Scandinavian.....	225	47.5	249	474
Flemish.....	1	33.3	2	3	Scotch.....	28	54.9	23	51
French.....	41	63.1	24	65	Scotch-Irish.....	1	100.0		1
French-Canadian.....	21	95.5	1	22	Servian.....	31	46.3	36	67
German.....	100	58.8	70	170	Slav.....	95	57.2	71	166
Greek.....	2	66.7	1	3	Slovak.....	167	54.6	139	306
Hebrew.....	1	33.3	2	3	Slovenian.....	202	56.6	155	357
Hervat.....	10	52.6	9	19	Syrian.....			1	1
Hungarian.....	27	62.8	16	43	Tyrolese.....	43	41.7	60	103
Indian.....			1	1	Welsh.....	1	33.3	2	3
Irish.....	36	45.0	44	80	Not reported.....	235	58.8	165	400
Italian.....	106	50.7	103	209	Total.....	4,538	51.6	4,258	8,796
Italian, north.....	147	56.5	113	260					
Italian, south.....	263	59.2	181	444					

More than one-half of those 21 years of age and over were married. Those races represented by any considerable number having under 50 per cent married were the Finnish, Irish, Montenegrins, Polish,

Scandinavians, and Tyrolese. Some of those with over 50 per cent married were the Austrians, Croatians, Germans, Italians, Slovaks, and Slovenians.

LENGTH OF RESIDENCE IN UNITED STATES OF FOREIGN-BORN EMPLOYEES OF THE OLIVER IRON MINING COMPANY MAY 1, 1907, BY OCCUPATIONS.

[Data supplied by the Oliver Iron Mining Company.]

Occupation.	Foreign born living in United States—													Grand total.
	Native born.	Under 1 year.	1 year.	2 yrs.	3 yrs.	4 yrs.	5 to 9 yrs.	10 to 14 yrs.	15 to 19 yrs.	20 to 24 yrs.	25 yrs. and over.	Years not reported.	Total foreign born.	
Apprentice.....	4													4
Axman.....	6													6
Barn boss.....	3													6
Barn boss, assistant.....	1													1
Barn man.....	1		1					1	1					4
Blacksmith.....	9	2	9	12	5	6	23	7	12	3	6			85
Blacksmith's helper.....	6	3	4	3	2	5	9	1	1	3	2	1		34
Blaster.....		1	2	4	2	4	11	1	4		2	1		32
Boiler maker.....	2		1			1								2
Bolt cutter.....							1							1
Bookkeeper.....	3													3
Boss.....	1						1	1	1	2	1			7
Brakeman.....	217	8	22	28	6	9	19	3	8	7	6	1		117
Call boy.....	1													1
Car checker.....	3													3
Carpenter.....	22		7	13	4	11	31	9	19	11	11			116
Carpenter's helper.....	1						1	1	1					2
Car repairer.....	9	1	3	3	1	6	10	2	9	2	1	2		40
Car trimmer.....		2	4	1			2							9
Cashier's assistant.....											1			1
Chain gang.....	4		1								1			2
Chain man.....	11													11
Chemist.....	10										1			11
Chemist's assistant.....	23													23
Chip taker.....	3		2	1			1							4
Churn drill helper.....				1							1			2
Chute man.....			2	1		3	2							9
Clerk.....	77		1	1		1	2	1	3	1	2			12
Coal heaver.....			1											1
Coal passer.....	1			1			2							3
Coal wheeler.....				1	1	1	2	1						6
Compressor man.....	2						1	1						3
Crane man.....	73		2	1	2	1	1	1	4	1	2			15
Crane man, steam shovel.....	29						10	3	5	4	5			28
Crusher man.....								1						1
Diamond driller.....	3			1			4		2	1				8
Diamond driller's helper.....			1	1		1	1	3	1					8
Diamond setter.....	1													1
Ditch man.....		2	1	2		2	2	3						12
Draftsman.....	3	1								1				2
Drifter.....							1							1
Drill boss.....														1
Driller.....	1	28	38	44	21	19	39	3	3		1	1		197
Driller and blaster.....		22	18	13	8	6	29	3						100
Driller's helper.....		2												2
Driver.....	1													1
Dry house man.....							1							1
Dry man.....	3					1	5	5	1	1	2			15
Dry tender.....							1		1	1				3
Dump boss.....	4		1	2	3	1	5	1	2	1	1			17
Dump man.....		59	76	53	33	16	22		3			1		263
Dynamo tender.....	2													2
Electrician.....	7			2		1	2		2	1	1			9
Electrician's helper.....				1										1
Engineer.....	51			3	2	3	10	4	6	7	4			39
Engineer, hoisting.....	3						2		2		3			7
Engineer, locomotive.....	169					1	3	7	7	7	13	1		39
Engineer, stationary.....	5						2	2	2	2	3			9
Engineer, steam pump.....							1							1
Engineer, steam shovel.....	93		1	1			7	6	7	6	9			37
Engineer, wrecker.....	4													4

LENGTH OF RESIDENCE IN UNITED STATES OF FOREIGN-BORN EMPLOYEES OF THE OLIVER IRON MINING COMPANY, MAY 1, 1907, BY OCCUPATIONS—Continued.

Occupation.	Foreign born living in United States—													Total foreign born.	Grand total.			
	Native born.	Under 1 year.	1 year.	2 yrs.	3 yrs.	4 yrs.	5 to 9 yrs.	10 to 14 yrs.	15 to 19 yrs.	20 to 24 yrs.	25 years and over.	Years not reported.						
Engineering department.....	2																2	
Fireman.....	98	2	4	8	7	8	25	11	12	6	7	1		91			189	
Fireman, churn drill.....					1									1			1	
Fireman, diamond drill.....					1		1							4			4	
Fireman, locomotive.....	128		1	1	2	3	10	6	11	7	1			42			170	
Fireman, stationary.....	1	1	1					2	1		1			8			9	
Fireman, steam shovel.....	67	1	3	3	4	2	16	4	10	4	4			58			125	
Fireman, wrecker.....	1																1	
Foreman.....	18	1	1		2	4	9	6	8	6	3			40			58	
Foreman, assistant.....											1			1			1	
Foreman, blacksmith.....										1				1			1	
Foreman, blasting.....	1								1					1			2	
Foreman, carpenter.....	1								1		1			2			3	
Foreman, car repairers.....	2																2	
Foreman, drill.....									1	1				2			2	
Foreman, drilling and blasting.....																	1	
Foreman, dump.....	2			2			2		2		1			7			9	
Foreman, miner.....							1	1	1	1	1			5			5	
Foreman, night.....	3																3	
Foreman, ore.....	1																1	
Foreman, pipeman.....	3										1			1			4	
Foreman, pit.....														1			1	
Foreman, pit assistant.....	2																2	
Foreman, powder.....							1							1			1	
Foreman, shop.....	1																1	
Foreman, steam shovel.....	1																1	
Foreman, stripping.....										1				1			1	
Foreman, surface.....	2								1	3	4	1		9			11	
Foreman, surface asst.....											1			1			1	
Foreman, timber.....	1								1					2			3	
Foreman, track.....	3						3	4	1	1	2			11			14	
Foreman, underground.....										1				1			1	
Gang boss.....														2			2	
Greaser.....						1					1			2			2	
Grinder.....	1								1								1	
Hammerman.....	1																1	
Head mine captain.....																	1	
Janitor.....	1		1			1	2		1	2	2			9			10	
Janitress.....					1									1			1	
Laborer.....	200	762	970	885	453	369	611	95	101	51	52	10	4,359	4,559				
Lander.....	1	3	3	9	6	2	13	4	4	1	3			48			49	
Lightman.....																	1	
Logging cutter.....							1							1			1	
Lumber scaler.....	1																1	
Machine shop employe.....																	1	
Machinist.....	59	1	2			4	4	1	4	2	3	8		28			87	
Machinist's apprentice.....	8		1						1	1				3			11	
Machinist's helper.....	11		1	1	1		1	1	1					5			16	
Mason.....	1	2		1	1	3	8	2	1			5		23			24	
Mason's helper.....	1	1	1			1	1	1						4			4	
Master mechanic.....	3							1				2		3			6	
Master mechanic's assistant.....																	1	
Mechanic.....						1	2	1		2	1			7			7	
Mechanical engineer.....	1																1	
Messenger.....																	1	
Miller.....				3	1			1						5			5	
Miner.....	10	99	264	358	224	237	594	102	74	27	16	5	2,000	2,010				
Miner chute man.....		1												1			1	
Miner's helper.....						1	2							3			3	
Miner, tram boss.....														1			1	
Mining captain.....	8					1			2	4	5			11			19	
Mining captain's assistant.....	1									1							1	
Mining engineer.....	12					1	1							2			14	
Mining shift boss.....									2					2			2	
Molder.....	1										1	1		2			3	
Motorman.....		1	4	10	1	3	4	3						26			26	
Mucker.....		1	2	3			1							7			7	

LENGTH OF RESIDENCE IN UNITED STATES OF FOREIGN-BORN EMPLOYEES OF  
 THE OLIVER IRON MINING COMPANY, MAY 1, 1907, BY OCCUPATIONS—Continued.

Occupation.	Foreign born living in United States—												Total foreign born.	Grand total.
	Native born.	Un- der 1 year.	1 year.	2 yrs.	3 yrs.	4 yrs.	5 to 9 yrs.	10 to 14 yrs.	15 to 19 yrs.	20 to 24 yrs.	25 years and over.	Years not re- port- ed.		
Mule driver.....			2	8	5	6	10	1					32	32
Office boy.....							1						1	1
Office man.....													1	1
Oiler.....	2	1	2	2	1	1	2	2		1	1		13	15
Operator.....	2													2
Ore inspector.....										1			1	1
Ore man.....											1		1	1
Ore yardmaster.....	1												1	1
Painter.....	3				1								1	4
Pattern maker.....									1				1	1
Pattern maker and molder.....	1													1
Pilot.....	3													3
Pipe boss.....	1													1
Pipe gang.....	2													2
Pipe man.....	58	2	1	5	3	4	11	6	6	5	2		45	103
Pipe man's helper.....					1								1	1
Pit boss.....	1			3	1				1				5	6
Pit boss, steam shovel.....					1								1	1
Pitman.....	4	48	65	74	28	30	37	4	3				289	293
Pitman, steam shovel.....	1	12	32	40	14	13	12	1	1				125	126
Pitman, surface.....			1										1	1
Pocket man.....	1	1		3	3	1	9	5	1		1		24	25
Powder man.....	1	1				1	3	1	1		4		11	12
Powder man's helper.....	1						2	1						1
Puffer man.....													3	3
Puffer man, under- ground.....			1										1	1
Pump man.....	30	1		1		7	14	2	6	2	9	1	43	73
Pump man's helper.....					1					1			2	2
Repairer, steam shovel.....	1													1
River driver.....	3													3
Rock picker.....								1					1	1
Rodman.....	6													6
Rope man.....	1													1
Sampler.....	9		4	3			2	2	1				12	21
Scraper, gang.....		1		2									3	3
Shift boss.....	3					1	10	5	13	9	5	1	44	47
Shoveler.....			7	3		3	5		1	2			21	21
Skip tender.....	1	1	2	6	3	1	8	2		2			25	26
Slide man.....					1		2		1				4	4
Stableman.....							2			1			3	3
Station man.....		1					2		2	1	1		7	7
Steam pump man.....											1		1	1
Stenographer.....	6							1			1		1	7
Stone mason.....							1						1	1
Superintendent, assist- ant.....										1			1	1
Surface boss.....	5					1			2	1	2		6	11
Surveyor.....	1													1
Swamper.....	1			1	2	1	2	1	2				9	10
Switchman.....	75	2	4	8	1	2	6	2	2	4	5		36	111
Tally boy.....	4	2		2			1	1					6	10
Teamster.....	41	1	4	6	4	5	14	7	7	4	5	1	58	99
Teamster's helper.....	1	2	2	1		1					1		7	8
Telephone man.....	1													1
Test pitter.....										1	1		2	2
Tie maker.....							1							1
Timber boss.....						1	2						3	3
Timber captain.....									1				1	1
Timber framer.....		2	4	1		2	5	1	5	3			23	23
Timber lander.....		1	2	3	3	5	7		1	1			23	23
Timberman.....	1	5	11	19	12	12	35	7	12		2		115	116
Timber repairer.....							3			1			4	4
Timber shaft sinker.....						1	1	1					3	3
Timekeeper.....	18			2	3	4	6	2	3				24	20
Tool carrier.....	1										1		2	2
Town-site superintend- ent.....	1													1
Track boss.....	9			2	3	4	6	2	3				24	33
Trackman.....	9	83	142	98	59	44	54	7	3	3	1	2	493	502

LENGTH OF RESIDENCE IN UNITED STATES OF FOREIGN-BORN EMPLOYEES OF THE OLIVER IRON MINING COMPANY, MAY 1, 1907, BY OCCUPATIONS—Concluded.

Occupation.	Native born.	Foreign born living in United States—											Total foreign born.	Grand total.	
		Under 1 year.	1 year.	2 yrs.	3 yrs.	4 yrs.	5 to 9 yrs.	10 to 14 yrs.	15 to 19 yrs.	20 to 24 yrs.	25 years and over.	Years not reported.			
Trackman's helper.....				1										1	1
Track walker.....										1				1	1
Trammer.....	4	73	116	70	29	15	25	5	3			1	337	341	
Trammer boss.....			1	1			5	1					8	8	
Warehouseman.....	3		1					1	1		1		4	7	
Washing plant employee.....				2				1					13	3	
Watchman.....	5		1				1	2	4	1	8		7	22	
Water boy.....	5	3	2	1			1						7	12	
Weigher.....	1													1	
Wiper.....			1										1	1	
Woodchopper.....	2			2	1				2				5	7	
Wood lander.....	1													1	
Yardmaster.....	10							1					41	11	
Not reported.....	8	11	14	6	6	4	4	2	1			1	9	57	
Total.....	1,879	1,261	1,879	1,856	976	917	1,887	399	434	237	260	33	10,139	12,013	

This table shows that in this company blacksmiths, carpenters, drillers, dump men, laborers, miners, pitmen, timbermen, trackmen, and trammers are occupations almost wholly filled by those of foreign birth. Those mainly filled by native-born employees were brakemen, crane men, locomotive firemen, machinists, and switchmen.

The occupations in which native and foreign born are quite evenly divided are electricians, firemen, steam-shovel firemen, mining captains, pipe men, pump men, and teamsters. Such occupations as chemists, clerks, mining engineers, timekeepers, and yardmasters are almost wholly filled by native-born employees.

If nationality statistics could be had for the whole period of operation at the Minnesota ore mines they would show the same process of supplanting the older mine workers by more recent immigrants, which has taken place in many of the coal mining districts. In fact the process has here been singularly swift and complete; and this is due to two causes—the rapid development of the industry and the peculiarities of the mining operations, which make it possible to use a very unusual proportion of unskilled labor. Very soon the English and Scotch miners who went largely from the older Michigan ranges to the Vermilion were brought to the Mesabi to serve as foremen, shift bosses, and mining captains. The order of the coming of the races seems to have been: Scandinavian, Finn, Austrian, and Italian; and within the past few years the great preponderance of new arrivals has been from southeastern Europe—Servia, Montenegro, Bulgaria, Croatia, and neighboring States.

### THE FINNS.

The Finns have played an important part in the development of the mines of the Lake Superior region, and they are certain to remain an important factor in the population of northern Minnesota. An agricultural people at home, they have been attracted to mining in large numbers in the northern iron and copper regions. Of the 19,847 foreign-born Finns shown by the state census of 1905 to be in Minnesota, 12,076 were in St. Louis County. The remainder are distributed mainly in the agricultural districts, and even in St. Louis County there is a strong drift of this people to the land.

They are industrious, sturdy, and intelligent workers, ambitious to learn and to rise. Next to the Welsh and Cornish men whose positions they fell heir to, they are regarded as the most efficient miners on the ranges. Their standard of living is higher than that of the other foreign elements represented. They are more given to owning the houses they live in and are not found in the shacks and camps with which others are content. The young men usually live in commodious, well-kept boarding houses. Cleanliness seems to be a racial characteristic. Frederiksen,<sup>(a)</sup> writing of the home life of his people, says that "every Finnish family has its sauna, or bath house. It is the first place built, and the family live in it until the rest of the house is ready." Not every family on the range can boast its private bath house, but every village has one or more public bath houses at which hot vapor baths may be had. These houses are patronized also by others than the Finns.

The Finns are reported to have qualities of initiative, independence, self-reliance, and a jealous regard for their rights. They are not quarrelsome, but are often described by employers as "stubborn," "not easily managed," "not amenable to discipline," etc. The general impression is that they, next to the Scandinavians, are the most prompt to become naturalized of any of the "foreigners." This is not borne out by the figures from the Oliver Iron Mining Company.

### THE AUSTRIANS.

Numerically the most important body of laborers on the ranges is that roughly designated as the "Austrians." Not only is the name applied promiscuously to all who hail from the dual Empire, of whatever race, but the confusion is increased by the inclusion of the Bulgarians, who are often spoken of as "Black Austrians." The Serbians and Montenegrins are also included frequently in the same category. In 1908, of the employees of the Oliver Iron Mining Company, 44.1 per cent on the Mesabi and 52.2 per cent on the Vermilion

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<sup>a</sup>Finland, Its Public and Private Economy, p. 23.

were thus classed as Austrians. By the census of that company's employees, May 1, 1907, nearly 4,800, out of a total of 10,139 foreign-born employed by it in the Lake Superior region, were of the races migrating from Austria-Hungary. Of these, however, only 814 were Austrians proper. By far the largest racial factor in the group was the Croatsians, numbering 1,881. The Slovenians came next with 415 and the Slovaks followed with 359.

The Austrians, using that term to include the races coming from Austria-Hungary, are regarded by the mining companies as the most desirable workers next to the Scandinavians and Finns. The promise given by their large frames and muscular build of being efficient workers is not, however, wholly borne out. According to the testimony of the mining companies, while very docile, they lack the initiative of the Scandinavians and the Finns, and thus require a great deal of supervision. Even in physical endurance they have not in the mining region proved the equal of those races. This is often explained by their different standard of living. They live in large numbers in camps near their work, and their fare consists largely of rye bread and the cheapest cuts of beef boiled with vegetables. The returns as to conjugal condition of this class show that 56.6 per cent of them over 21 years of age, working for the Oliver Iron Mining Company, are married, as compared with 39.3 per cent of the Finns and 56.5 per cent of the Italians. This is contrary to the prevailing impression that a large proportion of the Austrians are single men, while the Finns are more largely men with families. The discrepancy between the statistics and the prevalent belief may be explained by the fact that many of the Austrians reporting as married have their families in the old country and live here under the conditions of single men. One also often hears it said on the range that the Austrians do not seize the opportunity to become citizens so promptly as the Finns. The data on this point, supplied by the returns of the Oliver Iron Mining Company while bearing out this view, do not show so marked a difference in the two nationalities in this respect as is generally supposed. Of the employees from Austria-Hungary who had been in the United States five years and reported on the matter, about 29 per cent are reported as naturalized; of the 888 Finns reporting on this point 34.9 per cent were naturalized, and 31.6 per cent of the Italians so reported. One close observer on the western Mesabi has found it characteristic of the Austrians that they generally come here with the intention of returning home to live when their fortune is made; but that in very many cases they become dissatisfied on their return to the old country and come back to America to stay—usually with a wife.

**MONTENEGRINS AND SERVIANS.**

The Montenegrins and the Servians are grouped together industrially. They are the most recent arrivals on the Mesabi and are generally regarded as the least efficient element of the mining population. There is no way of showing accurately what their movement to the Minnesota ranges has been. They are not differentiated in the state census of 1905, and it is not likely any had yet come to the ranges in 1900. The Oliver Iron Mining Company had 102 Montenegrins and 95 Servians in its employ according to its census of May 1, 1907. During the summer of 1907 the number employed on the ranges was largely increased, large numbers coming in to break the strike of that year. The same is true of the Bulgarians. These races live cheaply, and while they are large-framed, robust-looking men they are far from efficient workers. They require much supervision and do only the rudest work. They live cheaply in shacks or camps, rarely having families with them. They learn the English language slowly.

**SOCIAL CONDITIONS.**

It might be supposed that if one thing could be had in abundance in a region so sparsely settled it would be building space. But in nearly all the range communities there is difficulty in securing such space. The reason lies in the fact that the land is controlled by the mining companies or by fee owners who hope to dispose of mineral rights; and until exploration has shown that available town sites are not underlaid by ore or are not needed for developing adjacent iron properties these parties will of course alienate no land. When property is sold anywhere in the region it is always with a reservation of mineral rights. In spite of the care taken, some errors have been made in locating towns. Eveleth, or a portion of it, has had to be moved twice; the village of Sparta has been moved in toto. Many houses have been removed from one end of the village of Hibbing for the extension of mining operations, and in course of time the whole town site may be a mine. In Chisholm a mine is being developed so near to one of the school buildings that windows are frequently broken by the shock of the explosives used. So lavish has nature been in laying down her wealth of ore, she has not, it would seem, left sufficient living room for the men who are mining it.

**HOUSING.**

The well-laid-out villages and cities are built with noticeable compactness. This is especially true of Eveleth and Hibbing and some sections of Virginia. In these and in most other places the lots have a frontage of only 25 or 30 feet, and this gives a sort of approval to

the eave-to-eave construction so prevalent in the range towns. The places appear crowded. No statistical inquiry has been made into the housing arrangements; but the impression gained is strong that there is a tendency to overcrowding in the houses. In a six or an eight room house two families of mine workers, often large ones, are usually found, and it is not uncommon for such families to keep a boarder or two.

Large portions of the range population live outside the village or city limits. A noticeable feature in connection with nearly every mine is the larger or smaller group of houses which constitute "the location." The whole group may be owned by the company and rented to employees. The company houses on the range are apparently a distinct advantage to the workmen, not only because they are usually well located, supplied with water, well built, and kept in repair, but because a low rent is charged. It would be not far from correct perhaps to say that for the same accommodations those living in company houses pay only from one-third to one-half of what they would have to pay in the village. The United States Steel Corporation has perhaps gone further than other companies in providing houses for its men. In July, 1909, the Oliver Iron Mining Company owned 934 houses on the Mesabi range besides 29 boarding houses and 83 "camps," a total of 1,046 houses for living purposes. During the season of 1908, 278 cottages were built by this company on the Mesabi, at a cost of from \$800 to \$2,000 each, including woodshed, walks, and fence, the average cost being about \$1,250. The policy of the company is to charge for its houses a rental of \$1 per month for each \$100 invested in the property, not reckoning the value of the lots, though in many cases the charge is less. Many of the houses are wired for electricity, and where connections can be made with a company plant light is provided at low rates. What the Oliver company is doing on a large scale the smaller companies are doing on a smaller scale. The company houses in most locations appear to be well kept and comfortable.

Another group of houses belonging to the companies for which so much can not be said is the "camps." The sides of a typical camp are usually built of two thicknesses of rough boards with tarred building paper between. A partition usually separates the cookroom from the sleeping room. Double-deck bunks are arranged along the sides of the sleeping room, which often serves also as a dining room, unless, as is sometimes the case, a separate eating camp is provided. Most of the bunks are of wood, but in some cases iron double-deck bed frames are being substituted. Sometimes the camps are built of logs, as about Coleraine. Little or no provision is made for their ventilation. In a camp 28 or 30, and even more, men will frequently live on the cooperative plan. The cooking may be done by one of the men or by a woman.

Such a number could not be accommodated but for the fact that some of the men work on night shift and others on day shift. Thus the camp dwellers often keep the bunks in continuous use.

The Austrians, Bulgarians, and Montenegrins are most frequently found in the camps, for the use of which usually no charge is made. The camps are in all degrees of filthiness, made so by the occupants, in spite of the company's efforts to keep them habitable. The United States Steel Corporation has in one locality at least made systematic efforts to secure sanitary and cleanly conditions in the camps, partly by a more sanitary construction, affording better ventilation and providing concrete floors, and partly by enforcing regulations, through an inspector, for the periodic cleaning of the camps. In other places the private policemen employed by the Oliver company serve as sanitary inspectors and require periodic cleaning up. It would seem, however, that this system of housing is bad, and that such dwellings can never be made tolerable except under the strictest discipline. The camps belong to the earliest pioneer stages of development in mining and logging communities. In the newest district opened by the Oliver company—the Canisteo district—more than half of its 83 camps are now found. In the much more populous Chisholm district the company owns but 7 camps and in the Adams district but 2.

Another characteristic group of dwellings on the range is the "squatters' location." These are built on company lands and exhibit in a marked degree the individuality of the builders. In some cases the houses are shapely and well constructed, but for the most part they are mere shacks of all styles and sizes and are built often of picked-up material; everywhere tarred paper plays a conspicuous part. Healthfulness and beauty of location are often sacrificed for proximity to work. The companies guard against the acquirement of squatters' rights by making a charge for ground rent varying from 50 cents to \$1 per month, regardless of the size or character of the site occupied. The same charge is made to squatters who build, as many do, in isolated places. Squatters sell or rent their houses, and it is not unusual for a tarred-paper shack to rent for more than a comfortable company house. A very considerable portion of mine workers live in these generally undesirable squatters' quarters. The Finns and the Scandinavians, however, are rarely found there. They are mainly occupied by Austrians, Italians, Bulgarians, and Montenegrins.

A large proportion of the mine workers are ill housed, both in the villages, where there is evidence of overcrowding, and in the camps and in the squatters' quarters. And yet the general conditions of health seem good. There has occasionally been an epidemic of typhoid, and children's diseases have spread with unusual celerity; but it is a matter of comment that among mine workers there is, in view of the manner of life, a surprisingly small amount of sickness.

This is due in part to the salubrity of the northern climate. Conditions as to water supply, sewage, etc., which in southern climates would cause devastating disease, are attended here with comparatively slight danger. A large proportion of the workers are young and robust and their heavy outdoor work contributes to make health conditions good.

### EDUCATIONAL FACILITIES.

This brings us to another peculiarity of the population. The Mesabi range is a young people's country. The number of elderly people is small. No direct statistical evidence of this is at hand, but the statistics of school attendance throw some light on the subject.

#### NUMBER OF PUPILS ATTENDING GRADED SCHOOLS IN CERTAIN RANGE AND AGRICULTURAL TOWNS.

[Data supplied by the school superintendents of the towns specified.]

Town	Kindergarten.	First grade.	Second grade.	Third grade.	Fourth grade.	Fifth grade.	Sixth grade.	Seventh grade.	Eighth grade.	Ninth to twelfth grades.	Per cent in fifth and lower grades.
Coleraine (a).....	90	65	60	60	49	54	33	35	24	31	75
Hibbing (a).....	145	233	258	150	123	144	96	97	55	101	76
Chisholm (a).....	107	250	113	99	95	73	39	31	25	39	85
Rochester (b).....		247	147	124	138	104	100	97	83	212	61
Red Wing (b).....		141	133	171	197	161	126	138	122	228	58
Austin (b).....		172	167	155	140	109	159	166	145	214	52

a Range towns.

b Agricultural towns in the southern part of the State.

This table is of chief value in confirming the impression that the population is predominantly young. It might be supposed that the small proportion of school attendance in the upper grades is due to the withdrawal of the older pupils for labor. This is not the case. The opportunities for employing child labor are not so great as in communities having more diversified industries; the mines employ a few lads as tally boys or water boys, but the number is small. The school authorities are alive to the importance of keeping the children of the recent immigrant in the schools, and there is probably no other section of the State where the truancy laws are so strictly enforced as in the range towns. The table is, therefore, fairly indicative of the fact that the children come from the families of young people.

The public buildings are better than those found in the agricultural sections of the State, and this is especially true of the school buildings. The high school building at Coleraine cost, with its equipment, \$36,000; that at Hibbing cost \$95,000, and a new grade building was erected there in 1909, at a cost of \$125,000. The Chisholm High School building cost \$125,000. Virginia has commodious quarters for its high school, yet in 1909 the sum of \$125,000 was voted for a new

building. Every range community has exceptionally good and well-equipped buildings. High salaries are paid for teachers. There is in the management of the schools a palpable recognition of the fact that the conditions are unusual, and there is also a desire to meet them fairly. Manual training and domestic science courses began earlier here and have proceeded further than in other parts of the State. An effort is being made by some of the school authorities, through the work in domestic science particularly, to set up some proper ideals of housekeeping and home life and to encourage habits of decent living among the children of recent immigrants. To overcome long-established modes of life, especially where present housing conditions are so notoriously bad, seems to many a well-nigh hopeless task; but no other agency is doing so much toward it on the ranges as the public school. It has been the plan of one superintendent to make the high school strong in those sciences, such as chemistry, etc., which have a special bearing on community life, with the design of finally making it a technical school. The superintendent at another place is advocating the establishment of a subschool of mines at that place under the direction of the school of mines of the state university. Of course the burden of taxation for schools or other purposes is not great. The school district in which Coleraine is located has an assessed valuation of about \$8,000,000—a million more than Winona, in the southern part of the State, with a population of over 20,000. The Chisholm district has a valuation of \$71,000,000, twice as great as that for the city of Duluth; while the Hibbing district has a valuation of \$82,500,000, nearly half as great as that for the whole of Hennepin County, which contains the city of Minneapolis.

#### HOME OWNING.

Nowhere is the desirability of a home-owning working population more keenly felt than on these ranges. The working population is a shifting one. Not only is there a constant movement to and from the range, but everywhere complaint is made of the tendency to move from one place or mine to another. This tendency is strongest of course among the foot-loose single men, who form so large a proportion of the working force. The effort is made, by some of the companies at least, to retain as large a number of married men as possible, and encouragement is held out, in spite of the difficulties mentioned above in acquiring land, for them to own their homes. Lumber is supplied on favorable terms in many cases by the company and is paid for by monthly deductions from wages. One gets the impression that this has been done more extensively on the Vermilion than in most places on the Mesabi, the men here building for the most part on company land and paying ground rent therefor.

The following table shows the facts as to ownership of houses and other conditions as they existed at the various mines on the Vermilion range December 17, 1907:

NUMBER AND PER CENT OF MEN EMPLOYED AT MINES ON VERMILION RANGE WHO ARE MARRIED, OWN HOUSES, AND OCCUPY THEIR OWN HOUSES, DECEMBER 17, 1907.

[Data supplied by the Oliver Iron Mining Company.]

Mine.	Number of men employed.	Married.		Owning houses.		Occupying own houses.	
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Pioneer.....	559	279	49.9	150	26.8	149	26.7
Chandler.....	60	25	41.6	14	23.3	14	23.3
Zenith.....	182	90	49.5	36	19.8	35	19.2
Savoy.....	215	123	57.2	52	24.2	49	22.8
Soudan.....	215	148	68.8	119	55.3	116	54.0
Total.....	1,231	665	54.0	371	30.1	363	29.5

The most extensive effort to induce its employees to become owners of their homes has been made by the Oliver Mining Company at Coleraine. Here the effort has been to make a model mining town. Being the owner of the town site, which is beautifully located on Trout Lake, the company could determine such conditions in the development of the place as it saw fit. The streets were well laid out and graded and in some sections macadamized by the company. Water is furnished from a mine shaft and distributed through some four miles of mains. An adequate sewerage system, including a septic tank, has been established. The residence lots are 75 by 125 or 63 by 142 feet and were sold at the low price of \$100. Certain restrictions are imposed as to the kind of houses and outbuildings which may be erected. The company itself has built a large number of houses, taking care to avoid that uniformity in design and color which so often marks the "company house." Everywhere there is evident the design to make the place something more than a comfortable one to live in. To induce the beautifying of the place free grass seed is furnished by the company, and provision is made for a beautiful park. The houses built by the company were for the first two or three years rented to employees. In July, 1908, these houses were offered for sale on favorable terms, payments to be made monthly in amounts based on the wages of the purchaser; and in case the purchaser should desire to remove from the place, the company guaranteed to return to him the purchase money, with interest. More houses were sought under these conditions than the company had to sell. A clause in the contract for the sale of all lots, whether residence or business, prohibits their use for saloons and for all immoral purposes. It was not the purpose, however, to prohibit the sale of liquor in the place, as is done at the Soudan location on the Vermilion, but

to regulate it; and in certain cases a waiver of this clause is allowed. The policy is to limit the saloons to one for each 500 of the population, and the validity of the title to every property in the village is endangered if more than that number is allowed. The place has since 1907 had two saloons.

It was not the intention of the company to surrender as yet the large control it had over the place by permitting its incorporation as a village; but a change in the method of extending limits of villages was made by the legislature of 1909, which led to its incorporation. From 1905 to 1909 the initial step in attaching outlying territory to a city or village required the signatures to a petition of a certain number of property owners in the outlying district. As these districts are in nearly all cases owned by mining companies they were in control of such extensions of boundaries. The law of 1909 gives "legal voters" instead of property owners the power to institute proceedings for extending village limits, and this law created a situation which forced the early incorporation of Coleraine.

#### LIQUOR TRAFFIC.

The liquor traffic on the range attracts much attention. Saloons are licensed at \$500. Ely has 23, Eveleth 40, Chisholm 48, and Hibbing 60. Other places are equally well supplied. The village of McKinley, with an estimated population of 300, receives \$5,000 in license fees for its 10 saloons, leaving but \$2,000 to be raised by general taxation; but the number of saloons conveys an inadequate notion of the amount of liquor consumed; for everywhere there are great quantities delivered outside the municipal limits on the "locations." It is difficult to control the traffic here, and till within the last year or two considerable freedom has been allowed. The law permits the sale of beer for family use, and where 30 or 40 men are boarding together it is very easy to cross the line from lawful use to forbidden traffic. The "blind pig" evil has to be dealt with in most communities.

#### MINING.

On the Vermilion range all mines are underground and the methods employed there call for little comment, since they have no special significance as determining working conditions. The geological formation of the district is very intricate. There is much folding of the ore veins, which stand at angles of 30 to 80 degrees, and in some cases in a vertical position. The ore is hard, so hard that in some mines the diamond drill is employed for drilling, and a large amount of explosives has to be used for bringing down the ore.

On the newer range all is different. The Mesabi range is a law unto itself. Though only a few miles apart the two ranges present

the most striking differences. While the ore of the Mesabi, like that of the Vermilion, is a hematite, much of it Bessemer grade, it is generally speaking a soft ore, nowhere approaching in hardness that of the older range. The ore lies everywhere in a horizontal or an almost horizontal plane, sometimes cropping out at the surface but usually with a covering of from 20 feet and under to 100 feet and over. The covering is glacial drift, composed mainly of sand and clay, in which huge boulders are a conspicuous part. The ore bodies are of unequal size, but there is remarkable uniformity in the way in which they are laid down. It is usual to speak of them as lying in "pockets," somewhat elongated basins, the shape of which is best shown by placing the two hands together as if to receive a double handful. The long axis may be a mile or more in length, though usually not so long, and runs with the general direction of the range. In one place the ore body is  $2\frac{1}{2}$  miles long and has an average width of half a mile. The ore varies in depth from 40 or 50 to 250 or 300 feet, and in one case it is found to run more than 500 feet deep. This remarkable formation has led to the development of methods peculiar to the district.

The most striking feature of the methods employed on the Mesabi range is the open-cut or "open-pit" method of mining. Open-pit mining is by no means confined to this district, nor did it originate there; but nowhere else is it used on such a large scale. It is aside from the purpose of this article to describe the method of locating definitely the ore body by means of the diamond drill and the engineering task of laying out the mine. This done, the process of stripping is begun. In the earliest years the general rule was laid down that it would pay to remove a foot of overburden for every foot in depth of the ore body. This rule is still frequently repeated; but there are so many factors that must be considered besides the thickness of cover (as the extent of the ore body, character of the ore, distance of haul to the dump, etc.), that the rule has no practical value. The increased cost of timbering, the greater efficiency of the steam shovel, and the difficulty of securing an adequate supply of skilled miners necessary for underground operations have caused the tendency to remove much more than foot for foot.

In open-pit mining the ore body is reached by removing the overburden with the steam shovel. The development of this powerful engine has made possible the gigantic operations which so impress the visitor on the range. A mine now being opened at the west end of the range consists of an ore body of 200 acres, and to lay it bare will require the removal of a cover of an average depth of 85 feet and containing about 30,000,000 cubic yards.<sup>a</sup>)

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<sup>a</sup> Engineering and Mining Journal, January 11, 1908, D. E. Woodbridge.

The stripping work on the Mesabi during the year ending June 30, 1907, involved the removal of 14,509,538 cubic yards and in the year following 18,795,860 cubic yards. "At the close of this year (1909) there will have been removed by steam shovels on the Mesabi range a yardage of stripping material and ore equal to the total excavation required for the Panama Canal."<sup>a</sup> This preparatory work was in the early years chiefly done by stripping companies; but in recent years the mining companies do the most of their own stripping. Thus, in 1907-8, the mining companies did more than 71.5 per cent of the stripping. The stripping companies use small-size dump cars and dinkey engines. The mining companies generally use standard-gauge cars and locomotives. The Oliver Iron Mining Company has been using a 7-yard wood and steel stripping car, but this is being displaced by a car of the same capacity of all-steel construction. The locomotives used in this work by the Oliver Company weigh from 91,000 to 124,000 pounds. The stripping trains are equipped with automatic couplers, but not with air brakes, because experiments made with that kind of brake, it is reported, did not prove successful.

The shovel crew consists of an engineer, or "runner," a craneman, and four pitmen whose chief duties are to prepare the roadbed and lay the track upon which the steam shovel stands. A "spotter" keeps the stripping train moving on the track parallel to that on which the shovel stands as fast as successive cars are filled. The engineers and the cranemen are the skilled men of the shovel crew. They acquire a high degree of skill in the manipulation of the huge machine which lifts the material from the bank to the car. In many places the shovel will tear its load of 4 or 5 tons from the bank against which it is working without the earth being previously loosened. But it is usual to shake up the earth by the use of powder. It may be done by placing a number of charges in drill holes at some distance back from the edge of the bank to be shaken; or it may be done by "gopher holing." By the latter process a number of excavations—"gopher holes"—are made with shovels into the face of the bank at its base, the men lying flat within the excavation to take out the last portions of dirt. Several kegs of black powder are placed in each hole, a sufficient covering is placed thereon, and by means of a battery they are set off nearly simultaneously. This loosens the bank without tearing it down and leaves it easily workable by the shovel. Dynamite is used to break up bowlders too large to be handled by the shovel. The dump cars working alongside the shovel receive their burden and carry it off to the dump to be handled by the dump gang.

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<sup>a</sup> Proceedings of the Twentieth Annual Convention of the Minnesota Bankers' Association, 1908, p. 44. W. J. Olcott.

A gang of trackmen is constantly at work making and relaying tracks.

After the ore is laid bare the mining, if it may be called such, is carried on by the same process. Some ore is so soft that the shovel will take it up without blasting, but most of it requires loosening for economical work. Black powder is used for this purpose. Thus far the universal practice has been to load the ore directly into railroad cars, which are drawn out, four or five at a time, by standard-gauge locomotives; but in spite of the care taken in laying out the mines the time must come in working out some of these mines when the grades will be too heavy for this method of getting to the surface. The ore is mostly carried in steel cars with a capacity of 50 tons each, though some wooden cars still remain in service. They are taken out of the mine in short trains of about five cars. They are of course fitted with air brakes and automatic couplers.

The standard shovel weighs 90 tons, though shovels of greater weight are in use. Under favorable conditions as much as 8,000 tons have been loaded by one crew in a ten-hour day; though half that amount is regarded as a good day's work.

The cars are assembled in a switch yard and the trains are made up of about 50 cars each. Both stripping and ore handling are done on a two-shift basis, each of ten hours. Work is generally suspended on Sunday; but the shovel men are required to do their cleaning and repairing on that day. Each shift has usually two free Sundays in each month.

Another peculiar feature of mining on the Mesabi is the relatively large use made of the "milling" system. This system is a combination of the open-pit and the underground methods. The ore is stripped as though for open-pit mining. A shaft is sunk at the edge of the ore body, and drifts are run out into the ore 50 or 60 feet below the top of the ore. Up-raises are made from the drift to the surface, and through these openings the ore is "milled" down into chutes, loaded on trams and hauled by mules or electrical power to the shaft where it is hoisted to the surface to be dumped into railroad cars for shipment. In some mines the ore is so soft that it is milled down into the raises by the use of the pick alone; in others powder has to be used to loosen it. Under favorable conditions the steam shovel is used for throwing ore into the "mill." As a crater or "mill" becomes larger an element of danger is encountered by men working on the steep sides of the hopper-like opening. They are supplied with ropes for purposes of safety, but more often they work without them. A number of deaths have resulted from men falling into the chutes and being crushed by the ore. In 1904 about 7 per cent of the output on the Mesabi was won by milling. In many cases mines have been opened as underground workings and

converted into open-pit and milling mines. Also many underground mines have been stripped and converted into open-pit mines; and it is not infrequently the case that the same mine has been worked as a surface mine, as an underground mine, and by the milling method; and, indeed, these several methods are sometimes employed simultaneously.

About 33½ per cent of the output was won by underground mining in 1907; but here again the peculiar blanket formation of the ore body has required the development of new methods of mining peculiar to the region. The most common method of winning ore in the first years of operation in this range was the square-set system much used in mining operations elsewhere. But while still employed in some places it has very generally given way to the "slicing and caving" system which has been described as follows:

This method consists in commencing at the top of the ore and working out each cut or slice, dropping the surface as the work goes on. This plan of caving the surface is used because of the soft character of the roof, which is in most cases only gravel. A shaft is sunk, as in the "milling" system, and from the base level a drift is run into the ore. Sublevels are then driven at distances from 12 to 20 feet and from these up-raises run to the top of the ore. The ore is taken out in slices just wide enough to carry the roof while working. The ore is shoveled and tumbled into the raises, at the bottom of which are chutes which load direct to the tram cars. As each slice is taken out the soil and rock above is allowed to cave in, and this packs sufficiently to hold up laterally with a little temporary timbering and lagging. This is repeated until the whole top of the ore body has been drawn into the raises, when the same process is gone through with the next sublevel. The floors of the slices are covered with boards so as to keep the dirt from mixing with the ore and to aid in forming a roof for the next slice below. This floor under the dirt follows the ore down with each slice. This system with some modifications is used in all underground mines of the Mesabi, except at the Adams, where an adaptation of the square-set timbering plan is used in a portion of the mine. The caving and slicing system is satisfactory and economical. Nearly all the ore is saved. The ore itself is generally loose, so that very little blasting is required, yet it stands up very well in drifts and sublevels with a moderate amount of timbering.<sup>(a)</sup>

No data are accessible to show the exact proportion of ore mined by these different methods for a term of years. Woodbridge gives some data on the subject. In 1903, 43 per cent was mined from open-pit mines; in 1904, 50 per cent, and in 1907, 66½ per cent. Since 1892 the steam shovel has mined 106,451,000 tons out of a total production of 168,483,661 tons from the Mesabi range. It is certain that the proportion mined by the shovel has been constantly increasing and that it will for some time continue to increase.

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<sup>a</sup> Proceedings of the Lake Superior Mining Institute, Vol. X, 1904. Kirby Thomas.

## ACCIDENTS.

It might be supposed from the description given of the working conditions that the hazard to workmen in the Minnesota mines is not great. The slicing and caving method of underground work has without doubt reduced the dangers of mining; a large part of the work is on the surface; and the soft character of the ore, on the Mesabi range at least, minimizes the danger from the use of high explosives. The mines of the Vermilion range are not what would be called deep ones, the deepest being less than 1,300 feet; and those on the Mesabi for the most part do not exceed 300 feet, the deepest being only 368 feet.<sup>(a)</sup> The problem of ventilation is therefore not a difficult one. Explosive gases are never encountered; and while mine fires occasionally occur there has fortunately never been one causing a large loss of life; nor have there been caves that have destroyed many lives at a time.

In 1900 the two most serious accidents in the history of the ranges occurred, one from a blast which brought down a fall of earth at some distance from the supposed point of danger, resulting in the loss of 5 lives; and the other from an explosion of dynamite in the powder room which killed 10 men and seriously injured 3 more. There have thus been no such disasters as so frequently occur in coal mining; nevertheless the accident rate has been alarmingly high.

Unfortunately we have no reliable statistics relative to this phase of the industry in Minnesota prior to the year ending June 30, 1906. Official mine inspection in the State and the publicity which goes with it came very tardily. The bureau of labor statistics created in 1887 authorized the commissioner "to visit and examine factories, workshops, and other places where people are employed at any kind of labor; \* \* \* to examine into the methods of protection from danger to employees and insanitary conditions in and around the establishments and make a record thereof," but no power of compelling or even recommending improvements was given even in the case of factories. The law made no mention of mines or miners. The attention of the commissioner was, however, directed to the heavy loss of life reported as occurring at the Vermilion mines, and in 1890 he made an attempt to investigate conditions there. This

<sup>a</sup> The depths of the Vermilion mines and of the five deepest mines of the United States Steel Corporation on the Mesabi are as follows:

VERMILION.		MESABI.	
Savoy.....	feet.. 863	Fayal No. 4.....	feet.. 333
Sibley.....	do... 1,281	Spruce No. 4.....	do... 281
Zenith.....	do... 1,095	Genoa No. 4.....	do... 368
Pioneer.....	do... 1,260	Glen No. 2.....	do... 265
Soudan.....	do... 1,248	Monroe A.....	do... 298

attempt was met in an unfriendly way by the mine authorities, and such information as was gained had to be secured by indirection.<sup>(a)</sup> In his report for 1891-92 the commissioner recommended the appointment of a commission to draft a law for safeguarding the interests of both miners and mine owners. The recommendation was ignored. The power of the bureau was increased in 1893, but no special provision was made for the inspection of mines. Under the general provisions of the law, however, after the industry began to assume large proportions, an annual inspection was usually made and considerable information collected; but the commissioner recognized the inadequacy of these occasional visits by inspectors not specially fitted for the work, and in 1900 he recommended the appointment of a mine inspector clothed with powers adequate to the enforcement of the general laws for the protection of workmen. The inspection of 1901, more complete and critical than usual, led to specific recommendations for legislative regulations of the mines. While no definite information is given as to the exact conditions found, these conditions are implied in the recommendations for a law requiring more than one exit from underground mines; the separation of ladder ways, by a partition, from the hoisting shaft, and the breaking of the distance of the ladder way by properly constructed platforms or sollaris; the provision of hoods and safety catches for cages used by the men; the covering of steam pipes in passageways necessarily used by the men; and for the proper handling and storing of explosives. It was not, however, till four years later that the legislature took the first step toward safeguarding life at the mines. Each company was its own law as to conditions of safety, and the impression was general that the conditions were very bad.

What the loss of life actually was down to 1905 can not be told with accuracy. Such information as was collected after 1897 by the Minnesota bureau of labor is presented in the following table:

NUMBER OF EMPLOYEES, FATAL ACCIDENTS, AND RATE PER 1,000 EMPLOYEES, BY YEARS, 1898 TO 1903.

[Data from the biennial reports of the bureau of labor, Minnesota.]

Year.	Number of employees.	Fatal accidents.	
		Number.	Rate per 1,000 men employed.
1898.....	4,431	18	4.06
1899.....	6,645	34	5.12
1900.....	6,929	39	5.63
1901.....	7,629	38	4.98
1902.....	8,256	52	6.30
1903.....	8,240	49	5.95

<sup>a</sup> Second Biennial Report, Minnesota Bureau of Labor Statistics, 1889-90, p. 436.

There are two chances of error in these figures. It is not clear whether the number of employees was determined with accuracy—i. e., whether the average number employed during the year was taken or the number employed at a stated time. In some years the latter seems to be the case. Again, the commissioner's reports emphasized the fact that the reports "by no means represent the number of mine accidents during the year, but only so many as the department was able to follow up or which voluntarily had been reported." There is little doubt that were the statistics complete they would reveal a loss of life higher than these incomplete returns indicate.

In 1905 the legislature passed a law creating the office of county mine inspector. It applies only to such counties as have five or more mines in operation, and St. Louis County was the only one which till 1909 had an inspector. In February, 1909, one was also appointed for Itasca County. The office is filled, and may be vacated, by the county board, and the term is three years. The inspector must have had, previous to his appointment, practical experience as a miner, or have been otherwise engaged as an employee in the mines of the State at least six years, or a mining engineer having had, previous to his appointment, two years' practical experience in iron mines, one of them at least in Minnesota. He is paid out of the county funds. The law makes fewer specific requirements than are usually found in a mine law. It does require the inspector to compel the maintenance of a partition between ladder ways and all shafts where the hoisting of ore is performed, and to notify mine owners or their agents to fence in shafts, open pits, or caves of abandoned or idle mines. It is the duty of the inspector to command the placing of safeguards about shafts and chutes, coverings for carriages, etc., "if in his judgment it shall be practicable and necessary for the purpose of safety." There is no provision for a required number of exits or for ventilation. In these matters and all others, with the exceptions noted above, the mine law so far as conditions of safety are concerned is what the inspector makes it. His discretionary authority in respect to working conditions is large. He may order men to quit work in any place he finds to be dangerous, and is required to notify the superintendent as to what must be done to make it safe. If employees are required to work in such places, except to render them safe, the company "shall be liable for all accidents causing injury or death to any employee arising by reason of such place or places not having been repaired or changed as required by the inspector." Refusal of the mine owner to furnish all necessary aid and information for the inspector to examine properties is punishable by fine, as are all violations of the act.

Under the law, in St. Louis County, where it has been longest in operation, the inspectors have been men of ability and large experience. What they have accomplished by way of securing better conditions of safety is reflected in the statistics of fatal accidents given below. That the self-interest of the operators and their interest in the welfare of their employees needed supplementing by the activity of a public inspector is evident. In his first annual report the inspector of St. Louis County enumerates some of the regulations which would ordinarily be found in a mine law, left for him to prescribe:

During the year some improvements, in addition to those required by law and the good condition in which the mines were found, have been made, such as keeping caps and fuse out of mine powder houses, lessening the storage of powder in the mine, providing two exits from mine pump houses, putting valves on steam lines at the collar of the shafts, covering the part of the gearing of steam-shovel engines that is above the floor of the shovel, placing torch or lantern on head dump car of stripping trains at night, fencing dangerous open pits, and covering or filling test pits. At the present time I know of no dangers in the mines other than those common to the risk of mining.<sup>(a)</sup>

The inspector attests the willingness of the companies to cooperate with him to secure safe conditions, and it is probable that the fatalities will continue to be reduced. The law requires the inspector to make a report to the county board and to the bureau of labor.

At present there are available the statistics of fatal accidents collected by the inspector for a period of four years in St. Louis County. The table below shows the facts for that county:

AVERAGE NUMBER OF EMPLOYEES, NUMBER OF FATAL ACCIDENTS, AND THE RATE PER 1,000 EMPLOYEES IN THE IRON ORE MINES OF ST. LOUIS COUNTY, MINN., BY YEARS, 1906 TO 1909.

[Data from the biennial reports of the bureau of labor, Minnesota.]

Year ending June 30—	Average number of employees.	Fatal accidents.	
		Number.	Rate per 1,000 employees.
1906.....	12,838	a 93	7.24
1907.....	15,535	b 79	5.09
1908.....	13,313	c 53	3.98
1909.....	13,360	61	4.57

a Not including 3 fatal accidents to nonemployees.

b Not including 2 fatal accidents to nonemployees.

c Not including 1 fatal accident to a nonemployee.

In the tables which follow a comparative view is given of the fatal accidents in the chief iron-producing counties of Michigan:

<sup>a</sup> Tenth Biennial Report of the Bureau of Labor, Minnesota, 1905-6, p. 454.

NUMBER OF EMPLOYEES, FATAL ACCIDENTS, AND RATE PER 1,000 EMPLOYEES IN THE IRON ORE MINES OF THREE COUNTIES OF MICHIGAN, FOR THE PERIOD 1897 TO 1906, AND FOR SPECIFIED YEARS.

**MARQUETTE COUNTY.**

Year ending June 30—	Number of employees.	Fatal accidents.	
		Number.	Rate per 1,000 employees.
1897-1906 (10 years).....	52,466	226	4.31
1906.....	5,840	22	3.77
1907.....	6,744	37	5.49
1908.....	5,362	16	2.98
1909.....	5,682	23	4.05

**DICKINSON COUNTY.**

1897-1906 (10 years).....	31,880	135	4.23
1906.....	3,489	15	4.30
1907.....	3,392	7	2.06
1908.....	2,445	4	1.64
1909.....	2,649	2	.76

**GOGEBIC COUNTY.**

1904.....	3,154	15	4.76
1905.....	3,437	17	4.95
1906.....	4,226	35	8.28
1907.....	4,698	22	4.68
1908.....	4,277	17	3.97
1909.....	4,584	19	4.14

The following table presents a comparative view of the fatal-accident rate in the iron-ore mines of Michigan and Minnesota, in the coal mines of Pennsylvania, Illinois, Ohio, and West Virginia, and among railway trainmen in the United States:

NUMBER OF EMPLOYEES, FATAL ACCIDENTS, AND RATE PER 1,000 EMPLOYEES FOR IRON-ORE MINES, COAL MINES, AND RAILWAY TRAINMEN, FOR FOUR YEARS, BY LOCALITIES.

Locality.	Year.	Number of employees.	Fatal accidents.	
			Number.	Rate per 1,000 employees.
Iron-ore mines, Marquette County, Mich.....	1906	5,840	22	3.77
	1907	6,744	37	5.49
	1908	5,362	16	2.98
	1909	5,682	23	4.05
Total.....		23,628	98	4.15
Iron ore mines, Dickinson County, Mich.....	1906	3,489	15	4.30
	1907	3,392	7	2.06
	1908	2,445	4	1.64
	1909	2,649	2	.76
Total.....		11,975	28	2.34
Iron ore mines, Gogebic County, Mich.....	1906	4,226	35	8.28
	1907	4,698	22	4.68
	1908	4,277	17	3.97
	1909	4,584	19	4.14
Total.....		17,785	93	5.23

NUMBER OF EMPLOYEES, FATAL ACCIDENTS, AND RATE PER 1,000 EMPLOYEES FOR IRON-ORE MINES, COAL MINES, AND RAILWAY TRAINMEN, FOR FOUR YEARS, BY LOCALITIES—Concluded.

Locality.	Year.	Number of employees.	Fatal accidents.	
			Number.	Rate per 1,000 employees.
Iron ore mines, St. Louis County, Minn.....	1906	12, 838	96	7.48
	1907	15, 535	81	5.21
	1908	13, 313	54	4.06
	1909	13, 360	61	4.57
	Total.....		55, 046	292
Anthracite coal mines, Pennsylvania.....	1904	161, 330	595	3.69
	1905	168, 254	644	3.83
	1906	166, 175	557	3.35
	1907	168, 774	708	4.19
	Total.....		664, 533	2, 504
Bituminous coal mines, Pennsylvania.....	1904	155, 747	536	3.44
	1905	164, 941	479	2.90
	1906	172, 928	477	2.76
	1907	183, 121	816	4.46
	Total.....		676, 737	2, 308
Bituminous coal mines, Illinois.....	1904	54, 774	157	2.87
	1905	59, 230	199	3.36
	1906	62, 283	155	2.49
	1907	66, 714	165	2.47
	Total.....		243, 677	676
Bituminous coal mines, Ohio.....	1904	45, 884	118	2.57
	1905	44, 193	114	2.58
	1906	46, 501	127	2.73
	1907	47, 876	153	3.20
	Total.....		184, 404	512
Bituminous coal mines, West Virginia.....	1905	45, 778	194	4.24
	1906	47, 396	268	5.65
	1907	51, 456	356	6.92
	1908	56, 493	625	11.06
	Total.....		201, 123	1, 443
Railway trainmen, United States.....	1903	253, 660	2, 070	8.16
	1904	253, 834	2, 114	8.33
	1905	265, 175	1, 990	7.50
	1906	283, 556	2, 310	8.09
	Total.....		1, 058, 225	8, 484

The hazard of an industry is shown not merely by the fatalities but by the number and character of nonfatal accidents as well. The hospital records of the Minnesota ranges contain a vast accumulation of information on this subject, but this information has never been utilized with a view to showing the degree of danger in the industry and the economic significance of the accidents incurred. At one hospital on the Mesabi, in 1907, the average number of men on the pay rolls being about 700, the number of nonfatal mine accidents treated by the mine physician was 191. This is at the rate of 272.9 physician cases per 1,000 men. It should be noted, however, that this includes many slight injuries that often do not cause any stoppage of work.

The mine inspector of St. Louis County each year gives a list of "serious nonfatal accidents" in his report; but there seems to be no fixed criterion by which to determine whether an accident is serious or minor. In fact the question of what is a serious accident is left to each mine superintendent to determine; for the superintendents are required to report only fatal and "serious" accidents. The report of 1906 sets down the number for St. Louis County at 50, that of 1907 at 66, and that of 1908 at 54. These hardly disclose the degree of hazard to which workmen are subject.

The reports of the operations of the aid funds, to be described later (page 379), are of value in determining the degree of hazard and in showing some economic aspects of the accident question. From these reports, taken in connection with the number of men employed, some instructive facts are shown.

The following table, showing the average number of employees, the number of nonfatal accident claims paid, with the average amount paid on each of such claims, and the number of accident claims paid per 1,000 employees in the districts named during the years 1904 to 1908, inclusive, is prepared from the reports of the relief fund of the Oliver Iron Mining Company:

NUMBER, AVERAGE AMOUNT, AND RATE PER 1,000 EMPLOYEES OF NONFATAL ACCIDENT CLAIMS PAID BY THE RELIEF FUND OF THE OLIVER IRON MINING COMPANY, BY DISTRICTS AND BY YEARS, 1904 TO 1908.

**THE ADAMS-SPRUCE DISTRICT, EVELETH.**

Year.	Average number of employees.	Nonfatal-accident claims paid.		
		Number.	Average amount.	Rate per 1,000 employees.
1904.....	780	193	\$20.30	247.4
1905.....	1,256	205	26.21	163.2
1906.....	1,327	195	25.12	146.9
1907.....	1,435	187	26.22	130.3
1908.....	1,376	68	25.98	49.4

**THE HIBBING DISTRICT.**

1904.....	(a)	103	\$13.13	(a)
1905.....	1,800	244	24.03	135.6
1906.....	2,750	344	22.99	125.1
1907.....	3,200	411	23.39	128.4
1908.....	2,900	355	22.52	122.4

**THE VERMILION RANGE.(b)**

1904.....	666	76	\$29.54	114.1
1905.....	1,137	126	29.25	110.8
1906.....	1,264	140	22.90	110.8
1907.....	1,192	185	36.44	155.2

<sup>a</sup> Not reported.

<sup>b</sup> Figures for 1908 not available.

For comparison the following table compiled from the reports of the operations of the beneficial fund of the Philadelphia and Reading Coal and Iron Company is given:

NUMBER, AVERAGE AMOUNT, AND RATE PER 1,000 EMPLOYEES OF NONFATAL-ACCIDENT CLAIMS PAID BY THE BENEFICIAL FUND OF THE PHILADELPHIA AND READING COAL AND IRON COMPANY, BY YEARS, 1904 TO 1908.

Year.	Total number of contributors.	Nonfatal-accident claims paid.		
		Number.	Average amount.	Rate per 1,000 contributors.
1904.....	26,867	3,950	\$19.97	147.02
1905.....	28,744	4,188	19.50	145.70
1906.....	27,669	3,938	21.13	142.33
1907.....	30,085	4,126	19.34	137.14
1908.....	30,737	4,358	24.11	141.78

While the figures relating to the Minnesota mines give some indication of the loss of time because of accidents, they by no means disclose the whole situation. The average amount paid for claims out of the funds ranges from \$18.13 to \$36.44 per claim. Payments are made at the rate of \$1 per day; so that these figures indicate that the average number of days for each disability is from 18 to 36. But payments from the aid funds do not begin till the sixth day after the case is reported to the mine physicians, and they close in all cases at the end of six months. The average term of disability is therefore far greater than is indicated by the table.

The fatal accidents in the St. Louis County mines are classified according as they occurred at underground mines, or in open-pit and stripping work. The number of men employed in each class of work is unfortunately wanting.

FATAL ACCIDENTS OCCURRING IN UNDERGROUND AND IN SURFACE WORK AT UNDERGROUND MINES AND IN OPEN-PIT AND STRIPPING WORK, ST. LOUIS COUNTY, MINN., BY YEARS, 1906 TO 1909.

[Data from the biennial reports of the bureau of labor, Minnesota.]

Year ending June 30—	Underground mines.		Open-pit and stripping work.	Total.
	Underground work.	Surface work.		
1906.....	41	10	45	96
1907.....	38	7	36	81
1908.....	24	3	27	54
1909.....	32	4	25	61

The nature of the fatal accidents is shown in the following table:

FATAL ACCIDENTS IN THE IRON-ORE MINES, ST. LOUIS COUNTY, MINN., DURING THE YEARS 1906 TO 1909, BY NATURE OF ACCIDENT.

[Data from the biennial reports of the bureau of labor, Minnesota.]

Nature of accident.	Year ending June 30—			
	1906.	1907.	1908.	1909.
Fall of ground.....	20	16	11	19
Premature explosion of powder.....	8	6	6	6
Blasts and rocks thrown by the blast.....	2	5	3	6
Falling down chutes, shafts, or raises.....	21	7	2	4
Material falling down chute or shaft.....	2	2	2	1
Fire or gases therefrom.....	3	1	3	1
Gases from powder in gopher hole.....	1	1	.....	.....
Underground tram cars.....	.....	4	1	.....
Cars and locomotives.....	27	18	16	15
Caves from stripping bank, and falls therefrom.....	6	8	2	1
Steam shovels.....	2	5	.....	1
In milling chute.....	2	2	.....	1
Stationary engines.....	.....	2	.....	.....
Cars in dumping.....	.....	.....	3	.....
On trestle work.....	2	.....	3	1
Timber work underground.....	.....	1	2	.....
Miscellaneous.....	3	3	.....	5
Total.....	96	81	54	61

The nationality of those receiving fatal injuries is shown in the following table:

FATAL ACCIDENTS IN THE IRON-ORE MINES OF ST. LOUIS COUNTY, MINN., DURING THE YEARS 1906 TO 1909, BY NATIONALITY.

[Data from the biennial reports of the bureau of labor, Minnesota.]

Nationality.	Year ending June 30—			
	1906.	1907.	1908.	1909.
Austrian.....	21	26	24	20
Finn.....	39	22	7	15
Italian.....	11	14	7	6
Swede-Finn.....	3	3	1	2
Montenegrin.....	1	3	2	1
Scandinavian.....	6	3	1	3
Polish.....	3	1	.....	2
English.....	3	1	.....	1
Irish-American.....	.....	3	1	.....
American.....	5	4	9	6
Hungarian.....	1	.....	.....	.....
Bohemian.....	.....	.....	.....	1
Canadian.....	1	.....	.....	1
Bulgarian.....	.....	.....	1	.....
German.....	1	.....	.....	.....
Servian.....	.....	.....	.....	1
Unknown.....	1	1	1	2
Total.....	96	81	54	61

The high death rate from accidents on the Minnesota ranges is from the foregoing figures apparent, and the high rate of nonfatal accidents is no less so. The remoteness of the mines from the populous centers of the State has tended to confine the interest in mine accidents to the range communities; the fact that the sufferers are for the most part "foreigners," usually without friends in other

places, tends to reduce the amount of publicity given to such accidents; and there have been no great "mine disasters" to shock the public mind into a consideration of the great loss of life. Nevertheless, the fatalities have been startlingly numerous, and this, too, in the absence of those conditions which so frequently cause the death of scores.

It does not seem to lie in the more dangerous character of the formation as compared with other regions, though it is sometimes asserted that the lack of compactness of the overburden of sand, clay, and bowlder, which makes it easy to remove the surface in open-pit operations, makes a difficult roof to hold up in underground work. The common opinion, however, seems to be that from the nature of the mining operations the perils from mining on the Mesabi range ought to be comparatively slight.

The explanation most frequently given is the ignorance and recklessness of the workmen. The rapid development of the industry and the constant demand for more men, for whom other industries have also been bidding, have led the operators to take inferior men, ill-trained for mining work. Moreover, the necessity of keeping men, it is said, has often led to lax mine discipline, and this to loss of life. Too much drink is also said to be answerable for many accidents, and little has been done by way of discipline in this direction. To one who observes the difficulties of communicating in English with workmen whose knowledge of the language does not extend beyond a few monosyllables the lack of a common language would seem to explain many accidents. It seems clear that much of the "stupidity" and "ignorance" of workmen, as it is called by superintendents, is due to a lack of understanding, which the possession of a common language by worker and supervisor would correct.

These explanations of the large loss of life do not, of course, justify it. The death rate from accidents might be materially decreased, it is believed, by the use of greater care in the selection of men for the more dangerous positions. It frequently happens that a man who has for a short time worked underground as trammer or laborer goes to another mine and applies for a miner's job. The mining captain asks him if he is a miner, and upon receiving an affirmative answer gives him a place without further question if there is pressing need for more help, even though there may be doubts in the captain's mind as to the knowledge and skill of the applicant. The risk of handling dangerous explosives is thus assumed for the sake of 25 or 50 cents more pay. This is called "recklessness" on the part of the workman. The superintendent assumes that anyone who seeks the job and accepts miner's wages knows the miner's business and takes his risks. There is no name in general use to characterize the act of the superintendent who knows he is employing a man for a

highly dangerous work without the knowledge and skill to protect himself. It is not unusual for men to appear in court in a personal injury suit and declare that they did not understand the dangerous character of dynamite or the risk involved in the most obviously dangerous practices. To obviate such situations it has been proposed to have applications for positions made in written form. The Oliver Iron Mining Company in the early part of 1909 presented such a form for the signatures of their employees. The position applied for was specifically named and a declaration made of familiarity "with the nature of the work, the manner of its performance, and the duties which, if employed, you will be called upon to perform." The form also contained an agreement to observe faithfully the rules and regulations of the company, and called for information as to the time, place, and character of previous occupations, and the cause of leaving. Objections were raised to signing the application, by the Finns especially, it is said, and the plan was temporarily abandoned. In the absence of any law prescribing an examination for miners, it would seem that the responsibility for testing the fitness of men for dangerous employments ought to rest with the company. If iron must be mined and it is claimed that labor conditions are such that skilled workmen can not be secured, the responsibility for taking not simply all ordinary precautions, but extraordinary precautions, for avoiding danger ought also to rest with the company. It has been suggested that more than ordinary means of instructing workers in their duties and in the ways of avoiding the dangers incident to them are required by the situation in the mines. Mining captains and foremen no doubt do all they can by way of instructing and warning their men; but their chief business is to get out the ore, and the results seem to show that they can not meet the extraordinary demands made upon them for instruction.

The difficulties encountered in employing unskilled laborers are by no means confined to the northern iron mines. A recent writer, in speaking of similar conditions in the coal mines, insists that with the employment of unskilled labor there is no alternative left but "the gradual education of the men and the most rigid discipline and intelligent method of supervision over their work;" and he goes on to say:

It is to no purpose to argue that the men themselves are responsible for a large number of strictly avoidable accidents and the disregard of the laws, rules, and regulations governing safety in mines. The ultimate responsibility must rest upon the management, which in a large number of instances is far from having availed itself of the most practicable and satisfactory methods of accident prevention.<sup>(a)</sup>

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<sup>a</sup> Frederick L. Hoffman, *Engineering and Mining Journal*, January 4, 1909. See also the discussion by George Harrison, *Annual Report of the Inspector of Mines, Ohio, 1906*, page 33, for suggestions and examples of successful instruction and supervision.

## HOSPITAL SERVICE,

Both ranges are well provided with hospital service. There are three well-equipped hospitals on the Vermilion range and twelve on the Mesabi.

Besides these well-equipped institutions there are a number of emergency hospitals at various points, as at Mountain Iron, Chisholm, Gilbert, and Elba. In 1909 the Shenango Furnace Company, in building a new dry house at the Shenango mine, made provision for the mine doctor's office and an operating room fitted up for the treatment of emergency cases, and this plan is followed in some other places.

The Moore Hospital at Eveleth may be taken as a type of the range hospitals. It was founded in 1895. It at first had but two beds in a building not particularly adapted for hospital purposes. In 1900 the present building was occupied. It is as thoroughly modern, though not so large, as a city hospital. It has capacity for 40 patients. It is a frame building, but extraordinary precautions have been taken against fire. Hose and chemical fire extinguishers are provided on each floor and in the garret, and on the comb of the roof are fastened half a dozen lawn sprinklers to be used in case of fire there. These sprinklers are utilized also to temper the heat on sultry days in the short hot season. Ladders are provided, and recently an iron fire escape has been put in place. The operating room is thoroughly equipped. An X-ray machine is constantly used in all cases of fracture, a device being employed by which X-ray photographs may be taken in the wards on the floor above the operating room.

Unusual care seems to be employed in distributing emergency supplies at the mines served by this hospital, though such supplies, including splints, bandages, and stretchers, are supposed to be kept in readiness at every mine. Recognizing that men are frequently injured more in being taken out of the mine than by the original mishap, pioneer work has been done in the matter of instructing men how best to render first aid to their injured comrades. The instruction was begun in 1908 with the superintendents, captains, and foremen, and was then extended to the more intelligent workmen. The writer attended one of these lessons on a Sunday afternoon. The reasons for care and the general principles to be followed were first explained, then there was a demonstration by the doctor of applying bandages and splints for different sorts of injuries, and this was followed by directed practice on the part of the men. This hospital has gone further than this and attempted to make men who are liable to be called upon to care for injured persons familiar with correct methods through a series of photographs showing bandages in their proper position for different injuries, how to align a

broken limb, how to place an injured man on a stretcher, and how to carry him. These photographs are posted in the dry houses and in superintendents' offices and are seen daily by large numbers of men. While it can not be said that all hospitals are so complete as the one described, nor that the same interest is shown in extending its usefulness to the utmost, it must still be said that throughout the range communities the hospital service is excellent.

The doctor in charge of the hospital is the "mine physician." The method of maintaining the service is uniform throughout the ranges and is like that found in many other mining districts. From the wages of the employees is deducted \$1 each month. The company selects the physician, but he is paid out of the funds collected from the men.

Single men and men with families pay the same fee, which entitles employees to hospital service not only in case of accidents, but of sickness, contagious diseases excepted. It also entitles them to medical attendance for themselves and families in their homes, except in cases of venereal diseases and of confinement. For these a charge is made, though in confinement cases the charge is nominal.

#### AID FUNDS AND INSURANCE.

From the earliest days on the Mesabi range some form of relief fund was provided in a few mines, though it has not been till within the past few years that the system has been generally adopted by the mining companies. In 1898 the Minnesota Iron Company, with mines on both ranges, had in operation a relief fund maintained in equal proportion by the employees and the company, the assessment being 40 cents per month per man. In case of accident pay began after five days and continued not to exceed six months at the rate of \$20 per month for married men and \$15 for single men. The death benefit, paid only when the death was the result of an accident, was \$500, and the sum paid in case of permanent disability was from \$150 to \$300. The Fayal Iron Company had the same system with but slight variation in respect to the amount of benefits paid. Both companies required a formal release of the company before payment of the benefits. This requirement has been discarded by the Oliver Iron Mining Company, the successor to these companies, but in a few cases, where the plan of maintaining a joint fund is followed by the independent companies, this requirement is still made. Thus section 13 of the rules of the Cleveland-Cliffs Company, operating the Crosby mine at Nashwauk, reads as follows:

The receipt of relief of the benefit fund, in case of accident, relieves this company from all liability and is in lieu of all damages, and said company reserves the right to retain all sums due for indemnities until a release is properly executed by all persons interested in or injured by the death or disability of such employees.

The company in this case contributes 30 cents for each 50 cents paid into the fund by the men. Payments begin three days after the injury and continue during the disability, not to exceed six months, at the rate of \$25 per month. The death benefit is \$300. Since the company contributes only three-eighths of this, it is regarded by the employees as an injustice to require a release upon the payment of \$112.50 out of the company's funds, or as an alternative the surrender of the right to participate in a fund created so largely by the men themselves. This criticism applies to very few of the Minnesota mines, since very few of the companies at the present time make any stated contribution to the relief funds. The funds provided for the relief of injured workmen—and there are such funds in connection with nearly all the mines—are, with the few exceptions referred to, contributed wholly by the men. Till the middle of the year 1908, when a change of policy was adopted, to be noted later, the main features of these plans of relief were the same, though in the minor details they differed somewhat. A small sum, usually 50 cents a month, was deducted from wages and administered by a committee of officers and workmen.

The rules governing the aid fund at the mines of the Oliver Iron Mining Company seem to have been the model for other companies and may best therefore be described. These rules are uniform throughout both ranges, with slight modifications at such mines as the Fayal, which inherited certain provisions from an earlier company. The mines of the company are grouped into districts for general administrative purposes, and the aid fund is in the custody of a financial officer of the company for the whole district, though a separate account is kept with each mine. Dues are charged to each man the first day he works, the amount prior to July 1, 1908, being 50 cents per month. "Examining committees" of three members, whose duty it is to pass on all applications for aid, are appointed by the captains of various mines from among the employees. The application is accompanied by a certificate of the mine physician stating the period of disability and other details.

Payments from the fund are made as follows: In case of disability caused by injuries received in the course of their employment the men receive \$25 per month. The "said payment shall commence on the fifth day after the person injured has been put under the care of the mine physician, and shall continue only until such measure of health as is possible under the care of the mine physician has been established, and in no case for a longer period than a term of six months." In case of death the benefit is \$300, and in case of loss of sight or when "so crippled in limb as to be wholly or partially and permanently unfitted for any labor whatever thereafter, he shall receive the sum of \$240 in full and these amounts shall be in lieu

of all monthly compensation, and when made, all obligations on the part of the aid fund and treasurer thereof for account of such contributions shall cease." If monthly payments have been made these are deducted from the \$240. Certain rules control the committee in allowing claims. It must decide that the injured person was in discharge of duty "and that the accident, injury or death was not during or occasioned by drunkenness, breach of the peace, violation of or attempt to violate the laws of the land." Members who disobey certain mine rules, as that against riding on a skip or bucket, or as to the manner of removing a charge in case of a "missed hole," are declared not entitled to benefits. These rules, however, are included in the regulations primarily as a means of discipline and are judiciously administered in the interest of the mine and its workmen.

The financial operations of the miners' aid fund of the Oliver Iron Mining Company's mines on the Vermilion range, in the Hibbing district, and in the Adams-Spruce district during the years 1904 to 1908, inclusive, are given in the table which follows:

FINANCIAL OPERATIONS OF THE MINERS' AID FUND OF THE OLIVER IRON MINING COMPANY'S MINES IN THREE DISTRICTS, BY YEARS, 1904 TO 1908.

VERMILION RANGE.(a)

Year.	Balance on hand January 1.	Pay roll collections and interest.	Death claims.		Accident claims.			Supplies and printing.	Balance on hand December 31.
			Number.	Amount.	Number.	Amount.	Average amount.		
1904.....	\$2,539.09	\$3,271.09	5	\$1,335.00	76	\$2,245.60	\$29.55	\$3.50	\$2,226.08
1905.....	2,226.08	5,216.22	2	600.00	126	3,686.39	29.26	3.75	3,152.16
1906.....	3,152.16	5,863.00	2	600.00	140	3,206.05	22.90	10.10	5,199.01
1907.....	5,199.01	6,559.82	6	1,800.00	185	5,160.03	27.89	7.15	4,791.65

THE HIBBING DISTRICT.

1904.....	\$2,121.95	\$6,843.50	3	\$900.00	103	\$1,867.20	\$18.13	\$4.45	\$6,193.80
1905.....	6,193.80	14,421.90	6	1,800.00	244	5,862.80	24.03	17.50	12,935.40
1906.....	12,935.40	20,959.09	18	5,400.00	344	7,908.90	22.99	13.50	20,572.09
1907.....	20,572.09	22,797.82	21	6,300.00	411	9,616.00	23.40	11.50	27,442.41
1908.....	27,442.41	25,616.58	17	5,100.00	355	7,995.30	22.52	14.50	39,949.19

THE ADAMS-SPRUCE DISTRICT—EVELETH.

1904.....	\$2,304.50	\$6,848.00	3	\$900.00	193	\$3,917.60	\$20.30	.....	\$4,334.90
1905.....	4,334.90	9,385.95	6	1,800.00	205	5,374.20	20.22	\$2.50	6,544.15
1906.....	6,544.15	9,897.75	10	3,000.00	195	4,901.00	25.13	23.15	8,517.75
1907.....	8,517.75	9,987.92	10	2,850.00	187	4,903.83	26.22	2.50	10,749.34
1908.....	11,833.60	10,621.63	7	2,100.00	165	4,288.30	25.99	2.50	16,064.43

<sup>a</sup> Figures for 1908 not available.

<sup>b</sup> Received from Auburn mine fund \$1,084.26.

The mode of providing these funds is not so generous on the part of the operators as it is on the part of certain coal-mining companies where the operators contribute to the maintenance of the funds. Nevertheless the plan has been of great service to the workmen.

They generally recognize the fact, and it is only occasionally that protests against the deductions from wages have been made. Complaint is often heard, however, because there is no indemnity for the first five days' loss of time. The rules of some companies provide for payments to begin with the date of disability, in case the disability extends beyond five days, but not otherwise. In the summer of 1908 a change of policy was inaugurated by a large number of the independent companies, out of which some interesting developments may be expected. The change was brought about in connection with the problem of liability insurance, which was then before the mining companies.

Nowhere is the unsatisfactory working of the employers' liability law more clearly seen than on the iron ranges of Minnesota. Here is an industry in which the hazard is great and accidents frequent, while the workmen are geographically compact and the means of communicating news about accidents are naturally good. The workmen, it is said, are further improved by organization. It is charged by the employers that an industry has been organized for exploiting the operators, and the miners, too; that as soon as an accident occurs communication is set up with the injured for the purpose of making a case against the company if one does not already exist. The countercharge is made that the agents of the company obtrude themselves upon the injured person when he is still weakened and dazed, and that statements are secured from him, often through an interpreter, as to the way the accident occurred, which are later used to defeat his just claims for damages. If the workman does not seek, or accept, the services of a lawyer, he is at a great disadvantage in dealing with the company. If he does employ a lawyer it is usually on the 50 per cent basis; and even if judgment is in favor of the plaintiff the loss of time and personal expenses while attending court greatly reduce the amount he receives. Typical cases may be recited. A man had his eye put out by a blast left carelessly by the preceding crew. The company would make no settlement, and he sued for \$2,000. He was then offered \$100 by the company. He got judgment for \$500, half of which went to the lawyer. A man sued for \$20,280 for injuries and on a second trial got \$500, half of which went to the attorney. For cases settled out of court the attorney's fee may be less, but the workman has to spend in such cases a large share of what is due him to get the remainder. Some companies settle as many cases out of court as possible; others follow the policy of carrying them through the courts.

The United States Steel Corporation has always carried its own insurance, and the business of the independent operators has been divided among several liability companies, who have found it necessary during the past two years to increase their rates.

Beginning with July 1, 1908, an accident insurance company entered into a working agreement that has new features in it so far as the ranges are concerned. The mining companies, acting as trustees for their employees, take out a "workmen's collective" policy and use the dues formerly administered by the joint committee for relief to pay the premiums. The dues have been increased to 75 cents per month, and this sum paid as premiums secures to the workmen the following benefits, now called "insurance:"

*Clause A.*—If the death of any employee shall result within ninety days from such injuries independent of all other causes, the company will pay to the assured a sum equal to twenty-six (26) weeks' wages, computed at the rate per week received by such injured employee at date of accident, but such sum shall not exceed one thousand five hundred dollars.

*Clause B.*—If any employee shall within ninety days, as the result of such injuries independent of all other causes, lose by actual separation at or above the wrists or ankles both hands or both feet, or one hand and one foot, or shall irrecoverably lose the sight of both eyes, the company will pay the sum as provided for in clause A.

*Clause C.*—If any employee shall within ninety days, as the result of such injuries independent of all other causes, lose by actual separation at or above the wrists or ankles one hand or one foot, the company will pay one-third the sum as provided for in clause A.

*Clause D.*—If any employee shall within ninety days, as the result of such injuries independent of all other causes, irrecoverably lose the sight of one eye, the company will pay in satisfaction of all claims for such injury a sum equal to one-eighth the sum as provided in clause A, but not exceeding two hundred dollars.

*Clause E.*—If such injuries independent of all other causes shall immediately, continuously and wholly disable and prevent such employee from engaging in any work or occupation for wages, the company will pay the assured an amount equal to one-half his usual weekly wages for the period of such disability beginning with the sixth day of such disability, not exceeding twenty-six weeks in respect of any one accident; but such sum shall not exceed five hundred dollars in respect of any one injured person during the policy year.

Certain advantages, it is said, accrue to the men by this new plan. It is said in the first place that an increased insurance is given. Under the old plan the death benefit was in nearly all cases \$300. For those whose wages amount to more than \$600 per year the benefit is increased; and nearly all workers are on more than a \$600 basis. The following classification of men according to the wages paid during the first six months of 1909 at a group of mines operating both open-pit and underground works is fairly indicative of the wages paid:

	Number.		Number.
Under \$600.....	18	\$850 to \$899.....	457
\$600 to \$649.....	235	\$900 to \$949.....	31
\$650 to \$699.....	182	\$950 to \$999.....	2
\$700 to \$749.....	327	\$1,000 and over.....	51
\$750 to \$799.....	106		
\$800 to \$849.....	18	Total.....	1,427

At this group of mines the annual wage of more than half the employees is \$700 and over, and more than one-third receive over \$850. If these higher-priced men were the ones most frequently injured, the payment made by the insurance company would be a substantial increase over the rates paid under the aid fund; but the increase is by no means commensurate with the increase of the rate. Less than 6 per cent of the men receive the \$900 and over, which would entitle them to an increase of benefit equivalent to the 50 per cent increase in the rate paid. When it is remembered that many of the accidents occur to laborers receiving about \$2 per day, the disparity between the benefits under the old and the new plan when compared with the old becomes apparent.

The allowance made in clause B seems more liberal than the old plan made for such injuries, but that made in clause C is less liberal. Both classes of injuries were covered by the same rule and were treated alike in the "aid fund" regulations. The rule generally followed was the same as that found in the regulations of the Oliver Iron Mining Company, which reads as follows:

When an employee shall from injuries received while actually engaged for the company at the said mines, become totally blind, or shall be so crippled in limb as to be wholly or partially and permanently unfitted for any labor whatever thereafter, he shall receive the sum of \$240 \* \* \* in lieu of all monthly compensation \* \* \*

This broader provision for partial injuries at the larger figure and the inclusion of all injuries that partially or permanently disable, without specifying the "actual separation" of limbs, makes the old plan of more value to the workmen than the new; and especially is this true when taken in connection with the probably more humane spirit in which the friends of the injured employee administered the rule under the old plan.

The insurance company claims to be rendering another service to the miners by securing better inspection. It reserves the right "to inspect the plant, works, machinery, and appliances of the assured," and also the usual right to terminate the policy. An experienced mining man is kept on the range, with headquarters at Virginia, Minn., as the insurance company's inspector. It is claimed that the inspection by this agent of the company, whose interests are in a sense opposed to those of the mining company and identified in the matter of security with those of the workmen, is of high value.

But whatever advantages may accrue to the men under the workmen's collective policy are more than offset by the disadvantages attending it. The aid funds were maintained and managed in the interest of the men who contributed to them. They knew or could know the condition of the fund at any time. The dues could be

increased or decreased to meet the demands upon the fund. The dues now paid go as premiums to an insurance company, which conducts its business for a profit. The benefits are paid under rules necessarily less flexible than the old ones, by agents of a profit-making company less likely to be influenced by compassion than the committee under the old plan. No one but the insurance company, not even the mining company, knows how much is paid in benefits. The scheme of distribution is objectionable because by it an equal premium is collected from all, while benefits are large or small according to the wages of the recipient. The man working at \$2 per day pays for as much insurance as the man receiving \$6; but he receives only one-third as much benefit payment. Again, the mining companies are required to report immediately all accidents to the insurance company's legal representative at Virginia, thus making it possible for him to forestall the most active "ambulance chaser" in securing first statements concerning the circumstances of the accident and such other information as may be of future use.

Another objection lies against the new plan—that is, because of its connection with another branch of insurance business. The insurance company's chief business on the range is liability insurance. The mining companies pay a premium of \$1.50 per \$100 of the pay roll; and they are required to take out a workmen's collective policy in order to get that rate. The arrangement has the appearance of being one by which the premium paid by the workmen is used in part to pay premiums on insurance against their securing damages for which their own employers may be liable.

As said before, the United States Steel Corporation carries its own insurance. It continues to administer the aid fund at its mines as heretofore; but, apparently to aid the independent companies to carry out their plan, it raised the dues over the whole Mesabi range July 1, 1908, to 75 cents per month. It is difficult to justify the action. In most districts the fund was already unnecessarily large. Thus in the Adams-Spruce district the balance on hand January 1, 1907, was \$8,517, and at the beginning of the next year it had risen to \$11,833. In the Hibbing district January 1, 1908, the balance was \$27,442, and this rose during the year to nearly \$40,000. In view of the fact that a man's claim to the fund ceases when he leaves the employment of the company, the balance carried was already too high before the change of rate; it is now indefensibly so, in some districts at least.<sup>(a)</sup>

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<sup>a</sup> An officer of the Oliver Iron Mining Company informed the writer that the change was merely a temporary one and that the lower rate will soon be restored.

## WAGES AND COST OF LIVING.

Wages are paid monthly at all the mines. The company store, doubtless a necessity in the first years of mining in the region, very soon passed away entirely. One hears nothing of store orders on favored dealers. Payments are uniformly made in cash. The companies do furnish certain mine supplies directly, but these are furnished only to men working on contract.

It is not intended here to trace historically the changes in the rate of wages. The rapid development of the industry and the almost constant demand for an increased number of men have operated automatically to raise wages. At the mines of the Oliver Iron Mining Company, however, in January, 1904, there was a cut of 9.89 per cent in all wages. But a year later the old rate was practically restored by an advance of 9.4 per cent, while in March, 1906, another advance of 6.65 per cent was made, and in January, 1907, another increase of 8.12 per cent was made. As the action of this company in such matters has a controlling influence with the other companies on the range, these changes may be taken as representative of the movement of wages since 1904. The tables which follow show in a general way changes in the wage scale since 1896:

MAXIMUM AND MINIMUM WAGES PAID VARIOUS CLASSES OF MINE WORKMEN BY THE OLIVER IRON MINING COMPANY, BY YEARS, 1896 TO 1900.

[Seventh Biennial Report of the Bureau of Labor of Minnesota, page 248.]

Year.	Miners.		Trammers.		Underground laborers.		Surface laborers.	
	Maximum wage.	Minimum wage.	Maximum wage.	Minimum wage.	Maximum wage.	Minimum wage.	Maximum wage.	Minimum wage.
1896.....	\$1.75	\$1.60	\$1.45	\$1.40	\$1.40	\$1.25	\$1.15	\$1.10
1897.....	1.85	1.60	1.50	1.45	1.60	1.30	1.35	1.15
1898.....	1.95	1.60	1.75	1.60	1.60	1.40	1.50	1.15
1899.....	2.00	1.85	1.80	1.70	1.65	1.60	1.60	1.40
1900.....	2.40	2.20	2.10	1.90	1.90	1.85	1.80	1.75

AVERAGE DAILY WAGES FOR CALENDAR YEARS 1902 AND 1903 AND FOR FISCAL YEARS 1906 TO 1908 AT MINES OF ST. LOUIS COUNTY, MINN., AND FOR FISCAL YEAR 1909 AT MINES OF OLIVER IRON MINING COMPANY, BY OCCUPATIONS.

[Data for 1902 and 1903 are from the Ninth Biennial Report; 1906, from the Tenth Biennial Report; 1907 and 1908, from the Eleventh Biennial Report of the Bureau of Labor of Minnesota. Data for 1909 are furnished by the Oliver Iron Mining Company.]

Occupation.	St. Louis County mines.					Oliver Iron Mining Company, 1909.
	Calendar year—		Fiscal year ending June 30—			
	1902.	1903.	1906.	1907.	1908.	
<b>UNDERGROUND LABOR.</b>						
Mining captains.....	\$4.562	\$4.491	\$4.567	\$4.82	\$4.64	\$4.69
Shift bosses.....	2.609	2.726	2.651	3.00	2.93	2.98
Miners, contract.....	2.291	2.265	2.686	2.93	2.93	2.81
Miners, company account.....	1.955	1.925	2.223	2.46	2.45	2.47
Timbermen, contract.....	.....	2.331	2.540	2.76	2.46	2.86
Timbermen, company account.....	2.145	2.084	2.213	2.39	2.36	2.29
Trammers, contract.....	2.171	2.157	2.262	2.55	2.44	2.66
Trammers, company account.....	1.991	1.939	2.069	2.31	2.22	2.22
Trammers, mule drivers.....	.....	2.011	2.083	2.23	2.21	2.25
Trammers, motormen.....	.....	2.000	2.157	2.29	2.31	2.35
Trammers, brakemen.....	.....	2.011	2.022	2.25	2.29	2.25
Puffer men.....	.....	1.867	2.081	2.19	2.18	2.10
Power-drill men.....	.....	2.250	2.316	2.60	2.57	2.54
Rock fillers.....	.....	1.756	.....	2.26	.....	.....
Rock pickers.....	.....	2.123	2.042	2.26	2.19	2.99
Mine samplers.....	.....	2.213	2.081	2.25	2.50	2.50
Pump men.....	.....	.....	2.236	.....	.....	.....
Pipe men.....	2.129	2.131	2.254	2.44	2.34	2.40
Diamond-drill men, runners.....	2.418	2.200	2.200	.....	3.17	2.25
Diamond-drill men, helpers.....	.....	1.899	2.050	.....	2.33	2.15
Underground trackmen.....	2.101	2.076	2.185	2.33	2.35	2.37
Cage and skip tenders.....	1.917	1.870	2.029	2.27	2.17	2.45
Chute men.....	.....	2.035	2.070	2.28	2.26	2.25
Underground track foremen.....	.....	.....	2.450	.....	.....	.....
Tool carriers.....	.....	1.703	1.600	1.97	.....	.....
Tally boys.....	.....	.....	.....	1.55	1.63	.....
General underground laborers.....	1.894	1.919	2.072	2.25	2.17	2.21
Average for underground labor.....	.....	2.269	2.285	2.46	2.483	2.65
<b>SURFACE LABOR, STRIPPING WORK, AND OPEN-PIT MINING.</b>						
Engineers.....	2.114	2.200	2.307	2.45	2.44	2.46
Firemen.....	1.945	2.000	2.097	2.25	2.29	2.25
Motormen.....	.....	1.946	2.054	2.35	2.30	2.30
Brakemen.....	.....	2.004	1.967	2.30	2.27	2.20
Electricians.....	2.512	2.263	2.484	2.58	3.06	2.66
Compressor men.....	.....	2.021	2.248	2.53	2.57	2.30
Landers and dumpers.....	.....	1.945	2.041	2.20	2.10	2.20
Rock pickers.....	1.950	1.732	1.825	2.00	2.01	2.00
Pocket men.....	.....	1.977	2.005	2.20	2.12	2.22
Crusher men.....	.....	1.798	2.084	2.10	2.00	1.90
Samplers and sample grinders.....	.....	2.139	1.970	2.10	2.09	2.20
Machinists.....	2.392	2.913	3.115	3.72	3.40	3.11
Machinists' helpers.....	.....	1.934	2.246	2.34	2.33	2.07
Blacksmiths.....	2.618	2.766	2.799	2.81	3.09	3.20
Blacksmiths' helpers.....	1.853	1.891	2.094	2.15	2.20	2.20
Carpenters.....	2.385	2.445	2.803	3.00	2.88	2.68
Carpenters' helpers.....	.....	2.000	2.298	2.36	2.28	2.00
Masons.....	2.811	4.466	4.147	4.40	4.53	2.74
Masons' helpers.....	.....	1.966	1.957	2.38	2.06	2.10
Surface foremen.....	.....	3.301	3.290	3.08	3.08	2.65
Pit foremen.....	.....	.....	.....	.....	3.90	.....
Barn men.....	.....	2.190	2.096	2.73	2.73	2.92
Teamsters.....	1.907	1.982	2.020	2.20	2.19	2.15
Teamsters, with teams.....	.....	.....	4.984	5.00	.....	.....
Teamsters' helpers.....	.....	1.697	1.936	2.00	2.00	2.07
Timber framers.....	2.265	2.531	2.278	2.10	2.29	2.65
Timber framers, contract.....	.....	.....	3.000	2.93	.....	.....
Timber scalers.....	.....	3.958	1.952	.....	2.10	2.59
Office clerks.....	2.692	3.269	3.042	3.24	3.24	3.23
Shipping clerks.....	2.234	2.132	2.290	2.13	2.51	2.27
Shipping clerks, assistant.....	.....	.....	1.372	.....	.....	.....
Timekeepers.....	2.424	2.302	2.250	2.30	2.36	2.58
Warehousemen.....	2.350	2.403	2.352	2.48	2.27	2.51

AVERAGE DAILY WAGES FOR CALENDAR YEARS 1902 AND 1903 AND FOR FISCAL YEARS 1906 TO 1908 AT MINES OF ST. LOUIS COUNTY, MINN., AND FOR FISCAL YEAR 1909 AT MINES OF OLIVER IRON MINING COMPANY, BY OCCUPATIONS—Concluded.

Occupation.	St. Louis County mines.					Oliver Iron Mining Company, 1909.
	Calendar year—		Fiscal year ending June 30—			
	1902.	1903.	1906.	1907.	1908.	
<b>SURFACE LABOR, STRIPPING WORK, AND OPEN-PIT MINING—concluded.</b>						
Mining engineers .....	\$2.609	\$3.827	\$3.925	\$4.00	\$3.50	\$3.85
Mining engineers, assistant .....		2.523	2.449	2.45	2.51	2.32
Chemists .....		4.165	5.129	5.18	3.89	3.97
Chemists, assistant .....		2.345	2.470	2.90	2.50	2.15
Change house men .....		1.517	1.778			1.93
Pipe men .....		2.157	2.158		2.27	2.30
Puffer men .....					2.00	
Diamond-drill setters .....		3.906	3.886	4.42	4.22	4.25
Diamond-drill runners .....	2.355	2.751	3.000	3.25	3.19	3.25
Diamond-drill helpers .....		2.166	2.253	2.50	2.44	2.50
Coal wheelers .....		1.730	1.820	2.05		2.00
Steam-shovel engineers .....		4.259	5.052	4.80	4.80	6.15
Steam-shovel crane men .....		3.250	3.591	3.68	3.68	4.40
Steam-shovel firemen .....		2.000	2.228	2.33	2.37	2.30
Steam-shovel laborers .....		1.999	2.100	2.25	2.12	2.25
Locomotive engineers .....			3.600	3.50	3.52	
Locomotive firemen .....			2.108	2.35	2.27	
Locomotive brakemen .....			2.275	2.54	2.39	
Locomotive engineer, narrow gauge (dinkey) .....			2.900	3.00	3.00	
Locomotive brakemen, narrow gauge (dinkey) .....			2.000	2.00	2.00	
Track foremen .....			3.000	3.38	2.88	
Track laborers .....		2.000	2.000	2.00		
Dump foremen .....			2.719			
Dump laborers .....			2.600	2.00	1.98	
Drillers and blasters .....				2.25		
General surface laborers .....	1.889	1.855	2.007	2.05	1.98	2.12
Average for surface labor, etc. ....		2.198	2.505	2.73	2.67	2.36
Average for all labor .....		2.206	2.438	2.595	2.576	2.55

The wage scale is not uniform throughout the range, but varies somewhat at the several mines even of the same company. The variation, however, is slight, and the same has been true from season to season during the past few years. The Oliver Iron Mining Company has doubtless done much to maintain a stable rate of wages throughout the district, for the well-known price policy of the United States Steel Corporation has its counterpart in its wage policy at the mines. Thus, notwithstanding the fact that it was obliged to cut down its total ore output, including that from the Michigan ranges, from 23,980,000 tons in 1907 to 16,662,000 tons in 1908 and decrease its labor force in the mining department from 16,462 men to 13,135, and although the conditions of the labor market in 1908 were completely the reverse of what they were in 1907, the scale of wages remained unchanged. With many men seeking employment, it is rather notable that wages have been so well maintained.

Where the conditions for it are favorable, the contract system is employed. Two miners and two laborers, or trammers, as a group, take

a contract on a footage or on a car basis, as the case may be. One miner and a laborer work the place during the day shift and the other pair at night. In some cases the "gang" taking the contract consists of two or, it may be, four miners, and by the terms of the contract trammers work on company account. The company furnishes a few tools, as augers, picks, and drills, but axes, ax handles, pick handles, candles, and explosives supplied to the men by the company are paid for from their earnings. There is some variation as to the articles furnished at company expense. Often the men in a contract all rank as miners and receive equal pay. When some are trammers, they are paid out of the net earnings of the contract a day wage agreed on between miner and trammer or on some differential basis, as at the rate of 25 cents per day less than the miners. The amount of contract work varies with the stage of development of the mine. In opening up a mine, sinking shafts, driving tunnels, making raises, and when taking out the top "slice" next the sand and rock the men are employed usually on company account; but as fast as the mine is opened up miners, trammers, and timbermen are put on contract. At the Elba mine in 1908, 62 per cent of those employed about the mine were on contract. At three mines near Virginia the percentage was 57, though 72 per cent of those working underground were on contract. At all the Oliver Iron Mining Company's underground mines in 1908 38 per cent of all employees were on contract. A small number of men work on contract in surface mines, drilling boulders too large to be handled by the shovel or to be "bulldozed."

There may be considerable variance in contract wages as between mines and in the same mine. Men in a favorable place make sometimes as much as \$4 or \$5 a day. On the average their wages do not greatly exceed those of men working by the day. During the first seven months of 1908 the average pay to company account miners at the mines of the Oliver Company was \$2.36 and that of the contract miners was \$2.66. The average wages for contract miners and other workers in mines of St. Louis County for the years ending June 30, 1906 to 1909, according to the foregoing table, were as follows:

AVERAGE WAGES OF CONTRACT AND COMPANY ACCOUNT MINERS IN ST. LOUIS COUNTY, BY YEARS, 1906 TO 1909.

Year ending June 30—	Miners.		Trammers.		Timbermen.	
	Contract.	Com- pany ac- count.	Contract.	Com- pany ac- count.	Contract.	Com- pany ac- count.
1906.....	\$2.686	\$2.223	\$2.262	\$2.069	\$2.540	\$2.213
1907.....	2.93	2.46	2.55	2.31	2.76	2.39
1908.....	2.93	2.45	2.44	2.22	2.46	2.36
1909 (a).....	2.76	2.40	2.55	2.18	2.72	2.30

\* Figures for 1909 supplied by the mine inspector.

At the mine of an independent company in the Hibbing district, where the rate on company account was \$2.50 in 1907, the average daily earnings for contract miners were as follows:

AVERAGE DAILY EARNINGS OF CONTRACT MINERS EMPLOYED BY AN INDEPENDENT COMPANY IN HIBBING DISTRICT IN 1907, BY MONTHS.

Month.	Average daily earnings.	Month.	Average daily earnings.	Month.	Average daily earnings.
January.....	\$2.70	May.....	\$3.19	September.....	\$3.14
February.....	2.75	June.....	3.28	October.....	3.45
March.....	2.91	July.....	3.26	November.....	2.96
April.....	3.05	August.....	3.31	December.....	2.70

The contracts are renewed each month. While no doubt there is a certain amount of friction existing where contracts are so frequently made and where the mining captain has so large a power in determining what the price shall be, one hears very little complaint of the system or of the way it is administered.

One feature of the wage payment as applied especially to steam-shovel men is worthy of mention. The steam-shovel engineers are the best paid workmen on the range. They get the standard wage fixed by the union of \$125 a month, and in addition receive a bonus if they remain with the company through the season and in the opinion of the superintendent have done efficient and faithful work. The usual bonus is \$40 per month, but it is sometimes as low as \$20. The crane men receive a lower wage and a smaller bonus. So firmly established is the bonus system that the bonus is very generally regarded as included in the wage; but it may be withheld, and sometimes it is, if the service has not been satisfactory. While no efforts have been made by the shovel men to overthrow the system, it is felt to be a limitation on their freedom and by many is disliked.

The regularity of employment is an important factor in the wage question. The shipments of ore to market, being all by water for a part of the route, must stop with the approach of cold weather. The date of opening and closing the shipping season for the ten years 1899 to 1908, inclusive, is shown in the following table:

OPENING AND CLOSING OF SHIPPING SEASON, DULUTH, MISSABE AND NORTHERN DOCKS, DULUTH, MINN., BY YEARS, 1899 TO 1908.

Year.	Shipping season.		Year.	Shipping season.	
	Opened.	Closed.		Opened.	Closed.
1899.....	May 4	Dec. 9	1904.....	June 5	Dec. 9
1900.....	Apr. 27	Nov. 30	1905.....	Apr. 10	Dec. 16
1901.....	May 8	Nov. 30	1906.....	Apr. 14	Dec. 9
1902.....	Apr. 2	Dec. 7	1907.....	Apr. 20	Dec. 3
1903.....	Apr. 11	Nov. 22	1908.....	May 20	Nov. 28

This seasonal stoppage of shipments affects work at the underground mines and the open-pit mines in different ways. The underground mines may during the winter season be affected by market conditions or by the kind of new work being done, but otherwise production continues with about the same force as during the open season and the output is "stock piled"—that is, dropped from a high trestle running out from the shaft, to be loaded in the summer with the steam shovel. Ore production at the open-pit mines ceases with the stoppage of shipments. Nevertheless the force may in part be turned to stripping work and continued all but the coldest days of the winter. The tendency is to keep the stripping shovels going a larger part of the year. In mines where no development work is to be done there is a complete stoppage of operations. It is a matter of surprise, however, all things considered, that so large a proportion of the mine force can be employed through the winter season. As open-pit work becomes more general, and this is the trend, and as the stripping work becomes less pressing with the uncovering of larger areas of ore, the seasonal character of the work will become more marked. Shovel men working in ore now reckon on six and one-half or seven months of active work, and this is likely to become the season for most mine workers.

The following table indicates the different way the various classes of work are affected by the seasons.

## NUMBER OF MEN EMPLOYED AT VARIOUS MINNESOTA MINES, BY MONTHS.

[Data from the Tenth and Eleventh Biennial Reports of the Bureau of Labor, Minnesota.]

## VERMILION RANGE—UNDERGROUND.

Mine.	Number of men employed in—											
	1906.						1907.					
	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
Chandler.....	192	191	172	151	139	132	145	147	147	143	136	121
Pioneer.....	436	453	468	445	450	447	529	548	554	564	554	525
Savoy.....	183	178	183	183	189	186	211	211	205	192	177	178
Soudan.....	253	250	248	244	241	174	164	232	228	228	214	216

## MESABI RANGE—UNDERGROUND.

Clark.....	179	174	193	199	214	211	243	243	237	252	226	253
Lincoln.....	293	315	266	236	153	130	145	147	148	179	195	197
Laura.....	121	125	125	135	112	109	118	108	113	127	130	138
Webb.....	107	109	112	109	116	131	155	165	153	145	137	138

## MESABI RANGE—OPEN-PIT.

Biwalk.....	160	155	145	137	142	133	120	30	35	160	154	172
Mountain Iron.....	907	860	955	975	940	747	757	735	799	886	1,049	1,141
Mahoning.....	235	250	225	200	175	150	100	75	125	350	425	400
Virginia.....	126	117	122	171	308	369	363	356	379	408	464	468

NUMBER OF MEN EMPLOYED AT VARIOUS MINNESOTA MINES, BY MONTHS—Concluded.

MESABI RANGE—STRIPPING.

Mine.	Number of men employed in—											
	1905.						1906.					
	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
Fayal.....	436	423	422	451	383	439	461	411	115	426	445	398
Morris.....	414	459	358	332	297	360	396	419	460	544	484	456
Stevenson.....	263	187	132	111	147	185	163	128	123	306	443	402
Monroe-Tener.....	310	336	358	320	351	220	209	122	164	206	397	333

In the table which follows the seasonal irregularity of work at the Minnesota mines is shown in comparison with the conditions of employment in other iron-ore producing States:

AVERAGE NUMBER OF EMPLOYEES IN THE IRON-ORE MINES OF MINNESOTA, MICHIGAN, ALABAMA, AND VIRGINIA FOR 1902, AND ST. LOUIS COUNTY, MINN., FOR 1906, BY MONTHS.

[Data for St. Louis County, Minn., from the Tenth and Eleventh Biennial Reports of the Minnesota Bureau of Labor, and for Minnesota, Michigan, Alabama, and Virginia from the United States Census Report on Mines and Quarries, 1902.]

Month.	Average number of employees 16 years of age and over working in the iron-ore mines of—				
	St. Louis County, Minn., 1906.	Minnesota, 1902.	Michigan, 1902.	Alabama, 1902.	Virginia, 1902.
January.....	11,328	6,210	13,415	4,358	2,136
February.....	10,984	6,198	12,858	4,403	2,104
March.....	11,484	6,416	13,373	4,616	2,337
April.....	13,659	7,370	13,946	4,655	2,396
May.....	16,298	8,449	14,803	4,693	2,664
June.....	16,134	8,759	14,399	4,715	2,682
July.....	15,706	9,102	14,977	4,850	2,845
August.....	15,649	9,456	15,340	4,887	2,846
September.....	15,495	9,659	15,441	4,861	2,718
October.....	15,122	9,449	15,449	4,987	2,577
November.....	14,814	9,308	14,911	4,939	2,318
December.....	13,762	8,762	14,440	4,892	2,293
Average.....	14,203	8,254	14,446	4,738	2,493

The following table presents another view of the regularity of employment in the two ranges. The month having the greatest number employed is considered the base or 100 and each other month is a percentage of the greatest month.

The fluctuations of employment caused by seasonal changes are very clearly shown in this table for both ranges. On the Mesabi range during the year 1903 the month of May had the greatest number of employees, closely followed by June, July, and August. December showed the fewest men employed, with November, January, and February not much higher. On the Vermilion range the number employed is more nearly stationary for eight months. The

months of October, November, and December are less than half of January, the highest month.

On both ranges, during the months of May, June, July, and August, the opportunity for employment is about equal, with May the greatest in this year.

PER CENT OF MINE EMPLOYEES IN EACH MONTH IN 1903 AS COMPARED WITH MAXIMUM NUMBER.

[Data from the Ninth Biennial Report of Bureau of Labor, Minnesota.]

Occupation.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
<b>MESABI RANGE, 21 MINES.</b>												
Management of mine.....	49.50	44.55	66.33	83.16	81.18	99.01	98.02	90.09	91.09	89.11	100.00	81.18
Office and clerical force.....	44.38	44.70	67.37	78.93	90.38	93.90	93.15	100.00	91.65	87.48	76.89	64.59
Captains, foremen, and bosses.....	49.56	49.24	81.02	86.02	100.00	94.11	91.66	93.17	95.07	89.83	66.48	56.95
Engineers.....	51.69	48.91	65.42	66.20	93.31	100.00	99.39	99.30	95.48	81.67	51.09	35.01
Firemen.....	60.81	54.71	68.96	66.16	95.59	90.75	97.96	100.00	89.06	83.21	61.15	45.46
Machinists and electricians.....	54.95	59.22	84.27	92.43	96.12	75.15	94.95	100.00	99.42	90.87	71.46	73.20
Blacksmiths.....	59.63	58.80	90.53	89.37	95.91	95.63	100.00	98.17	99.33	90.03	74.09	58.97
Carpenters and other mechanics.....	52.86	71.19	72.01	73.65	77.09	76.27	79.38	93.62	92.63	89.36	100.00	87.40
Station men.....	67.91	68.90	100.00	63.75	35.52	37.69	39.76	40.63	39.83	38.80	67.07	58.53
Skilled miners.....	52.96	51.06	91.76	92.52	100.00	96.29	94.21	85.45	83.41	74.53	51.36	47.74
Timbermen, etc.....	82.08	81.12	95.66	89.82	100.00	95.25	89.11	80.85	82.38	74.86	70.69	64.46
Trammers.....	63.33	59.26	84.18	91.26	100.00	95.18	93.53	89.53	88.34	80.67	58.53	56.48
Underground laborers.....	89.61	87.67	100.00	71.21	86.79	78.17	79.58	66.11	65.05	64.17	68.66	58.71
Surface laborers.....	35.08	40.72	66.04	65.05	96.87	37.05	98.09	100.00	88.42	76.42	48.91	50.33
Other help.....	54.29	40.79	48.04	57.39	92.90	87.61	85.01	100.00	95.75	85.43	49.79	29.31
Total.....	59.19	56.71	85.68	85.36	100.00	96.58	95.32	93.26	89.81	80.86	59.63	52.47
<b>VERMILION RANGE, 5 MINES.</b>												
Management of mine.....	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Office and clerical help.....	84.75	86.52	86.17	91.13	95.03	88.30	94.33	98.58	100.00	77.30	74.11	70.92
Captains, foremen, and bosses.....	94.85	96.79	95.26	89.68	99.72	94.14	98.64	100.00	96.09	70.99	61.23	54.95
Engineers.....	88.11	89.43	86.43	92.83	100.00	88.87	85.66	89.25	90.57	55.66	40.57	33.47
Firemen.....	80.83	76.04	84.03	89.78	100.00	91.38	92.33	92.65	86.90	69.33	76.04	71.88
Machinists and electricians.....	91.64	94.88	91.91	100.00	94.07	84.91	84.10	80.86	96.23	60.11	63.61	58.22
Blacksmiths.....	92.22	98.13	94.40	94.40	100.00	94.87	91.60	90.98	86.31	29.24	30.33	28.62
Carpenters and other mechanics.....	68.72	68.17	75.41	67.99	62.75	62.75	67.27	100.00	76.31	45.21	52.96	47.56
Station men.....	100.00	93.32	99.09	79.57	67.96	65.45	58.59	56.72	38.88	48.29	44.72	44.72
Skilled miners.....	100.00	94.94	92.48	88.39	93.12	90.77	91.69	85.68	72.04	36.34	32.13	29.89
Timbermen, etc.....	100.00	95.83	98.35	86.07	85.71	87.36	87.48	83.25	78.25	68.67	60.72	57.73
Trammers.....	98.95	93.40	97.06	86.51	97.65	100.00	98.37	95.00	91.63	51.97	45.52	38.84
Underground laborers.....	93.11	87.57	94.91	83.83	94.91	100.00	96.86	92.38	85.63	60.75	39.82	42.96
Surface laborers.....	73.21	71.59	75.72	73.67	100.00	95.72	91.64	76.29	71.12	46.84	39.95	37.06
Other help.....	82.37	100.00	82.15	76.77	85.59	86.88	95.48	88.82	81.94	60.43	64.95	57.63
Total.....	100.00	96.51	96.79	91.01	97.42	95.48	94.78	90.76	82.18	48.86	44.64	41.03
Both ranges, 26 mines.....	71.82	69.02	89.66	87.65	100.00	96.97	95.87	93.17	88.22	71.93	55.62	49.46

Real wages are materially affected by the high cost of living on the range. No systematic study of this very important problem was attempted to determine the relative cost there and at other industrial centers; but the evidence is clear that prices are abnormally high. This is true of rents. While the families who can get company houses are comfortably and cheaply lodged, usually only a small proportion of the workmen are so housed. If they occupy comfortable houses in the towns and villages they must pay from two to three times as much as the company houses cost. The less fastidious may build their own houses on company land, paying a small sum as

ground rent. For the smallest space 50 cents a month is charged, and in some cases \$1 per month. The climate and the nature of the soil in most places forbid the raising of garden stuff as a means of keeping down household expenses. The cost of fuel is not exorbitant. Being only a hundred miles from the lake, the range is better situated with reference to the eastern coal fields than most other parts of Minnesota. Moreover, the companies very generally supply their workmen with coal at cost or at a very low margin of profit.

It is the food supply that imposes the heaviest burden. The complaint among all classes of the high cost of food is general. The boarding-house keepers try to protect themselves against what are regarded as exorbitant prices by ordering goods from Duluth and other cities. The mail-order houses are also said to do a large range business. In two places, Virginia and Biwabik, cooperative stores are run by groups of Finns.

### LABOR ORGANIZATIONS.

The iron ranges of Minnesota have never proved a favorable soil for the growth of labor unions. Such attempts as have been made to organize the region have failed—all of them partially and most of them completely. The most successful organization has been the International Brotherhood of Steam Shovel and Dredge Men. This union was organized in 1896. Many of the steam-shovel men who came to the range during the late nineties were members of the union, and they worked under substantially union conditions, requiring that a man should have served as fireman for two years before becoming crane man, and in that capacity for one year before becoming engineer. In 1902 men who had not served in due order were promoted, and this brought on the first conflict with the companies. The next year, ten years after the opening of the Mesabi range, the organization, in spite of company opposition, established its first local at Eveleth, June, 1903, and in the fall of the same year one was organized at Hibbing, as well as at other points; but their charters have been surrendered, and the local at Hibbing has for some time been the only one on the range. It is not, and never has been, recognized by the companies. The men are paid the union scale and more; and they find it worth while to maintain their standing in the union for the service it performs in securing positions for them during the winter season.

The only serious and persistent effort to organize the mine workers, as a whole on the range has been made by the Western Federation of Miners. It is said that the men have from time to time been victimized by fraudulent organizers, and that this has had the effect of increasing their natural suspicion of strangers speaking a different language from their own. It seems that in 1903 a local of the West-

ern Federation of Miners composed mainly, if not wholly, of Finns was organized at Hibbing. It does not seem to have prospered, for in 1904 it was reported to the annual convention of the federation as among "defunct and disbanded" locals. In that same convention, however, a representative of the federation who had been on a tour during the winter of 1903-4 among the cities of the Northwest, including Duluth, to solicit aid for strikers in Colorado, and had become impressed with the possibilities of organizing the Lake Superior region, recommended that an organizer be put in the field there. One of the interests the Western Federation of Miners had in unionizing the region is shown by the report of a committee to the annual convention a year later, in 1905:

The difficulty you have to circumvent is the conditions that prevail in unorganized localities. You will be in jeopardy as long as menaced by conditions of labor such as prevail in Michigan, Minnesota, and Missouri, in fact the entire copper, iron, and lead districts. \* \* \* It is impossible to avoid the competition that comes from these sections, especially when employment agencies are continually at work trying to get cheaper labor for the mining districts of the West. \* \* \*

During 1905 several organizers were on the Mesabi range, where in the course of the year unions were organized at Eveleth, Buhl, Sparta, McKinley, Chisholm, Virginia, and Aurora, and the Hibbing union was reorganized. At Ely, on the Vermilion, a foothold was gained but soon lost. In fact, everywhere the organizers found numerous discouragements—race prejudice, suspicion, the barrier of diverse languages, lack of an understanding of unionism, inefficient officers, and in several cases dishonest ones. When in June, 1906, a new organizer was sent to continue the work, there were 10 locals in the federation directory, but only two or three that were holding meetings. During the next year his work seems to have been for the most part in holding these unions together, though additional ones were formed at Bovey and Mountain Iron. He reported June 3, 1907, that the total membership on the range amounted to 2,500 and was growing. This was probably an exaggeration. After his return from the annual convention of the federation in June the membership was rapidly increased and rumors of an impending strike, which had been afloat for some months, became more pronounced.

The only industrial disturbance on the Minnesota ranges that has attracted attention beyond the locality in which it occurred is that of 1907. The strike followed a demand for an increase of wages, an eight-hour day, and the abolition of the contract and bonus systems. The strike was called July 20, earlier than had been intended, because of conditions growing out of the ore handlers' strike at Duluth begun on July 14; and by July 25 practically all work on the Mesabi range had ceased. The strike continued into October. The places of the

strikers were gradually filled and they sought other employment. The complete failure of the strike resulted in the disorganization of the union.

Among other consequences of the strike there has been brought about a marked change in the character of the mining population. By common consent the Finns have been the most efficient workmen on the ranges. To take the place of strikers there was an influx of Montenegrins, Bulgarians, Servians, Croatians, and other nationalities distinctly less efficient and with a lower standard of living than the men they supplanted. Although the slack season of 1908 made this change less injurious than it otherwise would have been, since "discouragements" were during that season put in the way of less desirable of the new arrivals remaining on the range, nevertheless the strike has left as one of its results a body of men less efficient as workmen than there was before.

## RECENT REPORTS OF STATE BUREAUS OF LABOR STATISTICS.

### MISSOURI.

*Thirtieth Annual Report of the Bureau of Labor Statistics of the State of Missouri, for the year ending November 5, 1908.* J. C. A. Hiller, Commissioner. xx, 952 pp.

This report consists of four parts, as follows: Part I, Surplus products, government land in Missouri and increase in land values, good roads for Missouri, population of Missouri, foreign immigration into Missouri during 1907-8, etc., 146 pages; Part II, Manufacturing industries, 1907, 620 pages; Part III, Labor organizations and free employment offices, 94 pages; Part IV, Public utility plants, penal and prison shops, construction work, wage comparison, etc., 90 pages.

**SURPLUS PRODUCTS, GOVERNMENT LAND, LAND VALUES, AND GOOD ROADS.**—During 1907 the 114 counties of the State shipped surplus products aggregating in value \$313,643,427. At the time of report (1908) there were 27,480 acres of land in Missouri subject to homestead or cash entry. In 1908 the assessed valuation of land in the State was \$1,040,252,288, an increase since 1901 of \$247,626,708. A fund of \$2,000,000 has been provided for the purpose of laying out new highways and improving old ones.

**MANUFACTURING INDUSTRIES.**—A summary of the returns for 1907, embracing 13,019 establishments, in 98 industrial groups, shows a total invested capital of \$351,603,719, a total value of materials used of \$352,905,895, and a total value of products of \$567,565,305. During the year there were employed 226,114 salaried persons and wage-earners (184,509 males and 41,605 females), to whom were paid salaries and wages aggregating \$115,784,001. Of wage-earners there were 198,409 (159,256 adult males, 35,864 adult females, and 3,289 children under 16 years of age). There were reported by the establishments during the year 10,130 accidents, of which only 51 resulted fatally.

The following table shows for 1907, for each of the 31 industries in the State which paid out in wages and salaries during the year over \$1,000,000, number of establishments, capital invested, value of products, amount paid in wages and salaries, and number of employees (wage-earners and salaried persons) by sex.

## STATISTICS OF 31 MANUFACTURING INDUSTRIES, 1907.

Industry.	Estab-lish-ments.	Capital invested.	Value of products.	Wages and salaries.	Employees.	
					Male.	Fe-male.
Bakeries.....	999	\$6,289,946	\$12,837,550	\$2,662,748	3,768	1,364
Boots and shoes.....	47	15,820,734	34,760,698	7,088,850	12,109	6,135
Brick and tile.....	144	10,848,372	6,846,240	3,377,320	7,083	41
Candy and confectionery.....	148	2,097,933	8,701,306	1,729,388	2,075	1,967
Carriages and blacksmithing.....	1,492	5,365,965	11,611,843	2,840,798	5,204	107
Car shops.....	139	11,198,376	38,345,908	12,396,084	20,748	331
Clothing, men's.....	661	8,739,891	18,007,864	4,841,103	4,723	7,079
Clothing, women's.....	119	1,058,315	4,765,962	1,128,675	556	2,379
Cooperage.....	178	2,775,850	6,505,336	1,777,135	4,887	56
Drugs and chemicals.....	157	3,834,122	10,614,279	1,819,581	1,607	1,154
Electrical apparatus.....	50	2,424,536	3,634,536	1,232,141	1,505	458
Flour, feed, and meal.....	745	9,659,520	34,434,516	1,845,769	3,470	68
Foundries and machine shops.....	284	14,292,570	20,514,265	6,828,079	10,879	217
Furniture.....	85	3,257,519	6,641,251	2,278,592	3,925	164
Glass.....	22	3,240,592	33,171,154	1,525,921	2,344	80
Grocers' sundries.....	74	3,464,214	13,007,113	1,481,043	1,356	912
Harness.....	604	3,610,978	5,230,379	1,198,216	2,010	87
Iron, structural.....	91	2,307,543	5,110,794	1,415,824	2,268	35
Light, heat, and power.....	176	65,566,316	10,097,243	2,546,271	3,606	191
Lime, cement, and plaster.....	34	8,654,065	4,816,603	1,751,763	3,835	10
Liquors, malt.....	55	38,118,568	24,034,248	5,556,988	7,768	192
Lumber and ties.....	958	6,076,935	12,279,003	4,077,631	12,500	21
Meat packing.....	187	9,860,808	81,308,266	3,705,483	6,353	125
Planing mills, etc.....	186	4,241,787	5,990,356	1,856,637	3,317	57
Printing and binding.....	297	8,667,521	13,815,469	5,376,997	6,563	2,925
Publishing.....	158	5,142,517	10,337,870	3,058,998	3,254	562
Smelting and refining.....	24	33,138,734	12,143,006	3,314,564	4,875	5
Stone and marble.....	210	2,337,443	3,229,957	1,257,147	2,666	13
Stoves and ranges.....	28	2,670,428	8,146,489	2,578,810	3,228	55
Tinning and sheet iron.....	658	4,237,155	8,231,150	1,877,490	3,317	277
Tobacco.....	14	3,242,354	21,250,798	1,443,005	1,989	1,494

Additional tables show, for wage-earners, the classified weekly earnings of adult males, adult females, and children under 16 years of age; number and wages of salaried employees, by sex; also for cities and towns, by occupations in each industry, the number of male and of female wage-earners employed, weekly wages paid, hours of labor per day and per week, and per cent of changes in wages as compared with 1906.

**LABOR ORGANIZATIONS.**—This section of the report presents, in eight tables, statistics relative to the labor organizations of the State. Following is a comparative summary of all labor organizations for the years 1906 and 1907:

## STATISTICS OF LABOR ORGANIZATIONS, 1906 AND 1907.

Items.	Year.	
	1906.	1907.
Number of organizations reporting.....	642	652
Number of male members.....	79,160	74,578
Number of female members.....	2,117	2,319
Total number of members.....	81,277	76,897
Average per cent of trade organized.....	76.09	78.03
Average number of hours constituting a day's work.....	9.05	9.01
Established wage rate in cents per hour.....	33.67	26.29
Average number of days employed.....	295	286.69
Number of organizations reporting more work.....	213	149
Number of organizations reporting less work.....	83	137
Number of organizations reporting out-of-work benefit.....	20	16
Total amount of out-of-work benefit paid.....	\$5,894.90	\$2,461.68

STATISTICS OF LABOR ORGANIZATIONS, 1906 AND 1907—Concluded.

Items.	Year.	
	1906.	1907.
Number of organizations having provisions for payment of strike benefits.....	440	441
Average weekly strike benefit allowed per member.....	\$5.81	\$6.02
Number of organizations having provisions for payment of sick and accident bene fits.....	155	161
Average weekly sick and accident benefit allowed per member.....	\$7.50	\$6.69
Total amount of sick and accident benefit paid.....	\$38,199	\$53,676
Number of organizations having provisions for payment of death benefits.....	882	444
Average death bene fit allowed per member.....	\$216.82	\$198.88
Total amount of death benefit paid.....	\$161,311	\$141,234
Total amount paid for all benefit funds.....	\$322,647	\$351,387
Total number of strikes.....	110	124
Total number of lockouts.....	9	12
Number of strikes and lockouts settled satisfactorily.....	85	71
Number of strikes and lockouts compromised.....	9	30
Number of strikes and lockouts lost.....	9	21
Disputes pending at close of report.....	16	14
Number of persons involved in strikes and lockouts.....	16,000	8,448
Number of persons directly benefited by strikes and lockouts.....	9,875	6,367
Number of persons directly worsted by strikes and lockouts.....	399	779
Amount expended in support of strikes and lockouts.....	\$222,653	\$135,336
Amount of wages lost to members through strikes and lockouts.....	\$159,623	\$153,046
Number of organizations reporting increase in wages.....	82	27
Number of organizations reporting reduction in hours per day.....	11	14
Number of appeals for arbitration.....	42	17
Number of disputes settled by arbitration.....	38	18
Number of fatal accidents.....	128	75
Number of nonfatal accidents.....	1,393	697
Total number of accidents.....	1,521	772
Number of organizations reporting agreements with employers.....	477	467

Considering the three largest cities of the State, in 1907 St. Louis had 209 organizations with 41,650 members (40,415 males and 1,235 females); Kansas City had 90 organizations with 10,125 members (9,864 males and 261 females); and St. Joseph had 43 organizations with 3,485 members (2,900 males and 585 females).

**FREE EMPLOYMENT OFFICES.**—The operations of the free employment offices, located in St. Louis, Kansas City, and St. Joseph, for the year ending September 30, 1908, are summarized in the statement following:

OPERATIONS OF FREE EMPLOYMENT OFFICES, 1908.

City.	Applications for positions.		Applications for help.		Positions secured.	
	Males.	Females.	Males.	Females.	Males.	Females.
St. Louis.....	5,457	535	1,194	405	1,111	327
Kansas City.....	3,127	544	3,247	875	2,426	223
St. Joseph.....	3,605	641	3,140	723	2,860	539
Total.....	12,189	1,770	7,581	2,003	6,337	1,089

**PUBLIC UTILITY PLANTS.**—This section presents statistics relative to telephone systems, waterworks, gas plants, electric generating stations, and street railway systems. The statistics, which are for both private and municipal plants, cover capital invested, receipts and expenditures, number of employees, wages paid, and other data pertaining to the various services.

**PRISON SHOPS.**—Statistics of manufacturing in the contract shops in the state penitentiary are presented under this head. The amount paid the State for convict labor in 1907 was \$281,992. The value of goods manufactured during the year aggregated \$2,817,432. Also, statistics are presented for five smaller penal and reformatory institutions.

**WAGE COMPARISON.**—In this section is presented a comparative table showing the earnings and hours of labor of wage-earners in 1882-83 and in 1907-8. The following table shows this information for the more important occupations:

EARNINGS AND HOURS OF LABOR IN 15 OCCUPATIONS, 1882-83 AND 1907-8.

Occupation.	Earnings per day.		Hours per week.	
	1882-83.	1907-8.	1882-83.	1907-8.
Bakers.....	\$1.67-42.50	\$2.84-33.00	84-112	54-72
Blacksmiths.....	1.50-3.33	3.60	60	54
Bookbinders.....	1.67-2.85	2.70-3.15	60	54
Bricklayers.....	2.25-4.50	5.20	60	48
Cabinetmakers.....	1.50-2.25	2.79	60	54
Carpenters.....	1.67-3.00	4.80	60	48
Cigar makers.....	.67-2.00	2.08-4.00	60	44
Horseshoers.....	1.67-3.33	3.01	60	48
Machinists.....	2.00-3.00	3.34-3.60	60	54
Molders.....	2.50-3.50	3.15	60	54
Painters.....	1.25-3.00	2.47-4.60	60	48-54
Paper hangers.....	3.50	4.80	60	48
Pattern makers.....	1.75-3.50	4.05	60	54
Plasterers.....	3.00-3.50	4.52-6.00	60	48
Plumbers.....	2.50-3.25	5.30	60	48

## MONTANA.

*Eleventh [Fifth Biennial] Report of the Bureau of Agriculture, Labor, and Industry of the State of Montana, for the year ending November 30, 1908.* J. A. Ferguson, Commissioner. 320 pp.

Following are the general titles of the subjects treated in this report: Montana (general review of conditions in the State), 31 pages; lands, 25 pages; irrigation, 31 pages; agriculture, 75 pages; labor, 22 pages; the industries, 44 pages; miscellaneous, 82 pages.

**LABOR.**—A variety of subjects relating to labor are presented under this general head. Compensation for accidents to workmen through industrial, or what is sometimes called compulsory, insurance is considered at some length.

The following statement shows the transactions of the free employment offices at Butte and Great Falls for the two years ending November 30, 1908:

OPERATIONS OF THE FREE PUBLIC EMPLOYMENT OFFICES, 1907 AND 1908.

Office.	Applications for work.			Applica- tions for help.	Positions secured.		
	Males.	Females.	Total.		Males.	Females.	Total.
Butte.....	9,304	6,136	15,440	13,762	5,555	5,027	10,582
Great Falls.....	1,708	247	1,955	730	317	89	406

Other subjects considered under the general title "Labor" are employment abuses, labor legislation, important decisions of the courts, and a brief record of the historical features of the principal strikes of the period.

**INDUSTRIES.**—The amount, value, etc., of production of the various mineral resources of the State for 1907 and 1908 are extensively set forth under this general head. During the year 1907 there were produced by the coal mines in the State 2,030,564 short tons of coal, and 1,370 miners were employed. The coal production in 1908 was 1,978,347 short tons, and 1,589 miners were employed.

### NEBRASKA.

*Eleventh Biennial Report of the Bureau of Labor and Industrial Statistics for the years 1907 and 1908.* John J. Ryder, Deputy Commissioner. 459 pp.

The subjects presented in this report are: Suggested legislation, 34 pages; agricultural progress in Nebraska, etc., 132 pages; crop statistics, 212 pages; directory of manufacturers, 30 pages; progress of trade unions, etc., 28 pages; and accident insurance, 4 pages.

**ACCIDENT INSURANCE.**—In this section of the report are given arguments for the establishment of a system of compulsory accident insurance by the State.

**MANUFACTURING STATISTICS FOR 1907.**—Under this caption is given a table compiled from data returned by 494 representative concerns doing business in the State. The figures show that these establishments were capitalized to the extent of \$43,569,675; that they employed 13,361 wage-earners, to whom were paid in wages \$8,371,748. The cost of materials used was \$81,416,998, and the value of products was \$151,286,926.

## RECENT FOREIGN STATISTICAL PUBLICATIONS.

### NEW SOUTH WALES.

*Second Annual Report of the Director of Labor, State Labor Bureau of New South Wales, for the year ended June 30, 1907.* State Labor Bureau. 1908. 36 pp.

*Third Annual Report of the Director of Labor, State Labor Bureau of New South Wales, for the year ended June 30, 1908.* State Labor Bureau. 1909. 55 pp.

These reports present the work of the director of labor of New South Wales for the years 1907 and 1908, along the lines of relief and the placing of labor. As stated in the digest of the *First Annual Report* (see Bulletin No. 82, pages 657-659), this officer succeeded to the duties of the labor commissioners previously charged with the conduct of similar undertakings under an earlier law.

These reports present the work of the employment offices of the bureau, details of various undertakings carried on by the bureau as means of affording employment and relief, brief but somewhat general discussions of the problem of the unemployed, and appendixes showing summaries and particulars of registrations, trade-union rates of wages, detailed reports of managers of state farms, etc. The report for 1908 shows the classes of employment secured and rates of wages both in private employments and on government works.

The methods employed at the beginning of the work of the director continue to be used, being found adapted to the demands put upon them and resulting in the practical elimination of involuntary unemployment. A central bureau and 43 branches afford opportunity for both workmen and employers to register applications, while state farms and public works furnish employment of a temporary or more or less permanent sort to men and boys, the provisions for women being only such as result from relief afforded to men having families. The report for 1907 mentioned the definite prospect of the establishment of a labor farm, to differ from those already in operation by dealing with whole families instead of men exclusively. The report for the next year speaks of the establishment of this farm as probable in the near future. A more definite report is furnished of an interesting undertaking that has proved successful, viz, the training of city boys for farm life, which work has grown steadily and achieved a degree of usefulness that has commended it to employers. The demand for boys so trained exceeds the supply at

better rates of wages than boys of like age could obtain in factory or shop employment. The scheme included originally a trial month at a labor depot near Sydney. After this probationary period those who gave promise of suitability were taken to a general farm and instructed for two months in the various forms of farm work and dairying. Experience showed the advisability of omitting the trial month and devoting the entire three months to practical instruction. During the first year 90 boys were trained, of whom 42 were sent directly to farms, while during the year 1908 of the 105 boys who were on the training farm 16 remained at the end of the year and 60 had been placed on farms. About 50 others of the nearly 200 so trained also engaged in farming pursuits after leaving the training farm. Only 16 of the total number have shown themselves unsuitable or unwilling. The director is desirous of extending his facilities and operations in this particular direction.

A practical result of the methods in use by the bureau is shown in connection with the free distribution of food to the families of the unemployed, this form of relief having been transferred in 1905 from the government's department of charities to the state labor bureau. During the year prior to the transfer free rations were issued to the value of £1,096 7s. 6d. (\$5,335.51), while for the first year under the bureau the expenditure fell to £890 12s. 7d. (\$4,334.25), to £496 3s. 3d. (\$2,414.57) in 1907, and to £247 16s. 8d. (\$1,206.08) in 1908. These results are due in good degree to improved industrial conditions, but also in fair measure to the readiness with which employment of some sort is provided by the bureau, affording immediate work for the applicant and immediate food for his family.

The advancement of railroad fares to men seeking work, usually on the guaranty of some third party, called for an outlay of £2,011 3s. 9d. (\$9,787.44) in 1906-7 and of £1,464 13s. 4d. (\$7,127.80) in 1907-8. Repayments of advances were made for these and previous years. The amounts refunded for the years 1906-7 and 1907-8 were £2,544 15s. (\$12,384.03) and £1,544 18s. 11d. (\$7,518.48), respectively. Eight years of operations of this nature show total expenditures of £16,821 5s. 4d. (\$81,860.69) and refunds amounting to £15,317 7s. 9d. (\$74,542.07), the outstanding balance being only £1,503 17s. 7d. (\$7,318.63).

The balances shown by the farm operations are indicative of efficient management. The casual labor farm of 2,150 acres of "poor and hungry soil," of which but 225 acres are under cultivation, paid an excess of returns over running expenses and improvements, while the labor depot and refuge, situated near the city of Sydney and worked largely by very short-term labor, paid nearly 70 per cent of its running expenses. In both cases capital costs and returns thereon are not considered. Foremen, leading hands, and

artisans, as blacksmiths and carpenters, are found among the applicants for labor, so that usually no employees are retained except a manager for each farm.

Registration at the employment bureaus has been maintained by the Government under practically the present system since 1900, and the following table shows the number of registrations, reregistrations, and total registrations for the year, for a period of eight years:

REGISTRATION OF APPLICANTS FOR EMPLOYMENT AT THE STATE LABOR BUREAU, NEW SOUTH WALES, BY YEARS, 1900 TO 1908.

Year.	Reregistrations.	New registrations.	Total registrations for the year.
1900-1901.....	6,343	3,099	9,442
1901-2.....	1,391	2,243	3,634
1902-3.....	740	2,114	2,854
1903-4.....	2,513	1,482	3,995
1904-5.....	885	998	1,883
1905-6.....	361	1,257	1,618
1906-7.....	249	2,316	2,565
1907-8.....	187	2,839	3,026

A summary of the operations of the employment bureaus shows the registration of 2,565 applications for employment during the year 1906-7 at the central office, and 3,639 persons sent to work; but 24 persons were registered in the branch offices, all of whom were sent to work. Only 307 persons were sent to government work, as against 1,737 sent to private work. Of this latter group 1,647 were sent to the country as shed and station hands (277), laborers (243), rabbiters (169), miners (143), clearers (107), and for other employments, mainly agricultural and pastoral, in smaller numbers. There were 1,285 persons sent to the labor depot, mostly for but a few days each, and 298 to the casual labor farm.

In the year 1907-8 the number of persons registered was 3,026, to which were added 1,001 registrations from old lists, making a total on the books during the year of 4,027 registrations in the main office, of which number of persons registered 3,237 were sent to work; 37 persons were registered at the branch offices and 24 were put to work. Of the total number of persons sent to work 354 went to government work and 1,785 to private employment, while the labor depot near Sydney and the casual labor farm received 785 and 337 men, respectively. The city and suburbs received 188 men and the country, 1,573. The nature of the employments of the country laborers does not vary greatly from that for the previous year, except that the number of laborers is given at 422 as against 243 in 1907, and of rabbiters at 52 as against 169 in the earlier period.

## NORWAY.

*Arbeids- og Lønningsforhold for Syersker i Kristiania, tilligemed Oplysninger angaaende Lønninger i andre kvindelige Erhverv i Norge.*  
Udgivet af det statistiske Centralbureau. 1906. 165 pp.

This volume is the fourth of a series of reports classed as social statistics produced by the Bureau of Statistics of Norway and presents data relative to the employment of women as seamstresses and in similar occupations in Christiania. There is first presented a brief account of the methods of the inquiry and of the development of female labor, especially as seamstresses. The extent and character of the investigation are next discussed, after which follow tables and text relative to the place of birth, occupations of parents, former employment, and apprenticeship of seamstresses; earnings of seamstresses, under the three heads of factory employees, seamstresses working in families, and those working in their own homes; conjugal condition, state of health, hours of labor, cost of living, and changes in rates of earnings within the past twenty or thirty years. A comparison is also made between the earnings of seamstresses in Norway and those in other countries, data concerning conditions in Copenhagen, Stockholm, and Berlin being shown.

The second part of the volume presents the rates of earnings of working women in various industries in Norway, while in an appendix other subjects of especial interest in connection with female labor are discussed.

The census of 1900 showed that there were 31,435 working women in Norway employed in sewing and similar occupations, of whom approximately 14,500 were classed as urban. Of these 5,251 were in Christiania. The following table shows the number of working women employed in sewing, etc., in Christiania and in the entire Kingdom, by principal industries:

NUMBER OF WOMEN ENGAGED IN SEWING AND IN SIMILAR EMPLOYMENTS IN CHRISTIANIA AND IN NORWAY, BY INDUSTRIES, 1900.

	Christi- ania.	Norway.
Tailoresses (independent tradeswomen).....	11	2,015
Seamstresses (independent, in petty industries).....	2,435	20,566
Employees in factories making—		
Shoes, slippers, etc.....	45	249
Hats and caps, including storm hats, etc.....	135	222
Clothing and cloaks.....	305	494
Handworkers with—		
Tailors.....	262	1,369
Hat makers, etc.....	148	216
Glove makers.....	178	203
Shoemakers.....	176	436
Sewing women in petty industries working at—		
Sewing.....	1,523	5,455
Millinery.....	33	210
Total.....	5,251	31,435

The conjugal condition of the two largest groups ("seamstresses, independent, in petty industries" and "sewing women in petty industries working at sewing") shown in the above table for Christiania is given in the following table:

CONJUGAL CONDITION OF SEAMSTRESSES IN PETTY INDUSTRIES IN CHRISTIANIA CLASSIFIED BY AGE GROUPS, 1906.

Age group.	Number—				Total.
	Unmarried.	Married.	Widowed.	Not reported.	
15 and under 20 years.....	361	1			362
20 and under 25 years.....	921	17	7		945
25 and under 30 years.....	699	41	20		760
30 and under 35 years.....	439	54	29	2	524
35 and under 40 years.....	292	40	50		382
40 and under 45 years.....	205	46	61	2	314
45 and under 50 years.....	114	27	75		216
50 and under 55 years.....	95	12	73		180
55 and under 65 years.....	108	10	58	2	178
65 and under 75 years.....	42	6	31	1	80
75 and under 85 years.....	3				3
Age not reported.....	12		2		14
Total.....	3,291	a 254	b 406	7	3,958

a Including 19 women separated from their husbands.

b Including 18 divorced women.

The age group 20 and under 25 years is the largest, containing 23.9 per cent of the total number of seamstresses in the groups presented. Within these age limits also are found 28 per cent of all unmarried seamstresses, the numbers decreasing rapidly in the succeeding five-year periods. The largest number of married women is found in the group 30 and under 35, while for widows the maximum is not reached until at the ages 45 and under 50.

The present report presents data relative to but 525 of the seamstresses of Christiania, of whom 419 were unmarried, 66 married, and 40 widowed. A comparison of the percentages found within the various age groups reported by the census of 1900 with those considered in this report is shown in the following table:

SEAMSTRESSES IN CHRISTIANIA IN VARIOUS AGE GROUPS, BY PER CENT IN EACH AGE GROUP, CENSUS OF 1900 AND REPORT OF 1906.

Age group.	Per cent.	
	Census of 1900.	Report of 1906.
Under 25 years.....	33.0	32.0
25 and under 40 years.....	42.1	43.4
40 and under 55 years.....	17.9	21.9
55 years and over.....	7.6	2.7

From this table it appears that the proportions of working women as shown by the two reports are practically the same in the two larger groups, the proportion of middle-aged women being larger in the

number investigated by the present inquiry, while the proportion of older women, as shown by the report of 1906, does not come up to the standard shown by the census.

As to the place of birth of the 525 seamstresses considered in this volume, 25 per cent were born in Christiania, 18 per cent in other towns or cities, 47 per cent in rural districts, and 10 per cent were of foreign birth. As to the occupation of parents, 58.6 per cent were reported as laborers, 20.2 per cent were farmers, 12.6 per cent tradespeople, and 8.6 per cent were servants and employed persons not classed as laborers.

The question as to apprenticeship was answered by 376 persons, a period of three months being reported by 141 seamstresses, or 37.5 per cent of the total number reporting; 44 served less than three months, and 88 reported no apprenticeship; 52 served from three to six months' apprenticeship; 36 from six months to one year, while 15 served more than one year. Of this last group 7 were employed on men's clothing, as were also 12 of the 36 whose terms of apprenticeship ranged from six months to one year.

The following table shows for 256 seamstresses in factories and workshops the number earning the designated classified weekly rates of wages:

NUMBER OF SEAMSTRESSES IN FACTORIES AND WORKSHOPS, EMPLOYED IN CERTAIN INDUSTRIES, CLASSIFIED BY GROUPS OF WEEKLY EARNINGS.

Weekly earnings.	Number of seamstresses employed.									
	Women's clothing.	Men's clothing.	Cloak making.	Plain sewing.	Boys' clothing.	Hat and cap making.	Shoe stitching.	Glove making.	Military supplies.	Total.
3.00 kroner (\$0.804) and under.....			1							1
3.01 kroner (\$0.807) to 4.00 kroner (\$1.072).....	1			1						2
4.01 kroner (\$1.075) to 5.00 kroner (\$1.34).....	6	1	2	3						12
5.01 kroner (\$1.343) to 6.00 kroner (\$1.608).....	13	1	4	2				1		21
6.01 kroner (\$1.611) to 7.00 kroner (\$1.876).....	10	2	3	4		3	2			24
7.01 kroner (\$1.879) to 8.00 kroner (\$2.144).....	26	11	2	7		5	3	4		58
8.01 kroner (\$2.147) to 9.00 kroner (\$2.412).....	20	6	4	5	3	5	1	2		46
9.01 kroner (\$2.415) to 10.00 kroner (\$2.68).....	11	8	4	3	3	3	3	4	1	40
10.01 kroner (\$2.683) to 12.00 kroner (\$3.216).....	8	11	5	8	1		3	1	1	38
12.01 kroner (\$3.219) to 15.00 kroner (\$4.02).....	2	5	1	2			2			12
Over 15 kroner (\$4.02).....									2	2
Total employees.	97	45	26	35	7	16	14	12	4	256

The average weekly earnings of seamstresses employed in the various industries were reported as follows: In the making of women's clothing, 8.12 kroner (\$2.18); men's clothing, 8.78 kroner (\$2.62); boys' clothing, 9.60 kroner (\$2.57); cloaks, 8.35 kroner (\$2.24); hats and caps, 8.34 kroner (\$2.24); gloves, 8.75 kroner (\$2.35), and military supplies, 14 kroner (\$3.75); and in plain sewing, 8.72 kroner (\$2.34), and shoe stitching, 10 kroner (\$2.68). Total average weekly earnings, 8.80 kroner (\$2.36).

The largest number of employees considered in the above table are employed in the manufacture of women's clothing, in which also the average weekly earnings are lowest. The manufacture of men's clothing ranks next in the number of employees, with an average weekly wage rate considerably above the general average. The largest wage group is that earning from 7.01 to 8 kroner (\$1.879 to \$2.144) per week, this and the two next higher groups, or the range from 7.01 to 10 kroner (\$1.879 to \$2.680), containing 56.3 per cent of the total number of employees considered.

The ages of 255 of the 256 working women whose earnings are shown in the above table are known, and the next table shows for this number their distribution by age groups and the per cent in each age group receiving each classified rate of wages:

NUMBER AND AVERAGE WEEKLY EARNINGS OF SEAMSTRESSES, BY AGE GROUPS, AND PER CENT EARNING EACH CLASSIFIED WAGE.

Age group.	Number of seamstresses.	Average weekly earnings.	Per cent of seamstresses earning—			
			6.00 kroner (\$1.608) and under.	6.01 kroner (\$1.611) to 9.00 kroner (\$2.412).	9.01 kroner (\$2.415) to 12.00 kroner (\$3.216).	Over 12.00 kroner (\$3.216).
19 years and under.....	50	\$1.881	46.0	40.0	14.0	.....
20 to 29 years.....	148	2.396	6.8	55.8	33.3	4.1
30 to 39 years.....	41	2.667	4.9	43.9	39.0	12.2
40 to 49 years.....	13	2.613	6.3	37.5	37.5	18.7
50 to 59 years.....	3	3.128				
Total .....	255	2.358	14.2	49.6	30.7	5.5

The number of persons represented is too small to warrant very much weight being given to the showings of the above table. It appears, however, from the data given that nearly one-half the seamstresses of the youngest age group earn 6 kroner (\$1.608) and under per week, while the maximum number for each following age group is to be found in the higher wage groups. The proportion of employees receiving 9.01 kroner (\$2.415) and over weekly is 14 per cent for those under 20 years of age, 37.4 per cent for those from 20 to 29 years of age, 51.2 per cent for those from 30 to 39 years of age, and 56.2 per cent for those 40 to 59 years of age. Practically one-half (49.6 per cent) of the total number of employees considered earn from 6.01 to 9.00 kroner (\$1.611 to \$2.412) per week.

The average number of working days per annum of the 256 seamstresses in factories and workshops is given at 262, the average yearly earnings being 384 kroner (\$102.91). Shown by classified annual earnings, the largest number (101) earned from 301 kroner (\$80.67) to 400 kroner (\$107.20), the next largest groups being 68 persons earning from 401 kroner (\$107.47) to 500 kroner (\$134.00), and 45 persons earning from 201 kroner (\$53.87) to 300 kroner (\$80.40). But 28 seamstresses earned more than 500 kroner (\$134.00), while 14 earned 200 kroner (\$53.60) or less.

As to seamstresses working at home, the report shows that the average weekly earnings of 178 working alone were 8.41 kroner (\$2.254), 109, or 61.2 per cent of this class, earning from 7.01 kroner (\$1.879) to 12.00 kroner (\$3.216) per week.

The following table summarizes the data as to working time and average earnings for the different classes of seamstresses:

AVERAGE EARNINGS AND NUMBER OF DAYS WORKED BY SEAMSTRESSES.

Classification.	Number of seamstresses.	Average weekly earnings.	Days worked per year.	Average yearly earnings.
In factories, etc. ....	256	\$2.358	262	\$102.91
In families .....	30	3.589	291	156.78
At home, working alone .....	178	2.254	245	93.26
At home, with assistants .....	48	3.913	269	170.18
Total .....	512	2.538	257	103.08

There is little variation in the working time per year of the various classes here shown, though the average earnings vary considerably, seamstresses working at home with assistants having the largest income, those working in families ranking next.

The hours per day in factories and workshops were twelve for 116 of the 236 employees reported, only 6 working a longer time, thirteen hours being the longest day, while but 16 had a working day shorter than eleven hours. These periods include intervals for meals, etc., amounting to one and one-half hours for 147 employees, longer periods for 35 and shorter for 54 employees. Seamstresses in private families usually work from 8 a. m. to 8 p. m., with from one to two hours for rest and meals. The hours of those working at home are much more irregular, ranging from 10 to 17½ per day, including intervals for meals, etc. Of the 102 seamstresses of this class for whom report is made, 52 worked twelve hours and only 18 had a shorter day; 17 worked from thirteen to fourteen hours, while for 15 the working day exceeded fourteen hours. These numbers all include intervals for meals, etc.

A comparison of the earnings of 456 seamstresses in 1894 with those of 407 in 1904 shows an average increase of approximately 60 kroner (\$16.08) for the year.

## SWEDEN.

*Lifsmedel- och Bostadspriser i Sverige under åren 1904-1907.* Utgifven af K. Kommerskollegii Afdelning för Arbetsstatistik. 1909. 104 pp.

This report, issued by the Bureau of Labor Statistics of the Royal Board of Trade of Sweden, shows, for the years 1904 to 1907, the prices of the necessaries of life and of food animals and the rates of rent in the principal localities of the Kingdom. The report discusses generally and then more in detail the prices of food and of food animals, showing the general increase in prices during the period covered, and the effect of locality and seasons on prices; it also takes up the subjects of rents and of board in private families, and shows that rent and board have also increased. Tables occupy practically one-half the report, presenting in detail data for various articles of food and classes of food animals, as well as for lodgings of different sorts, by year and locality.

A summary table showing the average prices of the principal articles of food and of fuel, by years, for the Kingdom is given below:

AVERAGE PRICES OF PRINCIPAL ARTICLES OF FOOD AND OF FUEL, 1904 TO 1907.

Article.	Unit.	Average price in—				Increase from 1904 to 1907.	
		1904.	1905.	1906.	1907.	Amount.	Per cent. <sup>(a)</sup>
Milk, unskimmed.....	Quart.	\$0.033	\$0.033	\$0.036	\$0.036	\$0.003	7.7
Milk, skimmed.....	Quart.	.018	.018	.018	.018		
Butter, best.....	Pound	.250	.253	.269	.266	.016	6.3
Butter, second class.....	Pound	.225	.252	.244	.242	.017	7.6
Cheese, ordinary.....	Pound	.125	.130	.133	.141	.016	12.6
Oleomargarine, best.....	Pound	.181	.191	.193	.191	.010	5.4
Oleomargarine, cheapest.....	Pound	.122	.126	.131	.131	.009	8.0
Eggs.....	Dozen	.207	.214	.228	.241	.034	16.3
Potatoes.....	Peck		.137	.118	.137		
Peas, yellow.....	Pound	.033	.033	.032	.033		
Beans, brown.....	Pound	.049	.047	.047	.049		
Wheat flour.....	Pound	.033	.033	.033	.034	.001	3.7
Rye flour.....	Pound	.023	.023	.023	.024	.001	5.3
Rye flour, bolted.....	Pound	.028	.029	.029	.032	.004	13.0
Oatmeal.....	Pound	.038	.038	.038	.039	.001	3.2
Barley meal.....	Pound	.032	.030	.030	.032		
Rice flour, best.....	Pound		.069	.071	.072		
Rice flour, cheapest grade.....	Pound	.039	.039	.038	.039	.003	3.5
Rye bread, dry.....	Pound	.044	.043	.043	.045	.001	2.8
Rye bread, fresh, sweetened.....	Pound	.043	.041	.043	.043		
Rye bread, fresh, sour.....	Pound	.030	.030	.032	.032	.002	4.0
Wheat bread, dry.....	Pound	.777	.078	.079	.081	.004	6.3
Wheat bread, fresh.....	Pound		.051	.053	.056	.005	9.5
Beef, fresh, roasts, ordinary.....	Pound	.111	.108	.119	.129	.018	16.5
Beef, fresh, for boiling.....	Pound	.092	.090	.098	.108	.016	17.1
Veal, roasts.....	Pound	.124	.126	.141	.143	.019	15.7
Veal (suckling calves).....	Pound	.064	.064	.071	.078	.014	29.8
Mutton, roasts.....	Pound	.125	.123	.143	.152	.027	21.4
Pork, fresh.....	Pound	.128	.134	.154	.150	.022	17.1
Pork, salt, Swedish.....	Pound	.140	.142	.160	.159	.019	13.9
Pork, salt, American.....	Pound	.137	.137	.151	.152	.015	10.6
Fish, fresh, herrings.....	Pound	.038	.040	.041	.041	.003	9.7
Fish, fresh, small herrings.....	Pound	.051	.049	.050	.053	.002	4.8
Fish, fresh, plaice.....	Pound	.085	.086	.091	.097	.012	14.3
Fish, salt, herrings.....	Pound	.044	.046	.049	.050	.006	13.9
Fish, salt, small herrings.....	Pound	.029	.030	.032	.030	.001	4.2

<sup>a</sup> The per cents of increase shown in this column are based on the exact amounts shown in the original report and expressed in Swedish öre. An öre is equivalent to 0.268 cent.

<sup>b</sup> Increase from 1905 to 1907.

AVERAGE PRICES OF PRINCIPAL ARTICLES OF FOOD AND OF FUEL, 1904 TO 1907—  
Concluded.

Article.	Unit.	Average price in—				Increase from 1904 to 1907.	
		1904.	1905.	1906.	1907.	Amount.	Per cent. <sup>(a)</sup>
Fish, salt, cod.....	Pound.	\$0.062	\$0.066	\$0.068	\$0.072	\$0.010	15.7
Coffee, Brazilian.....	Pound.	.134	.140	.142	.141	.007	5.5
Sugar, lump.....	Pound.	.074	.084	.075	.075	.001	1.6
Petroleum, first quality.....	Quart.	.046	.041	.041	.041	5.005	b 11.1
Firewood, birch.....	Cord.	5.948	5.921	6.058	6.440	.492	8.3
Firewood, pine.....	Cord.	4.530	4.502	4.665	5.048	.518	11.4
Turf (fuel).....	Bushel	.....	.066	.066	.069	¢.003	¢ 4.3
Coal, anthracite.....	Bushel	.....	.304	.300	.335	¢.031	¢ 10.2
Coke, not crushed.....	Bushel	.....	.106	.100	.119	¢.013	¢ 12.5

<sup>a</sup> The per cents of increase shown in this column are based on the exact amounts shown in the original report and expressed in Swedish öre. An öre is equivalent to 0.268 cent.

<sup>b</sup> Decrease.

<sup>c</sup> Increase from 1905 to 1907.

Most of the articles enumerated in the above table show an advance in cost over the initial year for which reports are made, the only decrease being in the case of petroleum. The increase is most marked in the case of eggs and meats, though considerable advances are shown in the case of several other articles, as cheese, bolted rye flour, and fuel.

The same tendency is shown in the prices of food animals, which are reported for three principal localities and for various years, fat heifers selling in Stockholm at 44 öre per kilogram (5.35 cents per pound) in 1905, as against 56 öre per kilogram (6.81 cents per pound) in 1907. Good steers sold in the same market at 51 öre per kilogram (6.20 cents per pound) in 1906, and for 55 öre per kilogram (6.69 cents per pound) in 1907, while fat hogs weighing from 80 to 100 kilograms (176 to 220 pounds) brought 62 öre per kilogram (7.54 cents per pound) in 1905, 70 öre per kilogram (8.51 cents per pound) in 1906, and 67 öre per kilogram (8.15 cents per pound) in 1907.

Rentals also showed an increase during the period 1905 to 1907, the year 1904 not being considered in this connection in the report. Thus in 48 principal localities, the average cost of an apartment consisting of a single room was 85 kroner (\$22.78) per annum in 1905, 89 kroner (\$23.85) in 1906, and 91 kroner (\$24.39) in 1907. For a single room with kitchen the prices were 141 kroner (\$37.79), 148 kroner (\$39.66), and 150 kroner (\$40.20), respectively; while for two rooms with kitchen the prices were 235 kroner (\$62.98), 242 kroner (\$64.86), and 251 kroner (\$67.27), for the years named. These gains amount to a rate of increase of 7.1 per cent in the case of single rooms, 6.4 per cent for single rooms with kitchen, and 6.8 per cent for two rooms with kitchen.

Board and lodging for working people show practically the same rate of increase, or 7 per cent in the period, the average cost being 7.52 kroner (\$2.02) per week in 1905, 7.75 kroner (\$2.08) in 1906, and 8.05 kroner (\$2.16) in 1907.

## DECISIONS OF COURTS AFFECTING LABOR.

[Except in cases of special interest, the decisions here presented are restricted to those rendered by the federal courts and the higher courts of the States and Territories. Only material portions of such decisions are reproduced, introductory and explanatory matter being given in the words of the editor.]

### DECISIONS UNDER STATUTE LAW.

ASSIGNMENT OF WAGES—LIBERTY OF CONTRACT—CONSTITUTIONALITY OF STATUTE—WAGES AND SALARIES—POLICE POWER—*Massie v. Cessna*, *Supreme Court of Illinois*, 88 *Northeastern Reporter*, page 152.—This case came before the supreme court on appeal from the circuit court of Cook County on the question of the constitutionality of the statute of May 13, 1905, regulating the assignment of wages, income, or salaries. Harry J. Massie had secured a decree for an injunction against Cessna on the ground that the transactions in which Cessna had been engaged were in violation of the statute above named, from which decree an appeal was taken and a reversal secured. The act in question prohibits the assignment of wages or salaries of any person unless certain prescribed formalities are complied with, including acknowledgment in person before a justice of the peace and the joint acknowledgment of the assignor's wife or husband, as the case may be, where the assignor is a married person. Assignments to secure usurious debts are also made void by this law, and assignments covering more than six months' earnings are likewise void. The complainant, Massie, was an employee of a printing company, and for about twelve years had had dealings with the appellant, Cessna, during which time he had paid exorbitant and usurious rates of interest on money loaned to him and had been required, as a condition of securing such loans, to make assignments of his wages. These assignments, it was claimed, were in violation of the above law, as they had never been acknowledged in person either before a justice of the peace or any other official, and they were, furthermore, tainted with usury.

The appellant, Cessna, had threatened to bring suit to enforce the assignments against the complainant and his employer, and the petition included a prayer not only for an injunction against such proceedings, but also for the cancellation of all assignments now in the hands of Cessna and his agents.

Cessna based his appeal on the contention that the statute in question was unconstitutional and that it violated the provisions of the constitution of the State of Illinois, which provides that "no person shall be deprived of life, liberty, or property without due process of law." This question alone was passed upon by the court, and the statute in question was declared unconstitutional. The decree was reversed and the case remanded with directions to sustain Cessna's demurrer to the bill. The opinion of the court was delivered by Judge Scott and specially concurred in by Judges Vickers and Dunn, who held the statute unconstitutional, not only as drafted but void also if it were restricted to wage-earners only. From the opinion of Judge Scott the following is quoted:

The right to labor for and to render services to another, and the right to dispose of the compensation to be received for so doing, are property rights within the meaning of the language just quoted from the constitution. It is at once apparent upon an examination of this statute that it abridges the right of the man who earns a salary and the right of the man who earns wages to contract with reference thereto. Notwithstanding this fact, appellee contends that, the act in question is not prohibited by the constitution, for the reason that it is referable to the police power of the State. The laws which the legislature may enact in the exercise of that power are laws which have a tendency to promote the public comfort, health, safety, morals, or welfare, or which have a tendency to prevent some recognized evil or wrong. [Cases cited.]

It is urged: That wage-earners compose a class of inhabitants of the State who, when they desire to borrow money and secure the same by the assignment of their wages earned or to be earned, become victims of men engaged in the business of loaning money at usurious rates, who are commonly denominated "loan sharks"; that, when the wage-earner finds it necessary to borrow money upon such security, he is unable to deal with the money lender upon an even footing; that the latter is able to exact usury, and to practice various like wrongs and impositions upon him, by reason of his poverty and sometimes by reason of his improvidence; and that this creates a condition of affairs which the legislature may remedy by the exercise of the police power. While we think this evil exists, it is yet apparent, upon a careful examination of this statute, that it is too broad in its terms to be justified as an exercise of the police power for the purpose of mitigating or remedying the wrong at which it is aimed. It applies not only to wages, but also to salaries. "Wages," in its ordinary acceptation, has a less extensive meaning than "salary." "Wages" is usually restricted to sums paid as hire or reward to domestic or menial servants and to sums paid to artisans, mechanics, laborers, and others employed in various manual occupations, while "salary" has reference to the compensation of clerks, bookkeepers, other employees of like class, officers of corporations, and public officers. (2 Standard Dic., p. 1573; In re Stryker, 158 N. Y. 526, 53 N. E. 525, 70 Am. St. Rep. 489.)

This statute, in so far as it would tend to make effective the right of the wage-earner to receive the full benefit of the wages earned by him,

is like unto the statute which prefers laborers' and servants' claims in certain instances, like unto the statute which provides that no personal property shall be exempt from execution issued for the collection of the wages of any laborer or servant, and like unto the statute which provides that in a suit brought by "a mechanic, artisan, miner, laborer, or servant or employee" for his or her "wages" earned and due, the plaintiff may, under certain conditions recover, in addition to the wages, an attorney's fee for the prosecution of the suit. It is to be observed that these statutes all pertain to wages, and not salaries. The statute last above referred to is the act of June 1, 1889. (Hurd's Rev. St. 1908, p. 192, c. 13, § 13.) Its validity has been assailed upon the ground that it is special legislation, conferring a right upon persons therein specified to attorney's fees that was not given to other persons; but this court held that the enumeration, which is broad enough to include all wage-earners, and which includes none but wage-earners, is an enumeration of persons composing a class, upon which the right given by the statute might be conferred without violation of the constitution. (*Vogel v. Pekoc*, 157 Ill. 339, 42 N. E. 386, 30 L. R. A. 491.) We have recently referred to that case with approval. (*Manowsky v. Stephan*, 233 Ill. 409, 84 N. E. 365.) The reasoning of the *Vogel* case would seem to lead to the conclusion that wage-earners are the proper objects of legislation which would tend to protect them from the evil which this statute is designed to obviate. Such an act would not be rendered invalid by the fact that it placed reasonable regulations upon the right to assign wages to secure an indebtedness and prescribed a reasonable method to be pursued in making the assignment effective. It has been recently so held by the supreme court of Massachusetts in reference to the sections of a statute regulating the assignment of "wages." (*Mutual Loan Co. v. Martell* (filed January 6, 1909), 200 Mass. 482, 86 N. E. 916.) It is true that many persons who are salaried receive compensation not greater in amount, by the month or year, than the compensation received by many wage-earners. Whether a statute protecting a salary not greater in amount than a certain sum per week or month, or protecting a portion of a salary which portion is not greater than a certain sum per month or week, would be valid, is a question not here presented.

The statute now under consideration is invalid because it violates the provisions of our constitution which has been invoked by limiting the right of persons earning the higher salaries to assign or transfer their salaries in such manner as they see fit; there being nothing in the public policy of the State requiring or warranting such abridgment of their right, and nothing requiring or warranting a statute giving to such persons the benefit that might with entire propriety be given to wage-earners by an act in reference to the assignment of wages. The third section of this statute is unconstitutional for the further reason that it makes the assignment given as security for a loan tainted with usury void, while the law of the State makes no such provision with reference to other instruments or other conveyances given to secure usurious debts. We also point out the fact that it is extremely doubtful whether the act in its entirety could in any event be made effective in the city of Chicago, for the reason that it requires the assignment to be acknowledged before a justice of the peace in and for the township in which the assignor resides

and entered by such justice upon his docket; there being now no justices of the peace in that city and no law requiring the keeping of such a docket as that which the justice of the peace formerly kept.

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CONTRACTS OF EMPLOYMENT WITH INTENT TO DEFRAUD—REPAYMENT OF ADVANCES—CONSTRUCTION OF STATUTE—*Wells v. State, Court of Appeals of Georgia, 64 Southeastern Reporter, page 494.*—Jasper Wells was convicted in the city court of Reidsville of procuring money and supplies on a contract of employment, with intent to defraud. The act on which the proceeding was based provides punishment by fine or imprisonment for making a contract to render services with the intent of procuring money or other things of value and afterwards failing to perform the service, "to the loss and damage of the hirer."

The facts in the case appear in the opinion of the court, which was delivered by Judge Powell, reversing the judgment of the court below. The opinion follows:

The defendant was charged with cheating and swindling under the act of 1903 (Acts 1903, p. 90). The State's contention, supported by the testimony of the prosecutor, was that the defendant contracted with the prosecutor to work for him as an ordinary farm laborer at \$16 per month until he should pay and return to him the sum of \$30.85, which the prosecutor had paid to another person at the defendant's request; that in addition to paying this \$30.85 the defendant was to work on until he had repaid all advances that the prosecutor might make him in the meantime. The defendant went to work, and worked three months and six days, and then moved away. At the time he left the prosecutor's place the defendant still owed him the \$30.85, after crediting him with his wages, and also owed a balance of \$16.66 for supplies advanced to him pending the performance of the labor.

If we should hold that the act of 1903 covered such a transaction as this, no court having jurisdiction to do so would hesitate to declare the act unconstitutional and void, for its repugnancy to the Federal Constitution and the peonage statutes enacted thereunder, as well as for its repugnancy to our own state constitution. It has been held, too often to require the citation of any authority, that this statute is applicable only where the cheating and swindling has been accomplished through the fraudulent procurement of money, under a definite contract of employment. It may be that under the testimony in the record the contract between the prosecutor and the defendant as to the time of its beginning is definite enough; but when was it to end? The defendant was to work until he repaid not only the \$30.85, but also all further advances. After three months had elapsed, the defendant owed the \$30.85 and also \$16.66 more; and at this rate the defendant, though he were a young man at the beginning, and though he might live to the ripest old age, would go down to his grave with his contract still unperformed. Under every decision rendered by this court, and by the supreme court upon the application of this statute, the defendant is not guilty.

DISCHARGE OF EMPLOYEES—STATEMENT OF REASON FOR DISCHARGE—CONSTITUTIONALITY OF STATUTE—*Atchison, Topeka and Santa Fe Railway Company v. Brown, Supreme Court of Kansas, 102 Pacific Reporter, page 459.*—A. W. Brown had secured a judgment in the district court of Lyon County, against the company above named on account of its refusal to furnish a written statement of the cause of his discharge, as is required by section 2422 of the General Statutes of Kansas, 1901. The company brought the case before the supreme court on the question of the unconstitutionality of the law referred to and secured a reversal of the judgment of the lower court on the ground that the law was unconstitutional. The grounds on which this decision was based are set forth in the following extracts from the opinion of the court, as delivered by Judge Smith:

The statute required the employer, upon the request of a discharged employee, to furnish in writing the true cause or reason for such discharge. The railroad company did not meet this requirement. Its "service letter," as it is called, stated only that Brown was discharged "for cause." This is not a statement of "the cause" or of any cause.

It is also alleged that the service letter was issued in furtherance of a conspiracy existing between the defendant and other railroad companies to prevent employees of one company from getting employment in another company without the consent of the former employer. This claim is not supported by any evidence. "To constitute a conspiracy the purpose to be effected by it must be unlawful, either in respect of its nature or in respect of the means to be employed for its accomplishment." (People v. Willis, 24 Misc. Rep. 537, 54 N. Y. Supp. 129, 133; People v. Olson (Super. Buff.) 15 N. Y. Supp. 778, 779; Payne v. Western & Atlantic R. Co., 81 Tenn. (13 Lea) 507, 521, 49 Am. Rep. 666; 2 Words and Phrases Judicially Defined, 1460.) There was nothing in the evidence to show that there was an unlawful purpose contemplated, or that unlawful means were to be used. All that is shown, in substance, is that, upon Brown's application to two other railroad companies, request was made for his service letter when he informed the employment agent that he had worked for the defendant company, and that, upon the presentation of his letter, employment was refused him. Probably he could have secured employment only upon the presentation of a letter recommending him as a desirable employee, and that a letter stating the true cause of his discharge, which appears to have been sufficient in the mind of the employment agent of the defendant company to remove him from the employment, would not have availed him. If so, he was not damaged by the failure of the defendant to state the true cause of his discharge.

It may be said that if the law is valid the company need have no concern as to the effect of its compliance with the letter of the law. This leads us to the principal contention of the company that the law is unconstitutional; that it is repugnant to the eleventh section of the bill of rights of the State of Kansas, which provides that: "All persons may freely speak, write or publish their sentiments on all subjects, being responsible for the abuse of such right." It is also

contended that the law is repugnant to the fourteenth amendment to the Constitution of the United States, which provides: "No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property without due process of law." It has been conceded in argument that, in the absence of a contract of employment for a definite term, the master may discharge the servant for any reason or for no reason, and that the servant may quit his employment for any reason or for no reason. Such action on the part of the employer or the employee, where no obligation is violated, is as [an] essential element of liberty in action. Can one, then, be compelled to give a reason or cause for an action for which he may have no specific reason or cause except perhaps a mere whim or prejudice? Again, is not the freedom to remain silent, to neither write nor publish anything on a certain subject involved as an element in the guaranteed right to "freely speak, write or publish their sentiments on all subjects, being responsible for the abuse of such right?" It would seem that the liberty to remain silent is correlative to the freedom to speak. If one must speak, he can not be said to freely speak.

The statute in question, like its companion statute (chapter 120, page 226, Laws 1897), was the outgrowth of the financial and business depression preceding that session of the legislature. Employers sought to recoup their loss of incomes by scaling the wages of the employees, and laborers sought to resist the decrease in wages or to compel an advance by uniting in labor organizations. The remarks of the late Mr. Justice Greene in holding the provisions of chapter 120, Laws 1897, unconstitutional are equally applicable to the provisions of the law in question. An excerpt from the opinion in *Brick Co. v. Perry*, 69 Kans. 297, 76 Pac. 848, reads:

"Before approaching a discussion of the question, let us exclude any notion that the act in question is a police regulation. It will be observed that it does not affect the public welfare, health, safety, or morals of the community, or prevent the commission of any offense or other manifest evil. Where the object of the act can not be traced to the accomplishment of some one of these purposes, it is not a police regulation. Besides, the legislature has no power to impair or limit the reasonable and lawful exercise of a right guaranteed by the constitution, under the guise of a police regulation. It must also be remembered that the right which the plaintiff claimed was violated did not originate in contract, but was purely statutory. Therefore the determination of the question whether he has any remedy depends entirely upon the validity of this statute." When the relation of employer and employee has ceased by discharge or by quitting the employment, if the employee has been efficient and trustworthy, the employer may be under a moral obligation to benefit the employee by giving him a statement to that effect. On the other hand, if the employee has been inefficient or untrustworthy it may be the employer's moral duty to furnish a prospective employer, upon request, or perhaps without request, a statement of these facts; but the former employer is under no legal obligation so to do either to his ex-employee or to the prospective employer.

The public has no interest in the matter, and in neither case can such a duty be imposed as a police regulation, and the attempt by statute to impose the furnishing of such a statement is an interference with personal liberty.

The mere matter of time requisite to comply with the requirement of the statute is perhaps a matter of trifling consideration, yet, if the State may compel the sacrifice of a few minutes of the time of one person for another, may it not compel the sacrifice of a few days of time? Where and upon what principle shall the limit be placed? Again, if the employer can be compelled to state the true cause of discharge, it implies that he should state the facts as he understands them, and the facts may be in dispute and may be regarded by the employee as libelous. Litigation may result therefrom which might be a great burden to the employer, although successfully defended. We think the State can impose no such possible burden.

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EMPLOYERS' LIABILITY—ACTIONS FOR INJURIES CAUSING DEATH—RIGHTS OF NONRESIDENT ALIENS—TREATIES—*Fulco et al. v. Schwylkill Stone Co., United States Circuit Court of Appeals, Third Circuit, 169 Federal Reporter, page 98.*—This was an action in which the plaintiffs, residents of Italy and subjects of the King of Italy, sought to recover damages for the death of their son who was killed through the alleged negligence of the company named above in its quarry in Montgomery County, Pa. The right to recover damages for injuries resulting in death is granted in general terms by the acts of 1851 and 1855.

Section 18 of the Pennsylvania act of April 15, 1851 (P. L. 674), provides:

No action hereafter brought to recover damages for injuries to the person by negligence or default shall abate by reason of the death of the plaintiff; but the personal representatives of the deceased may be substituted as plaintiff, and prosecute the suit to final judgment and satisfaction.

Section 19 of the same act, among other things, provides:

Whenever death shall be occasioned by unlawful violence or negligence and no suit for damages be brought by the party injured during his or her life, the widow of any such deceased, or if there be no widow, the personal representatives may maintain an action for and recover damages for the death thus caused.

Section 1 of the Pennsylvania act of April 26, 1855 (P. L. 309), provides:

The persons entitled to recover damages for any injury causing death, shall be the husband, widow, children or parents of the deceased, and no other relatives, and the sum recovered shall go to them in the proportion they would have taken his or her estate in case of intestacy and that without liability to creditors.

The court held that nonresident aliens could not claim the benefits of these laws, nor were they aided by the provisions of the treaty between the United States and Italy. The opinion of the court was delivered by Judge Bradford and is for the most part as follows:

Actions in Pennsylvania to recover damages for injuries resulting in death, aside from the existing treaty of commerce and navigation between the United States and Italy, signed, ratified and proclaimed in 1871 (act Feb. 26, 1871, 17 Stat. 845) are governed by the above-quoted provisions. The treaty contains, among other things, the following provisions:

“Article III. The citizens of each of the high contracting parties shall receive, in the States and Territories of the other, the most constant protection and security for their persons and property, and shall enjoy in this respect the same rights and privileges as are or shall be granted to the natives on their submitting themselves to the conditions imposed upon the natives. \* \* \*”

“Article XXIII. The citizens of either party shall have free access to the courts of justice, in order to maintain and defend their own rights, without any other conditions, restrictions, or taxes than such as are imposed upon the natives. They shall therefore be free to employ, in defense of their rights, such advocates, solicitors, notaries, agents and factors, as they may judge proper, in all their trials at law; and such citizens or agents shall have free opportunity to be present at the decisions and sentences of the tribunals in all cases which may concern them, and likewise at the taking of all examinations and evidences which may be exhibited in the said trials.”

The foregoing articles are the only provisions of the treaty necessary for our consideration; for it is admitted on both sides, and we think properly, that if the right of action claimed by the plaintiffs exists by virtue of the treaty it must be derived from one or both of these two articles. But they nowhere create or undertake to create in subjects of Italy, not resident in the United States, new and substantial rights of person or property to be enforced in this country. So far as they concern rights of person or property of nonresident Italians their purpose plainly is limited to the prevention of invidious discriminations in favor of citizens of the United States and against subjects of Italy with respect to the enjoyment and enforcement in the United States of privileges and rights of person and property, arising and existing wholly independently of those provisions. Their essential nature so far as they relate to privileges and rights of person and property is antidiscriminative,—not creative; Article III providing, in substance, that the citizens or subjects of each of the two countries should receive in the other protection and security “for their persons and property,” and should “enjoy in this respect the same rights and privileges” as those of “the natives, on their submitting themselves to the conditions imposed upon the natives,” and Article XXIII providing, in substance, that the citizens or subjects of either party should have free access to the courts of justice “in order to maintain and defend their own rights, without any other conditions, restrictions, or taxes than such as are imposed upon the natives.” Both articles are predicated on the existence of privileges, rights or property on the part of the alien not created by or derived from those provisions, but constituting the subject-matter which it was their purpose

to protect and enforce. It is evident, therefore, that unless the plaintiffs, as nonresident aliens, are, under the statutes of Pennsylvania, and aside from the treaty, clothed with a right to recover damages resulting from the death of Vincenzo Fulco the judgment below must be affirmed. Whatever might be the views of the court on this point were it *res integra*, we feel bound by the decisions of the supreme court of Pennsylvania on the proper construction and effect of local statutes of that State to hold that no such right is vested in the plaintiffs. (*Deni v. Penna. R. Co.*, 181 Pa. 525, 37 Atl. 558, 59 Am. St. Rep. 676; *Maiorano v. Baltimore & O. R. Co.*, 216 Pa. 402, 65 Atl. 1077, 116 Am. St. Rep. 778; *Zeiger v. Pennsylvania R. Co.*, 158 Fed. 809, 86 C. C. A. 69; *Zeiger v. Pennsylvania R. Co.*, 151 Fed. 348.) The judgment below must be affirmed, with costs, and it is accordingly so ordered.

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EMPLOYERS' LIABILITY—ACTS OF FELLOW-SERVANTS—ASSUMPTION OF RISKS—CONSTRUCTION OF STATUTE—*St. Louis, Iron Mountain and Southern Railway Company v. Ledford*, *Supreme Court of Arkansas*, 119 *Southwestern Reporter*, page 1123.—This was an action to recover damages for injuries to the plaintiff, Ledford, caused by the act of a fellow-servant, Bolan, both being employees of the railway company named. Ledford was a call boy and Bolan a hostler, on whose engine Ledford voluntarily rode from the station to the roundhouse, and by whose reckless running of the engine he was injured. The case presents no point of special interest apart from the construction by the court of the fellow-servant act, and only that portion of the opinion is here reproduced which relates to this subject. On this point Judge McCulloch, speaking for the court, said:

Under the act of March 8, 1907 (Acts 1907, p. 162), the defendant is responsible to its servants for damages caused by the negligence of a fellow-servant. This statute reads as follows: "Section 1. That hereafter all railroad companies operating within this State, whether incorporated or not, and all corporations of every kind and character, and every company, whether incorporated or not, engaged in the mining of coal, who may employ agents, servants or employees, such agents, servants or employees being in the exercise of due care, shall be liable to respond in damages for injuries or death sustained by any such agent, employee or servant, resulting from the careless omission of duty or negligence of such employer, or which may result from the carelessness, omission of duty or negligence of any other agent, servant or employee of the said employer, in the same manner and to the same extent, as if the carelessness, omission of duty or negligence causing the injury or death was that of the employer." The hostler was known as a recklessly swift engine driver, and the evidence tended to show that plaintiff knew of this when he went on the engine to ride with him. It is therefore contended that with this information on the part of the plaintiff he is deemed to have assumed the risk, and error is assigned in the refusal of the court to give the following instruction: "(6) If you find that the plaintiff knew of the unfitnes or habitual reckless running of the hostler, Bolan, and with

full knowledge of this he boarded the engine to ride to the round-house, and as a result of the reckless or negligent running of Bolan the collision occurred and plaintiff was injured thereby, your verdict must be for the defendant." Prior to the enactment of the statute above quoted, the master was not responsible in law for injuries to a servant caused by the negligence of a fellow-servant unless he (the master) had failed to exercise ordinary care in the selection and employment of competent servants to work with the injured servant. The risk of dangers from negligent acts of fellow-servants was held to be the ordinary risks of service which each servant assumed. Risks of dangers arising from negligence of the master in employing incompetent or reckless servants could be assumed by a servant who took service or continued in service with knowledge and appreciation of the danger. [Cases cited.] In this respect the statute has wrought no change, for it does not undertake to deal with that subject at all. It merely makes the master responsible to a servant who while exercising due care for his own safety is injured by the negligent act of a fellow-servant, the same as if the negligence was that of the master. Now, the servant could, before the enactment of this statute, assume the risk of danger created by the negligent act or omission of the master, and was deemed to have done so when he became aware of the situation created by the negligence and appreciated the danger. We think that under the statute a servant who becomes aware of a dangerous situation created by the negligence of a fellow-servant and appreciates the danger must be held to have assumed the risk of such danger when he continues in the service with such knowledge and appreciation, for the negligence of the fellow-servant is by the statute made the same as that of the master so far as it affects the responsibility of the latter, and, if the risk of danger caused directly by negligence of the master can be assumed, no reason appears why risk of danger caused by negligence of the fellow-servant can not likewise be assumed.

But it is an altogether different question when we come to consider whether or not a servant by knowingly taking service or continuing in service with a careless fellow-servant must be deemed to have assumed the risk of all negligent acts or omissions of which such fellow-servant may thereafter be guilty. It would be absurd to say that a servant who takes or continues service with a master whom he knows to be habitually careless thereby assumes the risk of all danger arising from negligence of the master thereafter committed. The doctrine of assumed risk is based on contract; and a servant merely because he knows that his employer is habitually careless does not contract that the employer is to be absolved from responsibility for all future acts of negligence. Neither is he deemed since the enactment of the statute to have contracted to absolve the employer from responsibility for damages caused by future acts of negligence of a fellow-servant merely because he knows that the latter is habitually careless. Under the statute, the negligence of a fellow-servant is as before stated the same as that of the master, and must be tested by the same principles in determining whether or not the risk is assumed by an injured servant. The statute merely prevents as to certain classes of employers the application of the doctrine which treats a danger created by negligence of a fellow-servant as one of the ordinary risks of the service assumed by the servant. It abolishes the

doctrine of assumed risk to that extent, but no further, and makes the employer responsible to a servant for the negligence of a fellow-servant the same as if it had been the negligence of the master himself.

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**EMPLOYERS' LIABILITY—EMPLOYMENT OF CHILDREN—ASSUMPTION OF RISKS BY INFANT EMPLOYEES—***Alexander v. Carolina Mills, Supreme Court of South Carolina, 64 Southeastern Reporter, page 914.*—In this case damages had been allowed a minor employee, aged 13 years at the time of his injury, who was injured, it was alleged, by the negligence of his employer. The defendant company offered as defenses that the child was guilty of contributory negligence, and further, that he had assumed the risks of his employment. The judge ruled that the question of assumption of risks should not be regarded in the case, which ruling, among other points, was offered as error in the appeal.

The supreme court reversed the ruling of the trial judge on this point, and granted a new trial, as appears from the following excerpt from its opinion, as delivered by Judge Gary:

His honor, the presiding judge, charged the jury that the doctrine of assumption of risk had no application to the case. The appellant assigns error in this ruling. The cases of *Goodwin v. Columbia Mills Co.*, 80 S. C. 349, 61 S. E. 390, and *Shirley v. Furniture Co.*, 76 S. C. 452, 57 S. E. 178, 121 Am. St. Rep. 952, show that the ruling of his honor, the presiding judge, was erroneous.

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**EMPLOYERS' LIABILITY—EMPLOYMENT OF CHILDREN—ASSUMPTION OF RISKS BY INFANT EMPLOYEES—***Owens v. Laurens Cotton Mills, Supreme Court of South Carolina, 64 Southeastern Reporter, page 915.*—In this case damages had been allowed a minor employee, aged about 10 years at the time of her injury, who was injured, it was alleged, by the negligence of her employer. The defendant company offered as grounds for a nonsuit that the child had assumed the risks of her employment and that the injury was the result of the negligence of a fellow-servant. The trial judge refused a nonsuit on these grounds, whereupon an appeal was taken, in which his ruling was sustained. The portion of the opinion which relates to these points is reproduced below.

Judge Gary, speaking for the court, said:

The first question that will be considered is whether there was error in refusing the motion for nonsuit made on the ground that the testimony showed assumption of risk on the part of the plaintiff. Not only was the testimony conflicting, but the presumption is that an infant under 14 years of age is incapable of assuming risks of danger. Therefore his honor, the presiding judge, could not have

granted the nonsuit without invading the province of the jury. The exception raising this question is overruled.

The next question for consideration is whether the testimony showed that the plaintiff was injured as the result of negligence on the part of a fellow-servant. As the plaintiff was under 14 years of age, the presumption is that she could not assume the risk arising from the negligence of a fellow-servant.

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**EMPLOYERS' LIABILITY—FELLOW-SERVANTS—CONTRACTS WITH ASSOCIATIONS OF EMPLOYEES—***Edwards' Administrator v. Lam, Court of Appeals of Kentucky, 119 Southwestern Reporter, page 175.*—This case was before the court of appeals on a petition for a rehearing. In the former trial the judgment had been in favor of the employing company on the question of its liability for injuries received by an employee on account of insufficient ventilation. The phase of the question relating to mine inspection is of no special interest, but a defense was offered in which was presented the question of the effect of a contract between the operator of a mine and an organization of employees, on the subject of employers' liability. The effect of such a contract is discussed in the opinion of the court as delivered by Judge O'Rear, and this portion of the opinion is reproduced herewith:

In the transcript of the evidence in this case it appears that a contract between appellee and the local organization of the United Mine Workers of America at the place where appellee's mine is located was admitted to the jury in evidence. But the transcript does not contain this contract. In that way the import of that agreement escaped attracting the notice that its importance as bearing on the case might justify. It is said that the contract was to this effect: The miners in appellee's service, all of whom were members of the local organization or lodge, were to employ a man to "shoot the mines;" that no one was to be allowed to "shoot out of turn;" that, in short, the control of that part of the operations in the mine relative to the time and manner of shooting down the coal was to be exclusively within the hands of the miners themselves. Conceded that the contract was of such import, we think it materially affects the law of the case. Obviously there is not a liability on the mine owner as to negligence in failing to control the time and manner of shooting in the mines when, by an agreement between the mine owner on the one side and all the miners on the other, the former had not the duty or right to control the matter at all, but it was controlled by the men themselves. The duty of the mine owner, independent of statutory regulation, and that primary duty to furnish a reasonably safe place in which to work, and tools with which to work, may vary according to the contract between him and his laborers. If the latter do not choose to rely upon the former's judgment and skill in certain features of the work, but prefer to rely upon the prudence of their own members, who are presumably skilled in such work, and whose presence they also in a manner control by requiring that they should be admitted from their union, we perceive no reason why they may not. When

the master divides his men into grades, putting one over another, or one not connected with another in the same service, he takes away from the men something of that personal supervision of one over another in a common employment which constitutes them fellow-servants. On the other hand, if the employer and laborers all agree that the latter are to be of the same or a common grade, and shall have control themselves of certain features in the work, designed for their better protection, we are unable to see wherein the arrangement is illegal, so long as the public policy and the statutes are not violated. If then Edwards was in truth a member of that organization; if the contract between appellee and the miners left it to the latter to do their own shooting, or to employ another to do it for them, then all miners who were parties to the agreement, or who entered under it, were fellow-servants, each looking to the common interest shared by them all rather than to the master for protection against carelessness on the part of his fellows, though they were in different rooms or passages and not directly associated in their work. This, however, could not affect the master's duty to provide the ventilation and other safeguards prescribed by the statute set out in the original opinion in this case. In the event there was such a contract as suggested, the negligence of the shot firer, or of the men themselves in firing the shots, is that of a fellow-servant, for which the law does not allow a recovery against the master. It was appellee's theory that such was the cause of the fatal explosion. As there was evidence to support its contention, it ought to have been submitted to the jury under appropriate instructions, as was done under No. 2, as given by the trial court, except that the court should have left it to the jury to find whether the men were working under that contract and rules promulgated in accord with it. Instruction 2, as directed in the original opinion, should also be given; but, in view of this contract, it should be predicated upon the jury's finding that the miners were not working under the union contract or agreement.

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EMPLOYERS' LIABILITY—RAILROAD HAZARDS—CONSTRUCTION OF STATUTE—ELEMENT OF HASTE—*Hanson v. Northern Pacific Railway Company, Supreme Court of Minnesota, 121 Northwestern Reporter, page 607.*—This case was before the supreme court on an appeal from the district court of Becker County. On trial Louie Hanson had secured a judgment for damages against the employing company for injuries received while in its service, and the company appealed. Hanson was a section man and had been ordered by his foreman to join a crew to go to the scene of a wreck for the purpose of clearing the track and removing the merchandise of the wrecked train. One of the freight cars of the wrecked train was loaded with rolls of carpet. Hanson was at work in a box car into which the rolls of carpet were being loaded and had been at work all night and the following day until about 7 o'clock in the evening. While engaged in piling the rolls of carpet in tiers in the car, where it was entirely dark, one of the rolls weighing about 75 pounds was negli-

gently thrown into the car by the men who were engaged with Hanson, striking him on the leg and causing the injuries complained of. The point at issue was as to the nature of the employment, i. e., whether it involved railroad hazards within the meaning of section 2042, Revised Laws of 1905. The question also, as to the effect of the necessity for haste on the actions of employees was discussed. The opinion of the court was delivered by Judge Lewis, who, having stated the above facts, said:

The court submitted the case to the jury to determine whether the men were engaged in a work peculiar to the operation of railroads and whether appellant's servants were guilty of negligence in handling the carpet. A verdict was returned for respondent, and on this appeal the court is asked to decide that it conclusively appears that the work in which respondent was engaged was not a railroad hazard. The argument in support of this position is based mainly on the following cases: *Lavallee v. St. P. M. & M. Ry. Co.*, 40 Minn. 249, 41 N. W. 974; *Johnson v. St. P. & D. R. Co.*, 43 Minn. 222, 45 N. W. 156, 8 L. R. A. 419; *Pearson v. C., M. & St. P. Ry. Co.*, 47 Minn. 9, 49 N. W. 302; *Holtz v. G. N. Ry. Co.*, 69 Minn. 524, 72 N. W. 805; *Weisel v. E. Ry. Co.*, 79 Minn. 245, 82 N. W. 576; *Jemming v. G. N. Ry. Co.*, 96 Minn. 302, 104 N. W. 1079, 1 L. R. A. (N. S.) 696. Most of these cases have been reviewed, but it will be necessary to briefly refer to them, and to some other decisions, in order to distinguish the principle which has guided the court in dealing with this troublesome question. In the *Lavallee* case, a smokestack fell from a locomotive standing still in the repair shops and struck a helper, who at that time was engaged in picking up rubbish. In the *Johnson* case the plaintiff was injured while working on a drawbridge by the closing of the bridge through the action of the wind. In the *Pearson* case, a crew of section men, including *Pearson*, were engaged in loading railroad iron from the ground to a flat car, when one of the crew negligently let one of the iron rails fall on *Pearson's* arm. The *Weisel* case was decided upon the ground that the tender was standing still at the time a chunk of coal fell from it, and that the cause of the fall was not traceable to any act connected with the operation of the railroad. In the *Jemming* case it was said: "It (the danger) was such as is incidental to the management of all machinery, and the accident would have been as liable to occur had the steam shovel been operated by parties not in the employ of a railway company in excavating for a canal or for the foundation of a building. It was a hazard connected with the operation of a steam shovel, and the mere fact that the shovel belonged to a railway company, and was being operated by its employees, did not change its nature." In all of these cases it was held that the work in which the injured party was engaged did not constitute any part of the operation of the railroad.

In the following cases the work was considered to be fairly a part of the operation of the road: *Smith v. St. P. & D. R. Co.*, 44 Minn. 17, 46 N. W. 149, and *Steffenson v. C., M. & St. P. Ry. Co.*, 45 Minn. 355, 47 N. W. 1068, 11 L. R. A. 271, were hand car cases, where plaintiffs were injured while engaged in operating the cars on the track. In *Nichols v. C., M. & St. P. Ry. Co.*, 60 Minn. 319, 62 N. W.

386, the employees of the company were engaged in straightening out a wire cable by attaching one end to a switch and the other to an engine on the track. In *Mikkelson v. Truesdale*, 63 Minn. 137, 65 N. W. 260, the Nichols case was approved and followed, and it was declared that an injury which occurred to a locomotive wiper in a roundhouse, caused by the negligent moving of the engine, was a railroad hazard.

For the first time a new feature, called the "element of haste," was developed in *Bloomquist v. G. N. Ry. Co.*, 65 Minn. 69, 67 N. W. 804. In that case the section men, including Bloomquist, were engaged in taking a heavy iron rail from the main track for the purpose of putting in new ties. They were required to do this work hastily in order to get the track ready for trains. The rail was negligently dropped by one of the men, and the court said: "\* \* \* Plaintiff's employment involved an element of hazard or condition of danger peculiar to the railroad business, and intimately connected with and growing out of the operation of the road, to wit, that he was engaged in repairing the track upon which trains were operated, and that, in view of that fact, in order to avoid danger to the trains that were or might be approaching. \* \* \* ." The next case in which the element of haste was considered is *Anderson v. G. N. Ry. Co.*, 74 Minn. 432, 77 N. W. 240. There the men were engaged in repairing a portion of the roadbed, and a track jack was released without warning, which permitted a part of the track to fall upon the plaintiff. The element of haste was considered applicable on account of getting out of the way of trains, and it was deemed a question of fact whether the work was or was not a railroad hazard. The same question was involved in the case of *Kreuzer v. G. N. Ry. Co.*, 83 Minn. 385, 86 N. W. 413, the Bloomquist and Anderson cases were followed, and it was held to be a question of fact whether the work of removing a wrecked car from the main track was a hazard peculiar to railroads. The same principle was somewhat extended in the case of *Tay v. Wilmar and Sioux Falls Ry. Co.*, 100 Minn. 131, 110 N. W. 433, where the work was repairing a side track. The plaintiff was injured while engaged in taking out an old rail and putting in a new one. The foreman stated that it was necessary to hasten the repairs on account of the expected arrival of a freight and a passenger train. Referring to the Bloomquist, Anderson, and Kreuzer cases, the court considered it a question of fact whether the hazard was one peculiar to railroads.

It will be observed from these various decisions that no effort was made in some of the earlier cases to specify what work the court considered within the term "operation of a railroad." It might be fairly inferred from the Lavalley, the Johnson, the Smith and the Steffenson decisions that the court intended to limit the application of the doctrine to the movement of cars, engines, or trains in actual traffic. But, thus limited, the rule is not broad enough to include the Nichols and Mikkelson cases, and the later cases where the men were engaged in repairing some portion of the track. The movement of an engine in straightening a cable on a railroad track, or the movement of an engine in a roundhouse, is not the employment of such instrumentalities in the operation of transporting freight or passengers, and the work of repairing a bridge upon the line of road where trains are run is not connected with the operation of the road,

unless the work is being conducted under circumstances amounting to an emergency. The distinction is not in the character of the work, but in the manner in which it is conducted. Where the same class of work may naturally be carried on at any other place by the employees of any other master, and there is nothing intimately connecting the work with the movement of engines, cars, or trains, then the dangers peculiar to railroading are absent. But if the work is being conducted with reference to the movement of engines or cars, then an element of danger is introduced not common to other employments, but peculiar to railroading. It is not essential that the wreckage to be removed should be on the main track, as in the Kreuzer case. The work of repairing is not necessarily confined to side tracks where the arrival of a train is expected, as in the Tay case. Without attempting to formulate a rule for all cases, it may be said that a railroad hazard exists when the work engaged in is so intimately connected with the movement of engines, cars, and trains as to render the work more dangerous for that reason.

In the case before us, through traffic was not interrupted, and the main track was clear of the wreck; but the men were at work in the railroad yard under unusual circumstances. They had worked all night and the following day until 7 o'clock in the evening. It was after the usual hours, and getting dark. It was necessary to get the yards clear of the wreck for the switching and movement of trains in the railroad business, and the men were taken away from their usual employment and directed to this specific work for the express purpose of rapidly relieving the situation. There is reasonable ground for the conclusion that the accident was attributable to the haste with which the men were urged, and the inference is permissible that the work engaged in was a railroad hazard.

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TRADE AGREEMENTS—MONOPOLIES—CONSPIRACY—DEFINITION—STATUTES—MOTIVE AND OBJECT OF COMBINATIONS—*National Fireproofing Co. v. Mason Builders' Association, United States Circuit Court of Appeals, Second Circuit, 169 Federal Reporter, page 259.*—The National Fireproofing Company had sued for an injunction against the Mason Builders' Association and the bricklayers' unions of New York City, to prevent the carrying out of a contract between these two parties. The action was first brought in the circuit court of the southern district of New York, and on hearing the bill of complaint was dismissed (see 145 Federal Reporter, 260; Bulletin No. 68, page 224). The Mason Builders' Association is a corporation under the laws of the State of New York composed of master mason builders doing business in New York City, but representing less than half of the mason builders of that city. The bricklayers' unions who have joined together and who are united parties to the agreement above referred to are, with four exceptions, unincorporated. Their membership comprises practically all the bricklayers in the city of New York and Long Island. Further facts in the case were stated by the court as follows:

The agreement in question between the Mason Builders' Association and the bricklayers' unions is a biennial trade agreement covering the years 1906 and 1907 and relating to rates of wages, hours of labor, the settlement of differences by arbitration, and many other matters in the building trade affecting the interests of the parties. The particular clauses to which the complainant objects are the following:

"(5) The members of the Mason Builders' Association must include in their contracts for building all cutting of masonry, interior brickwork, the paving of brick floors, the installing of concrete blocks, the brickwork of the damp-proofing system and all fireproofing-floor arches, slabs, partitions, furring and roof blocks—and they shall not lump or sublet the installation, if the labor in connection therewith is bricklayers' work as recognized by the trade, the men employed upon the construction of the walls to be given the preference."

"(10) No members of these bricklayers' unions shall work for any one not complying with all the rules and regulations herein agreed to."

The first agreement between the builders' association and the unions was entered into in 1885 and provided only for rates of wages, hours of labor, and arbitration of differences. The agreements since that time have embraced the provisions of the original agreement and also a gradually increasing number of other important stipulations. Clause 5 in substance was inserted in the agreement of 1893 at the request of the unions and has been retained in subsequent agreements. Clause 10 was inserted in the agreement at the request of the association. The precise time when this was done does not appear, but the clause was in force before the complainant started business in the city of New York.

The work of installing tile fireproofing is considered to be bricklayers' work by the trade, and it would be impracticable for the complainant to undertake such work in the city of New York without employing members of the bricklayers' unions. Clause 10, however, provides that members of the unions shall only work for persons complying with all the rules and regulations of the agreement. Among them is clause 5, which provides that the work of installing fireproofing shall not be sublet by a contractor, but must be included in the contract for the building. It follows therefore that these two clauses operate to prevent the complainant from installing its fireproofing in New York City unless it takes the entire contract for erecting a building, which it is not authorized by its charter to do.

In actual operation, too, the clauses in question have prevented the complainant from carrying out contracts for the installation of fireproofing. Thus in 1903 the complainant had a contract with the George A. Fuller Company—a general contractor not a member of the builders' association—for installing fireproofing in a building which it was erecting under contract in New York City. The association notified the complainant that its agreement with the unions forbade building contractors subletting the installation of fireproofing, and subsequently all the bricklayers employed upon the building—including those engaged upon the fireproofing—struck. Consequently the complainant was obliged to cancel its contract. Other similar instances are shown in the testimony.

It is evident therefore that these clauses affect owners and general contractors as well as a person who, like the complainant, desires to take separate fireproofing contracts. An owner is practically unable

to make a contract for fireproofing alone because if he does the bricklayers will not only refuse to do that work, but will decline to do the other work upon the building. A general contractor, whether a member of the association or not, practically can not sublet the fireproofing because if he does he will violate clause 5, and the bricklayers will refuse to work for him.

The defendants claim that the object of clause 5 is to benefit the bricklayers by giving them inside as well as outside work and by preventing specialization in their trade. This subject is fully considered in the opinion.

The object of clause 10 is, obviously, to make the trade agreement effective by extending its operation to third persons requiring the labor of bricklayers. While members of the unions may work for others than members of the association, they can only work for such employers as follow the rules and regulations of the agreement. Should the complainant obtain the power to make general building contracts and enter into such contracts, it could then obtain the services of members of the unions in setting the fireproofing required. The complainant, however, does not wish to do business in this manner. It desires to take separate contracts for fireproofing installation and is prevented from so doing business by the operation of the clauses in question.

The opinion of the court was rendered by Judge Noyes and sustained the position of the court below. It involved the discussion of the power of such associations as those involved in this case to enter into mutual agreements, and the rights and remedies of third parties who might be affected by such agreements. The opinion is given in full.

In considering the legal questions arising in this case, it must be borne in mind at the outset that it is not sufficient to show that the agreement in question may create a monopoly, may be in restraint of trade, or may be opposed to public policy. Agreements of that nature are invalid and unenforceable. The law takes them as it finds them, and as it finds them leaves them; but they are not illegal in the sense of giving a right of action to third persons for injury sustained. (*Brown v. Jacobs' Pharmacy Co.*, 115 Ga. 433, 41 S. E. 553, 57 L. R. A. 547, 90 Am. St. Rep. 126.) And upon similar principles it seems equally clear that they afford such persons no ground for seeking an injunction against injury threatened.

But the complainant asserts that the agreement in this case is positively unlawful and not merely negatively invalid—that it contravenes both national and state statutes against combinations, and thus does give rights of action to injured persons. With respect to the federal statute, it is not obvious in what way a trade agreement between builders and bricklayers, relating to their work in the State of New York, can be said to directly affect interstate commerce; but the consideration of this question is not necessary because a person injured by a violation of the federal act can not sue for an injunction under it. The injunctive remedy is available to the Government only. An individual can only sue for threefold damages. [Cases cited.]

The statute of New York which it is claimed that the defendants violate provides in its first section as follows.

“Every contract, agreement, arrangement or combination, whereby a monopoly in the manufacture, production or sale in this State of any article or commodity of common use is or may be created, established or maintained, or whereby competition in this State in the supply or price of any such article or commodity is or may be restrained or prevented, or whereby, for the purpose of creating, establishing or maintaining a monopoly within this State of the manufacture, production or sale of any such article or commodity, the free pursuit in this State of any lawful business, trade or occupation, is or may be restricted or prevented, is hereby declared to be against public policy, illegal and void.” (Laws 1899, page 1514, chapter 690.)

The complainant says that the agreement in question violates this statute because it tends to create a monopoly in the hands of members of the association and other general contractors who comply with its provisions. It may well be doubted, however, whether a combination of employers and employees in the building trade could ever be for the purpose of creating a monopoly “in the manufacture, production or sale in this State of any article or commodity of common use.” Be that as it may, the thing which is essential to the existence of a monopoly—the concentration of business in the hands of a few—is not present here. The business of installing fireproofing in the city of New York is open to all who choose to engage in it under existing economic conditions. General contractors can not be said to have a monopoly when any person can be a general contractor. Members of the unions can not be said to be monopolists when any qualified bricklayer can join a union. Moreover, while it is probable under the New York decisions (*Rourke v. Elk Drug Co.*, 75 App. Div. 145, 77 N. Y. Supp. 373) that a person specially injured by a violation of this antimonopoly statute would have a right of action for damages, it seems, upon the principle of the cases cited with respect to the federal statute, that only the Attorney-General can sue for an injunction; such a suit being authorized by a section of the statute.

The complainant, thus failing to show any right to an injunction upon the ground that the agreement is contrary to public policy or in contravention of any state or national antitrust statute, can only establish that it is entitled to such relief by showing that the execution of the agreement amounted to a conspiracy, and that its enforcement threatens injury; and to ascertain whether the complainant has established this requires the examination of a most important phase of the law of conspiracies as affecting combinations of labor and combinations between labor and capital.

A “conspiracy” may be broadly defined as a combination to effect an illegal object as an end or means. And a “civil conspiracy,” which we are considering, may be defined as a combination of two or more persons to accomplish by concerted action an unlawful or oppressive object; or a lawful object by unlawful or oppressive means. To sustain an action, damage must have resulted from the combination; to warrant an injunction, damage must be threatened.

And so the inquiry is: (1) Was the object of the agreement unlawful or oppressive? (2) If the object were lawful and free from oppression, were the means unlawful or oppressive?

The direct object or purpose of a combination furnishes the primary test of its legality. It is not every injury inflicted upon third persons in its operation that renders a combination unlawful. It is not enough

to establish illegality in an agreement between certain persons to show that it works harm to others. An agreement entered into for the primary purpose of promoting the interests of the parties is not rendered illegal by the fact that it may incidentally injure third persons. Conversely, an agreement entered into for the primary purpose of injuring another is not rendered legal by the fact that it may incidentally benefit the parties. As a general rule it may be stated that, when the chief object of a combination is to injure or oppress third persons, it is a conspiracy; but that when such injury or oppression is merely incidental to the carrying out of a lawful purpose, it is not a conspiracy. Stated in another way: A combination entered into for the real malicious purpose of injuring a third person in his business or property may amount to a conspiracy and furnish a ground of action for the damages sustained, or call for an injunction, even though formed for the ostensible purpose of benefiting its members and actually operating to some extent to their advantage; but a combination without such ulterior oppressive object, entered into merely for the purpose of promoting by lawful means the common interests of its members, is not a conspiracy. A laborer, as well as a builder, trader, or manufacturer, has the right to conduct his affairs in any lawful manner, even though he may thereby injure others. So several laborers and builders may combine for mutual advantage, and, so long as the motive is not malicious, the object not unlawful, nor oppressive and the means neither deceitful nor fraudulent, the result is not a conspiracy, although it may necessarily work injury to other persons. The damage to such persons may be serious—it may even extend to their ruin—but if it is inflicted by a combination in the legitimate pursuit of its own affairs, it is *damnum absque injuria*. The damage is present, but the unlawful object is absent. And so the essential question must always be whether the object of a combination is to do harm to others or to exercise the rights of the parties for their own benefit.

These principles are well settled by the leading cases upon conspiracies. Thus in the celebrated case of *Mogul Steamship Co. v. McGregor*, L. R. 21 Q. B. 552, Lord Chief Justice Coleridge said:

“I do not doubt the acts done by the defendants here, if done wrongfully and maliciously, or if done in furtherance of a wrongful and malicious combination, would be ground for an action on the case at the suit of one who has suffered injury from them. The question comes at last to this: What was the character of those acts, and what was the motive of the defendants in doing them?”

And when the *Mogul Steamship* case came to the House of Lords (L. R. [1892] App. Cas. 25, 58), Lord Hannen said:

“The question, however, raised for our consideration in this case is whether a person who has suffered loss in his business by the joint action of those who have entered into such an agreement can recover damages from them for the injury so sustained. In considering this question, it is necessary to determine upon the evidence what was the object of the agreement between the defendants and what were the means by which they sought to attain that object. It appears to me that their object was to secure to themselves the benefit of the carrying trade from certain points. \* \* \* I consider that a different case would have arisen if the evidence had shown that the object of the defendants was a malicious one, namely, to injure the plaintiff whether they (the defendants) should be benefited or not.”

The cases relating particularly to combinations of labor also state the same doctrine. Thus in *National Protective Ass'n v. Cumming*, 170 N. Y. 315, 328, 63 N. E. 369, 372 [Bulletin No. 42, p. 1118], Chief Judge Parker said:

"It is only where the sole purpose is to do injury to another, or the act is promoted by malice, that it is insisted that the act becomes illegal. No such motive is alleged in that finding. It is not hinted at. On the contrary, the motive which always underlies competition is asserted to have been the animating one."

And in the concurring opinion in the same case, Judge Gray said:

"The struggle on the part of individuals to prefer themselves, and to prevent the work which they are fitted to do from being given to others, may be keen and may have unhappy results in individual cases; but the law is not concerned with such results, when not caused by illegal means or acts."

In *Jacobs v. Cohen*, 183 N. Y. 207, 211, 76 N. E. 5, 7 [Bulletin No. 64, page 896], Judge Gray also said:

"Nor does the answer aver that it was intended thereby to injure other workmen; or that it was made with a malicious motive to coerce any to their injury, through their threatened deprivation of all opportunity of pursuing their lawful avocation."

In the same case the judge further said regarding the agreement there in question:

"That, incidentally, it might result in the discharge of some of those employed, for failure to come into affiliation with their fellow-workmen's organization, or that it might prevent others from being engaged upon the work, is neither something of which the employers may complain, nor something with which public policy is concerned."

In *Mills v. United States Printing Co.*, 99 App. Div. 605, 612, 91 N. Y. Supp. 185, 190, another New York case, the court said:

"There is a manifest distinction, well recognized, between a combination of workmen to secure the exclusive employment of its members by a refusal to work with none other, and a combination whose primary object is to procure the discharge of an outsider and his deprivation of all employment. In the first case, the action of the combination is primarily for the betterment of its fellow-members. In the second case, such action is primarily 'to impoverish and to crush another' by making it impossible for him to work there, or, so far as may be possible, anywhere. The difference is between combination for welfare of self and that for the persecution of another. The primary purpose of one may necessarily but incidentally require the discharge of an outsider; the primary purpose of the other is such discharge and, so far as possible, an exclusion from all labor in his calling. Self-protection may cause incidental injury to another. Self-protection does not aim at malevolent injury to another."

In *Vegeahn v. Guntner*, 167 Mass. 92, 98, 44 N. E. 1077 [Bulletin No. 9, page 197], Justice Allen said:

"A combination among persons merely to regulate their own conduct is within allowable competition and is lawful, although others may be indirectly affected thereby; but a combination to do injurious acts, expressly directed to another, by way of intimidation or restraint either of himself or of other persons employed or seeking to be employed by him, is outside of allowable competition and is unlawful."

In *Allis-Chalmers Co. v. Iron Molders' Union* (C. C.) 150 Fed. 155 [Bulletin No. 70, page 734], Judge Sanborn said:

"The conclusion to be drawn from the cases, as applicable to this controversy, is, I think, that the combination of the defendant unions, their members and the defendant O'Leary, to strike, and further to enforce the strike and if possible to bring the employers to terms by preventing them from obtaining other workmen to replace the strikers, was not unlawful, because grounded on just cause or excuse, being the economic advancement of the union molders, and the competition of labor against capital."

In *Allen v. Flood*, L. R. (1898) App. Cas. 1, 164, Lord Shand said:

"Their object was to benefit themselves in their own business as working boiler makers, and to prevent a recurrence in the future of what they considered an improper invasion on their special department of work. How this could possibly be regarded as 'malicious,' even in any secondary sense that can reasonably be attributed to that term, I can not see."

In *Quinn v. Leatham*, L. R. (1901) App. Cas. 495, Lord Shand, in speaking of *Allen v. Flood*, supra, said:

"In that case I expressed my opinion that while combination of different persons in pursuit of a trade object was lawful, although resulting in such injury to others as may be caused by legitimate competition in labor, yet that combination for no such object, but in pursuit merely of a malicious purpose to injure another, would be clearly unlawful; and having considered the arguments in this case, my opinion has only been confirmed."

The principal case relied upon by the complainant (*Curran v. Galen*, 152 N. Y. 33, 46 N. E. 297 [Bulletin No. 11, page 529]) when analyzed will not be found to conflict with the principles just stated. It was held in that case, in substance, that if the prime purpose of a combination of workmen is to restrict the citizen in pursuing his lawful calling and through contracts with employers to coerce other workmen to become members of the combination, such purpose is against public policy and renders the combination unlawful, notwithstanding it may possess other features of advantage to its members. As said by the court in its opinion:

"Public policy and the interests of society favor the utmost freedom in the citizen to pursue his lawful trade or calling, and if the purpose of an organization or combination of workmen be to hamper, or to restrict, that freedom, and, through contracts or arrangements with employers, to coerce other workmen to become members of the organization and to come under its rules and conditions, under the penalty of the loss of their position, and of deprivation of employment, then that purpose seems clearly unlawful and militates against the spirit of our government and the nature of our institutions."

But the court went on to say that if the organization were for the purpose of promoting the general good of its members, it would not be invalid, and quoted with approval the instructions given to a jury in an English case (*Regina v. Rowlands*, 17 Ad. & Ellis [N. S.] 671):

"A combination for the purpose of injuring another is a combination of a different nature, directed personally against the party to be injured, and the law allowing them to combine for the purpose of ob-

taining a lawful benefit to themselves gives no sanction to combinations which have for their immediate purpose the hurt of another. The rights of workmen are conceded; but the exercise of free will and freedom of action, within the limits of the law, is also secured equally to the masters. The intention of the law is, at present, to allow either of them to follow the dictates of their own will, with respect to their own actions, and their own property, and either, I believe, has a right to study to promote his own advantage, or to combine with others to promote their own mutual advantage."

It is evident therefore that the combination in *Curran v. Galen* was condemned because its primary purpose was to coerce workmen to join it; any other objects being merely incidental. As said by Judge Martin in his dissenting opinion in the later case of *Park & Sons Co. v. National Druggists' Ass'n*, 175 N. Y. 40, 67 N. E. 750:

"As we have already seen, this court in *Curran v. Galen* unanimously held that a combination or association of workmen *whose purpose was to hamper or restrict the freedom of the citizen in pursuing his lawful trade or calling*, through contracts or arrangements with employers to coerce workmen to become members of the organization and to come under its rules and conditions under penalty of loss of their positions and of deprivation of employment, was against public policy and unlawful." (Italics ours.)

And in *National Protective Ass'n v. Cumming*, already referred to, Judge Gray said:

"The case is not within the principle of *Curran v. Galen*, 152 N. Y. 33, 46 N. E. 297, 37 L. R. A. 802, 57 Am. St. Rep. 496. Upon the facts of that case, as they were admitted by the demurrer to the complaint, the plaintiff was threatened, if he did not join a certain labor organization, and so long as he refused to do so, with such action as would result in his discharge from the employment and in an impossibility for him to obtain other employment anywhere, and, in consequence of continuing his refusal to join the organization, his discharge was procured through false and malicious reports, affecting his reputation with members of his trade and with employers. There is no such compulsion, or motive, manifest here. There is no malice found. There is no threat of a resort to illegal methods."

Applying the principles which we have thus far ascertained to the facts of the present case, do we find that the object of the defendants in entering into the agreement embracing the clauses in question was to injure the complainant or to benefit themselves?

The object of clause 10 manifestly was to make the stipulations of the agreement generally effective. The mason builders joining in the agreement being bound by its stipulations, it was necessary for their protection that competing outside builders should only employ bricklayers upon the same conditions. So it was for the advantage of the bricklayers themselves to have means for enforcing uniformity in terms of employment.

It also seems clear from the testimony that the object of clause 5 was to benefit the bricklayers. Certainly from their point of view substantial benefits accrue from preventing the installation of fire-proofing by separate contractors. Through the operation of this clause the men who do the exposed work secure the easier and safer inside work and more continuous employment than would otherwise be the case. The specialization of the bricklayers' trade through the

growth of a class of workmen who would devote themselves to setting fire brick and would, in the end, take all that work from the ordinary bricklayer, is prevented.

It is true that the complainant contends that these advantages are fanciful rather than real, and points out that much of the fireproofing is laid before the walls. Still it appears that a very large amount of fireproofing is done after the walls are completed, and the contention of the bricklayers that they obtain advantages through the operation of clause 5 in securing different kinds of work and steady employment seems well founded. The complainant also contends that there would be no danger of specialization in the bricklayers' trade should it take separate contracts for installing fireproofing, but the evidence does not support this contention. On the contrary, it indicates that the apprehensions of the bricklayers, as shown upon the record, are not without foundation.

Considering all the testimony, we are satisfied that the direct object of the adoption of the clauses in question was to benefit the parties and not to injure the complainant or other persons in a similar situation. Any particular or special intention to injure the complainant is, of course, negated by the fact that the clauses in question were inserted in the trade agreement between the parties long before the complainant undertook to do any business in the city of New York.

The object of the agreement being neither unlawful nor oppressive, the next inquiry is whether the means adopted to make it effective were unlawful or oppressive.

As indicated in the statement of facts, no threats or acts of intimidation except in connection with the enforcement of clause 5 are shown. Instances do appear, however, in which bricklayers struck and ceased to work because they claimed that work was being done in violation of this clause. So, statements were made by members of the builders' association and of the unions that the complainant would not be permitted to take separate contracts for the installation of fireproofing. It is unnecessary to review the acts of the defendants in detail. We are not satisfied that if the defendants or their representatives made threats, they threatened to do anything which they had no right to do. The object of the agreement was not unlawful. The defendants had the right to strike to secure its enforcement. They also had the right to notify the complainant and persons with whom it had dealings that it could not take contracts for the installation of fireproofing contrary to the terms of the agreement without incurring its penalties. But a threat to do that which a person has the right to do is not unlawful. In *National Protective Ass'n v. Cumming*, already referred to, the court said:

"They did not threaten to employ any illegal method to accomplish that result. They notified them of the purpose of the defendants to secure this work for themselves and to prevent McQueed and his associates from getting it, and in doing that they but informed them of their intention to do what they had a right to do, and when a man purposes to do something which he has a legal right to do, there is no law which prevents him from telling another who will be affected by his act of his intention."

And in *Park & Sons v. National Druggists' Ass'n*, it was also said:

"There are no threats alleged in this complaint on the part of defendants to do anything except that which they have a right to do,

if the views so far expressed be sound, and as we said in that case, and it is proper to repeat here, that a man may threaten to do that which the law says he may do, provided that, within the rule laid down in certain cases therein cited, his motive is to help himself."

It therefore follows that the defendants have not entered into a combination to accomplish an unlawful or oppressive object, or a lawful object by unlawful or oppressive means, and are not guilty of a common law conspiracy.

Finally, the complainant contends that the agreement amounts to a conspiracy under the Penal Code of the State of New York (section 168, subs. 5 and 6). But the principles applicable to conspiracies at common law, which we have considered, apply to conspiracies under the statute. The test of the application of the statute is the purpose of the combination, and if the object and means be lawful, there is no conspiracy, even though a third person may be incidentally injured.

And so the conclusion must be that the circuit court was right in dismissing the complaint. Nevertheless it can not be denied that the complainant has ground for complaining. It desires to engage in a lawful and legitimate business in a lawful and legitimate way and is practically prevented from so doing by the acts of the defendants. Its right to do business in the manner it desires is interfered with, and the law affords it no remedy because such interference is only incidental to the exercise by the defendants of their own right to contract for their own benefit. The complainant is injured, but has no remedy. The law could only make it possible for the complainant to do business in the way it chooses by compelling the defendants to do business in the way they do not choose. But, when equal rights clash, the law can not interfere.

Decree affirmed, with costs.

## DECISIONS UNDER COMMON LAW.

CONTRACTS OF EMPLOYMENT—DISCLOSURE OF TRADE SECRETS—INJUNCTION—*H. B. Wiggins Sons' Co. v. Cott-A-Lap Co., United States Circuit Court, District of Connecticut, 169 Federal Reporter, page 150.*—This was a motion to obtain an injunction against the defendant company, prohibiting it from "receiving or seeking to receive, or acquiring or seeking to acquire, from Robert W. Cornelison, any formula, process, or mechanical device or other manufacturing expedient" of the complainant, and from using the same in the manufacture of wall coverings. It was shown in the evidence that Cornelison was a consulting chemist who had been employed for a number of years by the complainant company, during which time he had become acquainted with the secret formulas and processes of the company. The injunction was refused on grounds which appear in the opinion of the court as delivered by Judge Platt, who discussed briefly the relations existing between employers and employees as affecting the acquisition and disclosure of trade secrets. The opinion is in part as follows:

In the case at bar there is a contract about the employment in which Cornelison agrees not to disclose trade secrets, but the law

about such secrets is too plain to require extended comment. If one person has a trade secret which is valuable to him, and another person enters into confidential employment with him in and about the business which demands the use of that secret, and by such employment learns the secret, he can not utilize his secret knowledge to the disadvantage of his employer. If he does so, he robs his employer. That is the contract relationship between them, and it makes no difference whether it is expressed in writing or not. If not expressed, it will be implied. In the case under discussion there is no doubt about the confidential employment and possession of trade secrets by Cornelison. He has now left the employment, and carries the secrets with him. He has accepted employment with a rival manufacturer of wall coverings.

The exact question before me is whether such a hiring of him by the rival warrants a court of equity in resorting to so drastic a measure as the use of the injunctive power to prevent that rival from acquiring that secret knowledge. I can not think that it does, unless the circumstances surrounding the hiring are such as to persuade one that the ulterior purpose in such hiring is evil. It appears that long ago two different managers of the defendant's business, which was then owned largely by other people, made efforts to learn the complainant's secrets by hiring from it men who knew some of the secrets. The defendant as then organized disavowed responsibility for the acts of its managers, and harmony seems to have reigned, as thoroughly as harmony can be expected to exist between avowed rivals, for a long time thereafter. The defendant as now organized and Doctor Cornelison state explicitly that there is no intention to derive any benefit from the doctor's secret knowledge gained while in complainant's employ.

If the injunction issues, it means that hereafter no man can work for one and learn his business secrets, and after leaving that employment engage himself to a rival in business, without carrying on his back into that business the injunctive mandate of a court of equity. There is nothing whatever in the facts of this case, except opportunity to do wrong and a suspicion in the mind of the rival that wrong will be done. The remedy asked for is an extraordinary one, and should not be lightly indulged in. The chancellor ought never to come into such a frame of mind that he assumes human nature to be essentially and inherently evil. Furthermore, the danger of irreparable injury is not manifest. Whether the secrets are given away or not can never be positively known, except by inspection of defendant's goods hereafter to be made. Whenever the outcome shall warrant it, the road to injunctive relief is plainly marked and easily followed.

Upon such facts as have been brought to my attention it is my duty to deny the motion for an injunction.

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CONTRACTS OF EMPLOYMENT—RESTRAINT OF COMPETITION—  
VALIDITY—*Freudenthal v. Espey*, *Supreme Court of Colorado*, 102  
*Pacific Reporter*, page 280.—John R. Espey was a physician in the  
city of Trinidad, who, desiring the services of an assistant, had con-

tracted with one Freudenthal to act as such assistant for a period of approximately three years. The first contract was made soon after the graduation of Freudenthal and was superseded by subsequent contracts of like tenor, with the exception of the amount of compensation to be paid. It was provided in these contracts that Freudenthal should treat to the best of his skill and ability such patients as Espey assigned to him, and that upon termination of his employment he should cease the practice of medicine, surgery, or obstetrics, or the branches of either in the city of Trinidad, either directly or indirectly for the full period of five years. As consideration for the keeping of such an agreement, Espey was to introduce and recommend his assistant to his friends, patients, and patrons, to treat him in a kind and courteous manner and to furnish him, free of charge, the necessary conveyances with which to perform the special duties and to pay him a stipulated sum per month as salary. The relations between these physicians were terminated by mutual agreement in October, 1906, when Freudenthal announced his purpose to go East and specialize, and secured from Espey a testimonial as to his habits and ability. Instead of going East, however, Freudenthal began the practice of medicine in Trinidad, whereupon Espey sued for a writ of injunction restraining such practice, setting up the contract and complaining of damages received to the amount of \$1,000.

It was shown in the evidence that Espey was a practitioner in good standing and of wide practice in the city of Trinidad and vicinity and that Freudenthal had been taken as an inexperienced physician, and introduced into a wide circle of practice, from which he derived the benefits naturally accruing from such a course of events. In his answer to the suit, Freudenthal raised, among others, the question as to the validity of the restrictive element of the agreement which prohibited his entering upon medical practice for five years in the city of Trinidad.

This point was discussed at some length by Judge White, who delivered the opinion of the court, and since it involves the principles governing contracts restraining employment generally that portion of the opinion is reproduced in full. The court below had granted an injunction and supported the contract, which position was affirmed by the supreme court. The portion of the opinion quoted follows:

While the questions presented by this record are of first impression in this court, they have long since had consideration by both English and American judicial tribunals. The law upon the subject appears to have undergone distinctive stages of transition or development. The doctrine first announced by the English courts held all contracts restricting one in the exercise of his trade or profession as contrary to public policy and void. Such, also, was the Roman law. (Puff. lib. 5 C. 2. sect. 3; St. 21 H. vii, 20.) Through a succession of deci-

sions this rule continued for two hundred years. (*Alger v. Thacher*, 19 Pick. (Mass.) 51, 52, 31 Am. Dec. 119.)

In the first reported English case (*Year Book*, 2 Hen. v. Pasche, fol. 5, case 26), this doctrine was considered old and settled law. In that case the restrictive covenant was that defendant would not exercise his trade of dyer's craft within plaintiff's town for the term of half a year, and the limitation was considered so far contrary to law that the plaintiff was sworn at by Hull, J., and threatened with a fine. Expanding commercialism, advancing science and arts, the desire and necessity for education, and the spirit of the age, however, eventually impressed the judicial mind with the necessity of remodeling the rule to meet the needs and requirements of men. It was recognized that both public interest and private welfare often render engagements not to carry on a trade or to act in a profession in a particular place for a limited time proper and even beneficial. (*Mallan v. May*, 11 M. & W. 653; *Homer v. Ashford*, 3 Bing. 326; *Herreshoff v. Boutineau*, 17 R. I. 3, 19 Atl. 712, 8 L. R. A. 469, 33 Am. St. Rep. 850.) Thus impressed the courts sought to meet such requirements by first fusing into the law a distinction between sealed instruments and simple contracts. This distinction, being without reason, and not founded upon principle, soon disappeared, and the more logical distinction between general and a limited restraint of trade grew and found favor with the courts. The latter distinction appeared as early as *Broad v. Jollyffe*, Cro. Jac. 596, in which it was held that a contract not to use a certain trade in a particular place was an exception to the general rule and not void. The seed thus sown did not fully fructify, however, until the leading case of *Mitchell v. Reynolds*, 1 P. Wms. 181, by which the attempted distinction between sealed contracts in restraint of trade, and those not under seal, was abrogated, and the distinction between general and limited restraints, or rather the true distinction, to wit, between unreasonable and reasonable restraints, was fully established. Parker, C. J., in that case, after stating that: "Wherever a sufficient consideration appears to make it a proper and useful contract and such as can not be set aside without injury to a fair contractor, it ought to be maintained," proceeds as follows: "But with this constant diversity, viz, where the restraint is general not to exercise a trade throughout the kingdom, and where it is limited to a particular place, for the former of these must be void being of no benefit to either party and only oppressive."

Now by the use of the language just quoted, and by the decision, Parker, C. J., said no more in effect relative to general restraints throughout the kingdom and limited restraints to a particular place than that, in his opinion, the former were unreasonable, void, "being of no benefit to either party, and only oppressive," and that the latter may or may not be reasonable, and therefore valid or invalid, depending upon the circumstances of each particular case. See *Herreshoff v. Boutineau*, supra. That is, the two classes were given as examples of unreasonable and reasonable restrictions of trade. Contracts containing unreasonable restrictions are always void, with or without consideration; while those upon consideration, which show they are reasonable for the parties to enter into and not unduly injurious to the public, are valid. Cogent reasons exist for, and have been announced in, overthrowing unreasonable covenants in restraint of

trade. In *Rakestraw v. Lanier*, 104 Ga. 188, 194, 30 S. E. 735, 738, 69 Am. St. Rep. 154, it is said: "It is certain that contracts in unreasonable restraint of trade are contrary to public policy and void, because they tend to injure the parties making them; diminish their means of procuring livelihoods and a competency for their families; tempt improvident persons, for the sake of present gain, to deprive themselves of the power to make future acquisitions, and expose them to imposition and oppression; tend to deprive the public of the services of men in the employments and capacities in which they may be most useful to the community as well as to themselves; discourage industry and enterprise; diminish the products of ingenuity and skill; prevent competition and enhance prices; and expose the public to all the evils of monopoly. (Clark on Contracts, 446.) Against evils like these, wise laws protect individuals and the public by declaring all such contracts void. (*Alger v. Thacher*, 19 Pick. (Mass.) 51, 31 Am. Dec. 119.)" But these objections apply only to unreasonable contracts, for if the restraint is not unreasonable and is founded on a legal consideration, and is reasonably necessary to protect the interest of the party in favor of whom it is imposed, and does not materially prejudice the interests of the public, the law should and does uphold it. (*Mandeville v. Harman*, 42 N. J. Eq. 185, 7 Atl. 37; *Ryan v. Hamilton*, 205 Ill. 191, 68 N. E. 781.)

Reasonable restrictive covenants are perfectly consistent with public convenience, individual interest, and the general welfare. Such is the case where one disposes of a business in a particular place, with a contract on the part of the vendor not to carry on said business in the same place for a limited time. In *Millan v. May*, 11 M. & W. 652, 666, it is said: "Such is the class of cases of much more frequent occurrence, \* \* \* of a tradesman, manufacturer, or professional man taking a servant or clerk into his service with a contract that he will not carry on the same trade or profession within certain limits. (*Chesman v. Maimby*, 2 Lord Raym. 1456, 2 Stra. 739.) In such a case the public derives an advantage in the unrestrained choice which such a stipulation gives to the employer of able assistants, and the security it affords that the master will not withhold from the servant instruction in the secrets of his trade and the communication of his own skill and experience, from the fear of his afterwards having a rival in the same business." In *Homer v. Ashford*, 3 Bing. 326, it is said: "It may often happen that individual interest and general convenience render engagements not to carry on trade, or act in a profession in a particular place, proper; that engagements of this sort between masters and servants are not injurious restraints of trade, but securities necessary for those who are engaged in it; and that the effect of such contracts is to encourage rather than cramp the employment of capital in trade and the promotion of industry." It is said in *Herreshoff v. Boutineau*, supra: "That, to some extent at least, such contracts help rather than harm both public interests and private welfare; that they are necessary to trade itself, in order to secure the sale, at fair value, of an established business, by protecting it against the immediate competition of the seller; also to enable one to learn a trade or get employment from another, free from the risk of having the knowledge and influence thus gained used to the employer's damage, to encourage investment in business enterprises under reasonable safeguards, and for other equally evident reasons."

Therefore, while the law does not permit one to restrain another from doing what the public welfare and such other's own interests require he should do, it is recognized law that restraints, if made upon a consideration, "so as it be a proper and useful contract, that is, so it is a reasonable restraint only, are good." The author of *High on Injunctions*, § 1167, in tracing the development of the law of the subject, says: "The existing state of the law as deduced from the latest English and American authorities is that it recognizes and enforces covenants of this nature, even though the restraint is general throughout an entire State or country, provided it is founded upon a sufficient consideration and is not unreasonable in view of the nature and extent of the business of the covenantee."

It was further contended by the defendant that the contract was invalid as lacking consideration as mutuality. On these points the court said in part:

Certainly no one would contend that a contract with A, whereby B was restricted in following a trade or practicing a profession in a particular place, without more, would be enforceable. It would not be enforceable because it can not be gathered therefrom that either party would be benefited thereby, nor would the public. Why should B be restricted if neither he nor A, the one to whom he is bound, receive benefit thereby, and why should the public be the losers for the time of the services of B and derive no benefit whatever in return? Such a contract would be unreasonable, and therefore void. But this rule does not apply to the case at bar. Here the circumstances are set forth upon which the court is to judge whether it be a reasonable and useful contract. Then under the law as thus announced it becomes necessary to ascertain the consideration essential to support such contracts, and if the contract in question is so supported. Defendant contends that it is without such consideration, and for that reason void. Such contracts must have an actual consideration appearing from or in the contract, or, at least, set forth in the complaint. (Bishop on Contracts, § 126; Metcalf on Contracts, 233; 1 Wharton on Contracts, § 434.) In *Mitchell v. Reynolds*, supra, and some other early cases, it was held that the consideration must be adequate; but this doctrine long since disappeared, and it is now settled that a legal consideration is sufficient, and it will not be inquired whether or not it is adequate, or, in other words, equal in value to the restraint agreed upon.

So in the case at bar the consideration upon which the defendant entered into the contract in question as expressed therein was "the salary and compensation" which would inure to him by reason of the employment and association. The salary was \$125 per month, and, notwithstanding the fact that the contract could be terminated at the will of the plaintiff, without subjecting him to damage, it nevertheless was a monthly employment, and the compensation per month was fixed. *Davis v. Mason*, 5 T. R. 118, was a case where A. took B. as an assistant in his business as a surgeon for so long a time as it should please A.; B. agreeing not to practice on his own account for fourteen years within 10 miles of the place where A. lived, and executed a bond to A. to insure the keeping of such covenant. Upon suit for violation of the restrictive covenant, the bond was held valid.

The taking into service was considered a sufficient consideration. There must be a legal consideration to support the promise, but the taking into service is such if it implies the imparting of special skill and knowledge. We will not inquire whether the defendant in submitting to the restraint made a judicious contract. The magnitude of the consideration moving the party promising is not to be weighed if there be some legal consideration. (*Ryan v. Hamilton*, supra; *Linn v. Sigsbee*, 67 Ill. 75; *Beatty v. Coble*, 142 Ind. 329, 41 N. E. 590.)

Then there are mutual promises to be performed which are the consideration for each other. The plaintiff was to introduce the defendant to plaintiff's patients and friends, furnish proper conveyances for defendant, and in return the defendant was to exert his skill and attend to the professional business of the plaintiff and "earnestly endeavor to increase and build" it up. Therefore, in a sense, the restrictive covenant is upon an executory consideration. It was certainly of great benefit to defendant, an inexperienced professional man, to be associated with a capable and efficient member of his own profession, long experienced, and enjoying an extensive practice. Apparently the defendant appreciated this, for he secured from his employer a certificate showing such association. The public are likewise benefited, locally, in having the inexperienced practitioner under the direction of, and guided by, one skilled in his profession, and equally so is the public elsewhere benefited when he engages in his profession for himself. We are clearly of the opinion that the facts of this case disclose a sufficient legal consideration.

Having determined that the contract in question is not vulnerable to the objection of insufficient consideration, we will advance to a determination of the question as to whether it be reasonable. Agreements like this must be construed with reference to the objects sought to be attained by them. The object here is the protection of one of the parties against competition in his profession. The nature of the business to protect was a medical practice extending far beyond the limits of the city of Trinidad; that the covenantee possessed this business and the knowledge and the skill that enabled him to acquire it. Certainly in limiting the restriction to the city of Trinidad and for the period of five years was only affording "a fair protection to the interests of the party in favor of whom it was given, and not so large as to interfere with the interests of the public." The restraint was no larger than the needs of the covenantee required. It was of material benefit to him and was not oppressive on the covenantor, nor was it in any sense injurious to the public. The contract is in no wise forbidden by any principle of policy or law. The defendant can be as useful to the public at any other place as at Trinidad, and the interests of the community elsewhere are as important as they are there. Here the defendant had no business, was inexperienced and presumably unskilled, and desired and sought the benefits that would accrue to him by association with one so learned and skilled in his profession as the plaintiff. It is a known fact that professional skill, experience, and reputation constitute part of the individuality of any particular person, and the amount of business which such person does depends largely upon the confidence reposed in him personally as a professional man. Under such circumstances it is not to be presumed that one

whose personal excellency and skill has brought him a profitable business will take another in, and by vouching for such other's skill and honor endear him to his own patients and leave such other free to steal away his profits.

The circumstances under which the defendant entered into the employ of plaintiff here were such as to justify the latter in asking the former to enter into some agreement of the nature of that involved in this suit. It was of importance to the plaintiff to exact of the defendant a covenant which would prevent him on the termination of the service from utilizing the knowledge and experience he had gained by such service, in destroying the plaintiff's business. It was reasonable and proper. Besides, we are not disposed by judicial decree to render it practically impossible for the unlearned to better their condition, and become skilled in a trade or experienced in a profession, by means of proper apprenticeships, as we would do, were we to declare this contract void. Few professional men would take assistants and intrust them with their business, impart to them their knowledge and skill, bring them in contact with their clients and patients, unless they be assured that the knowledge and skill imparted and the friendships and associations formed would not be used, when the services were ended, to appropriate the very business such assistants were employed to maintain and enlarge.

Nor is the contract unreasonable for the want of mutuality. It is pregnant with mutual obligations, heretofore alluded to in the discussion as to its consideration. Besides, we think it quite material that the contract has been partially executed. In *Philadelphia Ball Club v. Lajoie*, 202 Pa. 210, 218, 51 Atl. 973, 974, 58 L. R. A. 227, 90 Am. St. Rep. 627—a restrictive trade contract terminable on a ten days' notice—it is said: "We think the further fact that the contract has been partially executed by services rendered, and payment made therefor, so that the situation is not now the same as when the contract was wholly executory. The relation between the parties has been so far changed as to give to the plaintiff an equity, arising out of the part performance, to insist upon the completion of the agreement according to its terms by the defendant. This equity may be distinguished from the original right under the contract itself, and it might well be questioned whether the court would not be justified in giving effect to it by injunction, without regard to the mutuality or nonmutuality in the original contract. The plaintiff has so far performed its part of the contract in entire good faith, in every detail, and it would therefore be inequitable to permit the defendant to withdraw from the agreement at this late day."

Here there is an express covenant, with full performance by one, and certain mischief arising from its breach by the other. The mischief can not be repaired, nor can it well be estimated. The damages are continuing and accruing from day to day. The reasonable and fair protection to which the plaintiff is entitled can only be obtained by the parties conforming expressly and exactly to the terms of the contract. The defendant is in the wrong. He is deliberately doing what he plainly agreed not to do. The equities are with the plaintiff, and the decree is, accordingly, affirmed.

**EMPLOYERS' LIABILITY—DIRECT ORDERS—OBEDIENCE—NEGLIGENCE—RULES—DUTIES OF EMPLOYEES—***Stephens v. Southern Railway Company, Supreme Court of South Carolina, 64 Southeastern Reporter, page 601.*—Thomas Stephens was a locomotive fireman employed by the company named, and sued to recover damages for injuries received while in such employment. The questions in issue were the power of the engineer to direct the actions of the fireman, the nature of the duties to be rendered by the latter, and his discretion in matters involving apparent danger. The engineer, Alphonse, directed Stephens to jump from a moving train and obtain for him a cup of coffee, to which order Stephens objected until repeatedly ordered so to do and to act immediately. Stephens finally jumped and was injured, and for his injuries he sued. Judgment was against him in the court below, and, on appeal, in the supreme court, on grounds that appear in the opinion of Judge Woods, who spoke for the court. The opinion is, in part, as follows:

We inquire, first, whether there was any negligence on the part of the engineer imputable to the defendants as a proximate cause of the injury. The engineer had the right to direct or control the services of the fireman under the rules of the company, and therefore the railroad company would be liable for injury to the plaintiff, resulting from his negligence. (*Pagan v. So. Ry. Co.*, 78 S. C. 413, 59 S. E. 32.) It can not be said, as a matter of law, that it is not negligence for the engineer to order a fireman to jump from an engine running at the rate of 6 or 7 miles an hour. The most that could have been claimed by the defendant as to that issue of fact would be that it should be submitted to the jury. The defendant contends however that, if the negligence of the engineer be assumed, such negligence was not chargeable to his principal, the railroad company, because the order was not given in the course of his employment, but, on the contrary, was given as a means of supplying his own personal wants and purposes. From this proposition the defendant would draw the conclusion that the plaintiff had no right to regard the order of Alphonse as an order issued in his capacity of engineer, and hence he can not hold the defendant responsible for the resulting injury. An exact line of demarcation between that which is within and that which is without the scope of a servant's duty and authority can not be drawn accurately by the courts when the rules of the master require in general terms that one servant shall command and another obey.

The engineer, by the direction of the master, is required to command the fireman in the promotion of the master's business. The fireman in his work for the master is, by the direction of the master, required to obey the engineer. Fine distinctions on the part of the engineer and fireman as to the scope of the engineer's authority would be highly prejudicial to the business of the common master, and are forbidden by the nature of the service. Where the evidence makes an issue of fact as to whether the order would or would not be within the scope of the engineer's authority, the issue should be submitted to the jury.

Yet where an order of an engineer is so plainly one relating to a personal matter, and so unconnected with the common service that

no reasonable man could suppose it to be within the scope of his authority as engineer, then the court should hold as a matter of law that the fireman obeyed at his own peril. Here the order was to perform a personal service of very trivial nature, which no one could suppose essential to the prosecution of the engineer's service to the railroad. The engine was very near to the place where it would have to stop, and, even if the coffee had been essential to the service of the engineer, the plaintiff knew he could get it in a few minutes with the train at a standstill. As a reasonable human being, the plaintiff was bound to know that it was a personal and not a railroad service required of him, that it was of small consequence even as a personal service, and yet required the taking of a great peril. Under these circumstances the plaintiff can not be heard to say that the engineer issued the order under the authority conferred on him by the railroad company. Under this view the nonsuit must be sustained without respect to the question of contributory negligence; but, even if the order had been within the scope of the engineer's authority, the plaintiff would be precluded from recovery because of his contributory negligence.

On this point we consider, first, the effect of the rule of the company forbidding its employees to jump from a moving train. In *Carson v. So. Ry. Co.*, 68 S. C. 55, 46 S. E. 525, the court refused to hold it to be contributory negligence as a matter of law for a brakeman to go between cars to couple them, in obedience to the order of the conductor, though a rule of the company forbade such a risk. The doctrine was reaffirmed in *Wilson v. Railway Co.*, 73 S. C. 481, 53 S. E. 968. At the argument defendant's counsel insisted on the distinction as vital that in those cases the orders were given by the conductor, the recognized representative of the master in control of the train, while the engineer is a subordinate. While we are not inclined to review the cases of *Carson v. Railway Co.*, 68 S. C. 55, 46 S. E. 525, and *Wilson v. Railway Co.*, 73 S. C. 481, 53 S. E. 968, we are still less inclined to extend their application. It concerns the public safety that courts should not sanction the attempts of employees of railroad companies to waive or disregard any of the rules adopted for the protection from injury of the employees themselves, as well as passengers. The rule that the fireman shall obey the engineer is manifestly limited by the other rule that the fireman shall refuse to obey an order which exposes him to known danger. Yet the rule which requires an employee to refuse to obey an order which exposes him to danger can not be taken literally, for the occupation is intrinsically one of peril, and obedience to orders absolutely necessary, for the conduct of the business involves a degree of danger. The true meaning of the rule is that the employee must refuse to obey orders known to him to be dangerous beyond the peril to be regarded reasonably incident to his employment.

In this case, however, the plaintiff testified that, while he had undertaken to read all the rules, he had not reached those forbidding employees to jump off moving cars, and requiring them to disobey all orders which would expose them to danger. It appeared from the evidence that the rule book was given to the plaintiff some time in 1904, but it does not appear how long he had it before the accident in August of that year. The court could not say as a matter of law that the time was long enough to justify the inference that the plaintiff should have known the rules. His ignorance of them, and con-

sequent failure to obey them, can not as a matter of law be imputed to him as negligence. If he knew those rules of caution, or would have known them by the exercise of reasonable diligence, then he could not recover, because his act was in direct violation of them; but the court could not decide this issue, because the evidence left room for more than one inference.

But aside from the company's rules of caution above mentioned, the plaintiff could not stupidly, recklessly, or even carelessly obey an order of the engineer requiring him to do an obviously dangerous act, and hold the defendant responsible for a resulting injury. For in doing so he would be guilty of contributory negligence. The remaining inquiry is whether the plaintiff's act was of this character. To show contributory negligence, it is not sufficient that the employee receiving the order should have misgivings and believe the act required to be hazardous, unless the danger is so imminent and obvious that a man of ordinary prudence would not incur it. If there is ground for reasonable difference of opinion as to the danger, the servant is not bound to set up his judgment against that of his superior, whose orders he is required to obey; but he may rely on the judgment of such superior. The matter is thus well stated by Mr. Justice Holmes in *McKee v. Tourtellotte*, 167 Mass. 69, 44 N. E. 1071, 48 L. R. A. 542: "When we say that a man appreciates a danger, we mean to say that he forms a judgment as to the future, and that his judgment is right; but if against this judgment is set the judgment of a superior, one to whom, from the nature of the callings of the two men and of the superior's duty, seems likely to make the more accurate forecast, and if to this be added a command to go on with the work and to run the risk, it becomes a complex question of the particular circumstances whether the inferior is not justified as a prudent man in surrendering his own opinion and obeying the command. The nature and degree of the danger, the extent of plaintiff's appreciation of it, and the exigency of the work, all enter into consideration, and no universal rule can be laid down." The numerous authorities sustaining this statement of the law are collated in the note in *Houston, etc., Ry. Co. v. De Walt*, 97 Am. St. Rep. 877.

Whether it is negligence to jump from a slowly moving train is a question for the jury, and the court will not hold it to be contributory negligence as a matter of law. To take the case from the jury it must clearly appear that the train was going at such a high rate of speed that it was in fact obvious to the plaintiff, or would have been obvious to any reasonable man, that injury would probably result from jumping. (*Creech v. Railway Co.*, 66 S. C. 533, 45 S. E. 86; *Gyles v. Railway Co.*, 79 S. C. 176, 60 S. E. 433; *Northern Pac. R. R. Co. v. Egeland*, 163 U. S. 93, 16 Sup. Ct. 975, 41 L. Ed. 82.) In the last case, and in others decided on its authority, the fact that the plaintiff jumped at the direction of his superior was held to be an important consideration. Here, it is true, the order was given by the engineer; but, even regarding it within the scope of the engineer's authority, there was no emergency, and nothing of consequence to be accomplished, and the plaintiff testified that he regarded the jump from the train so dangerous that he twice refused to take the risk. There was in fact great peril in making the jump, full appreciation of the danger by the plaintiff, who had been in the railroad business a long time, and no exigency or emergency of any kind. On this point the case falls under the case of *Smith v. Railway Co.*, 80 S. C. 1, 61

S. E. 205, where a demurrer was sustained on the ground that the plaintiff had alleged in the complaint that he jumped from a moving train when he knew the act was dangerous.

There is no view of the law under which a verdict for the plaintiff could be sustained, and the nonsuit was properly granted.

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EMPLOYERS' LIABILITY—DISOBEDIENCE OF RULES—DIRECT ORDERS—CONTRIBUTORY NEGLIGENCE—*Crawford v. Southern Railway Company, Supreme Court of North Carolina, 64 Southeastern Reporter, page 589.*—Lee P. Crawford sued as administrator of the estate of Robert Lytle to recover damages for the death of the latter, caused, it was alleged, by the negligence of the employing company. Lytle was a brakeman and was fatally injured while attempting to mount the pilot of a moving locomotive, in violation of the rules of the company and of repeated specific orders of his superiors. The judgment of the lower court had been in favor of the plaintiff, from which the company appealed and secured a reversal with orders for a new trial. The grounds for the reversal and the rules of law applicable in cases of this nature are set forth in the following portion of the opinion of the court, which was delivered by Judge Brown:

There was evidence on the part of the plaintiff tending to show that the intestate mounted the pilot on the engineer's side, and that the step on this side of the pilot was loose and gave way, and that the intestate fell to the ground and was injured and shortly thereafter died. There was evidence that the rules and regulations of the defendant forbid employees to mount the pilot while the engine is in motion, and there was also evidence that these rules and regulations were frequently disobeyed by the employees who were accustomed to mount the pilot while the engine was running. The defendant contended that, according to the evidence in the case, the intestate had personally received specific orders not to mount the pilot of the engine while moving, and that the violation of such orders was the proximate cause of his death. In order to present this view, defendant in apt time handed up several similar prayers for instruction, one of which is as follows: "If the jury find from the evidence that Robert Lytle had been ordered by the conductor in charge of the train, or the yardmaster in directing his work, not to mount the pilot while the engine was in motion on the track, and you further find that he did mount the pilot or attempt to mount it while the engine was in motion on the track, and that in consequence thereof lost his footing and fell, and by reason thereof sustained the injuries which resulted in his death, then it is your duty to answer the first issue, 'No,' although you may find that the step on the pilot was defective." His honor gave the prayer, but added these words: "Unless you shall find under the charge heretofore given that the rule was waived or abrogated."

We are of opinion that his honor erred in making such additions to the prayers. The defendant was entitled to have the instruction given without the added words. This is not a question of the abrogation of a rule by such long-continued violation of it that it becomes

obsolete. The question involved is the right of the defendant to exact of its brakeman obedience to the specific orders of his superiors given in good faith and meant to be obeyed. Assuming that the defendant's rule forbidding its employees from mounting the pilots of moving engines has been violated so long that it may be regarded as in abeyance, that did not deprive the defendant of its right to give specific orders to its employees and to insist on obedience to them. If the company is to be deprived of this right, then there is an end to all discipline. The evidence upon which the prayer was based is clear and uncontradicted.

Assuming that the intestate was compelled to mount the engine's pilot in order to perform his duty (which is denied), he was not compelled to mount it when the engine was running. It was his duty to get on it before it started. Had the intestate done so, he would not have been run over, although the step had given way. We have recently said that it was the duty of railway companies to frame rules for the protection of its employees not only to protect them from the carelessness of their fellow-servants, but to guard them as far as practicable from their own carelessness as well. We have here such a rule well calculated to guard the brakemen and switchmen from their own recklessness, which is the usual result of constant exposure to danger. It is said that the rule had been violated so much that it was in abeyance. Assuming that to be so, it can not be denied that the defendant had a right to revive the rule and enforce it. That is what the conductor and the engineers were endeavoring to do in regard to the intestate, for the evidence shows that these orders were given repeatedly, and almost up to the very time of the accident. This court has repeatedly said that, where the injury to the servant is occasioned by his disobedience to the orders of the master, such disobedience is the proximate cause of the injury and bars recovery. *Stewart v. Carpet Co.*, 138 N. C. 64, 50 S. E. 562, and cases cited. In that case Mr. Justice Walker well says: "When he chose to disregard the instructions he had received and do the work in his own way, the resultant injury to himself will be referred to his own negligence or willful disobedience, as its proximate cause, and not to any fault of his employer." There being no evidence that the orders given to the intestate by the conductor and engineer, under whose control he worked, were in any way revoked or modified, his honor erred in not giving the instructions as prayed. The additions he made were unwarranted.

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LABOR ORGANIZATIONS—TRADE AGREEMENTS—POWER OF COMMITTEES TO CONTRACT—ACTS OF VOLUNTARY ASSOCIATIONS—*A. R. Barnes & Co. et al. v. Berry et al.*, *United States Circuit Court of Appeals, Sixth Circuit*, 169 *Federal Reporter*, page 225.—This case was before the court of appeals on an appeal from a decision rendered in the circuit court for the southern district of Ohio, reported in 157 *Federal Reporter*, page 883. (See *Bulletin of the Bureau of Labor*, No. 76, page 1019; also *Bulletin* 74, page 259.) The action involved the validity of an alleged contract between committees of the United Typothetæ of America, which is an international association made up

of employing printers of the United States and Canada, and a similar association made up of pressmen and feeders and other assistants of the pressmen. The United Typothetæ had as members local associations which in turn were composed of firms, corporations, and individual persons engaged in the printing trade. The employees' association was likewise constituted of local associations made up of the workmen resident in different localities, and is known as the "International Printing Pressmen and Assistants' Union." Not all the employers belonging to the Typothetæ had in their employ members of the Union, while, on the other hand, many of the employees were engaged in work for others than members of the Typothetæ, but to a large extent it was true that members of the two associations were engaged in the reciprocal relations of employer and employee.

As representative of each international association there were five officers—a president, three vice-presidents, and a secretary-treasurer—these five constituting a board of directors of their respective associations. The question in controversy was as to the validity of an alleged contract entered into by the respective boards with reference to certain conditions of employment. This contract was said to have been entered into on January 8, 1907, and covered terms of employment, including hours constituting a week's work and the matter of the open shop. According to its terms a fifty-four-hour week was to prevail until January 1, 1909, while during the remainder of the contract, i. e., until May 1, 1912, forty-eight hours should constitute a week's work. These provisions were ratified by the meeting of the Typothetæ, but rejected at a meeting of the workingmen's union. It had been understood at the time of the first meeting of the boards that the power of the representatives of the Typothetæ was largely advisory and that any contract or agreement that they might make would be valid only after ratification by the international association. The representatives of the Union, however, claimed and were understood to have power to make a valid and binding contract, and it was on this basis that the proceedings were carried out.

At the hearing in the circuit court the contention that there was a valid contract was supported by the appellants in the present case, A. R. Barnes & Co., in behalf of the Typothetæ. It was also their contention that they were entitled to an injunction against the officers and members of the workingmen's union to prevent a violation of this alleged contract. With reference to both these points, the decision of the court was adverse to the contentions of the complainant and the bill was dismissed. This appeal was taken to secure a reversal, if possible, of that judgment, in which, however, the appellants were not successful, the court of appeals taking the same view as was held by the lower court. Further facts appear in the

opinion of the court, which was delivered by Judge Cochran. The opinion is quite lengthy, but deals largely with details of fact which are of interest only as leading up to the conclusion that the authority of the board of the workingmen's union is restricted to the making of a tentative agreement, and it was on the basis of such a conclusion that the decision of the court rested. The opinion is, in part, as follows:

Now, as stated, there is a controversy as to whether the appellants were entitled to the relief they sought, or any part of it, even though it be conceded that there was the contract as claimed by appellants. This phase of the case presents very interesting and possibly novel questions for decision. In order to dispose of them it would have to be settled just who the contract was really between. Nominally it was between the two international associations. But really it could not have been so, because each of said associations lacked juristic personality. So far as there was any real contract at all, it must have been between the individual members of the different local associations. If so, this gives rise to the question whether it was a contract between all the members of the Typothetæ, whether they have any members of the Union in their employ or not, on the one side, and all the members of the Union, whether they are in the employ of the members of the Typothetæ or not, on the other, opening and letting in individuals as they become members of either organization and also opening and letting out such members thereof as might withdraw or be expelled therefrom; or was the contract limited to members of the Typothetæ who might have members of the Union in their employ on the one side, and members of the Union who might be in the employ of members of the Typothetæ on the other? If it were either, it would seem to be a joint contract on each side. The theory of appellants' case would seem to be that it is neither; for, if it was such, then the right of the members of the Typothetæ who were parties to the contract being joint, it might be thought that to a suit brought to protect the contract from invasion all of them were indispensable parties plaintiff, and, though some might sue for all, as the suit was limited to those who were not citizens of Ohio, the lower court was without jurisdiction, and the bill should have been dismissed for want of it, and not on the merits. To meet this view it would seem that the theory of appellants' case must be otherwise, to wit, that, though formally the contract was between the two international associations, it was really a separate contract between each member of the Typothetæ who had members of the Union in his employ on the one side and the members of the Union in his employ on the other; or rather, that the provisions of the contract, upon its being entered into, became terms of the separate contracts of employment between each member of the Typothetæ and the members of the Union in his employ. So taking the contract really to have been, there can be said to be no question as to the jurisdiction of the lower court. All members of the Typothetæ who had members of the Union in their employ were not indispensable parties plaintiff to the suit, and if any question can be made as to the right of some to sue for all of a limited number thereof—i. e., all not citizens of Ohio—or as to their suing for members of the Typothetæ who had no members of the Union in their employ,

it is not a question affecting jurisdiction. On such theory of the case an authority in support of the jurisdiction of the lower court and the right of a portion of the Typothetæ who had members of the Union in their employ may be found in the case of *Bacon v. Robertson*, 18 How. 480, 15 L. Ed. 499. This theory of the real nature of the alleged contract and of appellants' case is a reasonable one, and without more we accept it as correct and dispose of the appeal on that basis.

As to whether otherwise appellants were entitled to the relief they sought, assuming that such contract was entered into by the two associations, which has been much discussed by counsel, we do not find it necessary to consider, as we are constrained to hold with the lower court that no such contract was entered into, and hence pass it by. The alleged contract, as stated, was executed on January 8, 1907. It was signed on that date in the name of each association by its board of directors; the third vice-president of the Union not signing. It was understood at the time of the signing that the board of directors of the Typothetæ had no authority to make a binding contract on its behalf, and the signing so far as it was concerned was expressly made subject to ratification by that association. A meeting thereof was held thereafter on February 2, 1907, at Pittsburg, for the purpose of ratifying the action of its board of directors, and at that meeting that action was ratified. The board of directors of the Union, at the time of the signing of the contract, claimed to have authority to make a binding contract on its behalf, and by their action attempted to do so. The third vice-president refused to sign it because of the open-shop clause therein heretofore referred to. Otherwise he sanctioned the contract, and it must be held that he was willing to its execution, and so far as he had power he authorized its execution. He was simply unwilling to attach his name thereto. There is no question that the board of directors of each association sincerely believed that the board of directors of the Union had full authority to make a binding contract on its behalf. In this, however, we believe they were mistaken, and it is for this reason that the lower court and we likewise hold that there was no such contract entered into between the two associations. Their authority, like that of the board of directors of the Typothetæ, was simply to negotiate a contract on behalf of the Union with the Typothetæ, and such contract had to be ratified by the Union association before it was binding upon it. The sole authority which the board of directors of the Union had to act on behalf thereof was because of action taken by it at its annual meeting held in June, 1906, preceding the date of the execution of the contract at Pittsburg, Pa.; and the sole evidence of that action upon which our conclusion can be based is the minutes of the proceedings of that meeting published in the *American Pressman*, the official organ of the Union, in its issue of September, 1906. This case here hangs upon a true construction of that action as thus evidenced.

A transaction or expression of a thought whose true nature or meaning is in question and sought to be determined is, like a jewel, seen at its best in its setting; and a part of the setting of a transaction or expression of a thought is the history that lies behind it and out of which it has come. Before stating, therefore, what that action of that meeting of the Union was, and attempting to construe

it, the steps leading up to it should be presented, and that chronologically. To do so will lengthen somewhat this opinion and tend to make it tedious; but the matter we have in hand is to demonstrate that the board of directors of the Union were in error in their construction of their authority. They and the members of the Typothetæ, who also sincerely believe that they had authority to make a binding contract, are intelligent men and capable of appreciating the reasonableness of the position taken here, and it will serve the ends of justice to so present the matter that they may do so.

The contract in question is not the first contract entered into between the two associations. At the time it was signed, as heretofore stated, there was a binding contract in existence between them which would expire May 1, 1907, when it was to begin to operate. That contract had been executed March 25, 1903. It had been executed on behalf of both associations by its board of directors. Before that execution, to wit, in July, 1902, under authority of both, it had been negotiated by the two boards. After this, to wit, at its annual meeting in September, 1902, this contract so negotiated was ratified by the Typothetæ and its final execution was then authorized; and subsequent to such ratification it was submitted to a referendum of the Union, by which it was ratified and its final execution authorized. On each side, then, no binding contract was executed until the action of its board of directors was ratified. The Typothetæ as to the contract in question gave its board of directors no greater authority than it had given them in the first instance, to wit, to negotiate it, and it did not become binding until ratified. If, then, the Union gave its board authority to make a contract binding without being reported back and ratified, it did more than it had done in the first instance, and that in the face of the fact that the Typothetæ had not given such authority to its board or without conditioning their authority so to act on similar authority being conferred by the Typothetæ. The contract so negotiated and executed, which was the first contract entered into by the two associations, contained exactly the same provision as the one in question as to strikes, boycotts, and lockouts. It contained substantially the same provisions in relation to disputes between local associations. The contract in question made some additions and changes in the subordinate provision relating to this main provision. The provision in relation to hours of work contained therein was as follows, to wit:

"It is expressly agreed that during the life of this contract fifty-four hours shall constitute a week's work."

The only material difference between the two contracts, then, was in relation to the hours of work; the first contract providing for nine hours a day or fifty-four hours a week, and the one in question for the same hours until January 1, 1909, and thereafter during its life for eight hours a day or forty-eight hours a week. So much, then, as to the first contract, the manner of its execution, and its provisions.

The court then reviewed the acts and correspondence of the two parties in interest up to June, 1906, which are summarized in the following paragraph:

This is all that transpired between the two associations in relation to the matter in hand prior to the June convention, 1906, of the Union at Pittsburg, at which the action was taken which it is claimed by appellants amounted to conferring on its board power to make a binding agreement with the Typothetæ in renewal of the then existing contract. That contract had first been negotiated and then ratified before finally executed. The Union had taken up the matter of arranging for an eight-hour day without reference to a renewal of that contract, and the resolution adopted in relation thereto provided that whatever arrangement was made should be reported to the succeeding convention. The Typothetæ had refused to consider the eight-hour day. Nothing had been said or done in its behalf, indicating that at any time it would agree thereto. The matter of renewal of the contract was brought up by the Typothetæ, and not by the Union, and its only suggestion in regard thereto was that a committee be appointed on both sides "to consider the renewal." It was not contemplated by it that the committee appointed in relation thereto on either side should have authority to execute a binding agreement in renewal of the existing contract. So far as it was concerned, it was not contemplated that any course should be pursued different from what had been followed in connection with that contract.

The proceedings of the convention of the Union were then examined in considerable detail, the court reaching the conclusion that they did not go beyond previous action in the matter of conferring authority upon the board to make binding contracts, saying that:

The action of the Pittsburg convention of June, 1906, of the Union amounted, therefore, to this and nothing more. It thereby declared itself in relation to the eight-hour day and made provision for a fund to pay strike benefits in case it should thereafter determine to strike to secure such a day; and it instructed its board of directors to secure from a like committee of the Typothetæ a declaration of its position as to the eight-hour day in connection with an agreement to renew the existing contract between the two associations in so far as it did not cover the length of the work day. If such is the extent of its action, it follows that the Union's board had no authority to execute the contract in question on behalf of the Union. Of course, the board was to report back to the next convention what it so obtained for its consideration. This followed as a matter of course, without anything being said expressly on the subject.

It is true that it further follows from this that no provision was made to govern the relations between the two associations after May 1, 1907, when the existing contract would expire, and none could be made unless a convention of the Union, as well as of the Typothetæ, were called in advance of their regular time of meeting; that of one being in June and the other in September. But the Union had its heart set on the eight-hour day. It is plain that it was unwilling to continue amicable relations with the Typothetæ, except under an agreement that the eight-hour day should begin within what it considered to be a reasonable time. So far as it was concerned, the parting of their ways had come, except on these terms. The Typothetæ had not up to this

time indicated in any way its willingness to come to an eight-hour day. So far as it had expressed itself, it had been against coming thereto. There was, therefore, not much occasion for the Union being desirous or even willing to make provision for a new contract between the two associations to begin at the expiration of the old. All that was to be expected of it from its standpoint was an indication of its willingness to enter into a new contract with the Typothetæ if it would first declare that it would agree to an eight-hour day; and that is practically what it did, and all it did.

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State.	Name of bureau.	Title of chief officer.	Location of bureau.
<b>UNITED STATES.</b>			
United States.....	United States Bureau of Labor.....	Commissioner.....	Washington, D. C.
California.....	Bureau of Labor Statistics.....	Commissioner.....	San Francisco.
Colorado.....	Bureau of Labor Statistics.....	Deputy Commissioner.....	Denver.
Connecticut.....	Bureau of Labor Statistics.....	Commissioner.....	Hartford.
Idaho.....	Bureau of Immigration, Labor, and Statistics.....	Commissioner.....	Boise City.
Illinois.....	Bureau of Labor Statistics.....	Secretary.....	Springfield.
Indiana.....	Bureau of Statistics.....	Chief.....	Indianapolis.
Iowa.....	Bureau of Labor Statistics.....	Commissioner.....	Des Moines.
Kansas.....	Bureau of Labor and Industry.....	Commissioner.....	Topeka.
Kentucky.....	Department of Agriculture, Labor, and Statistics.....	Commissioner.....	Frankfort.
Louisiana.....	Bureau of Statistics of Labor.....	Commissioner.....	Baton Rouge.
Maine.....	Bureau of Industrial and Labor Sta- tistics.....	Commissioner.....	Augusta.
Maryland.....	Bureau of Industrial Statistics.....	Chief.....	Baltimore.
Massachusetts.....	Bureau of Statistics.....	Director.....	Boston.
Michigan.....	Bureau of Labor and Industrial Sta- tistics.....	Commissioner.....	Lansing.
Minnesota.....	Bureau of Labor.....	Commissioner.....	St. Paul.
Missouri.....	Bureau of Labor Statistics and In- spection.....	Commissioner.....	Jefferson City.
Montana.....	Bureau of Agriculture, Labor, and In- dustry.....	Commissioner.....	Helena.
Nebraska.....	Bureau of Labor and Industrial Sta- tistics.....	Deputy Commissioner.....	Lincoln.
New Hampshire.....	Bureau of Labor.....	Commissioner.....	Concord.
New Jersey.....	Bureau of Statistics of Labor and In- dustries.....	Chief.....	Trenton.
New York.....	Department of Labor.....	Commissioner.....	Albany.
North Carolina.....	Bureau of Labor and Printing.....	Commissioner.....	Raleigh.
North Dakota.....	Department of Agriculture and Labor.....	Commissioner.....	Bismarck.
Ohio.....	Bureau of Labor Statistics.....	Commissioner.....	Columbus.
Oklahoma.....	Department of Labor.....	Commissioner.....	Guthrie.
Oregon.....	Bureau of Labor Statistics and Inspec- tion of Factories and Workshops.....	Commissioner.....	Salem.
Pennsylvania.....	Bureau of Industrial Statistics.....	Chief.....	Harrisburg.
Philippine Islands.....	Bureau of Labor.....	Director.....	Manila.
Rhode Island.....	Bureau of Industrial Statistics.....	Commissioner.....	Providence.
South Carolina.....	Department of Agriculture, Com- merce, and Industries.....	Commissioner.....	Columbia.
Texas.....	Bureau of Labor Statistics.....	Commissioner.....	Austin.
Virginia.....	Bureau of Labor and Industrial Sta- tistics.....	Commissioner.....	Richmond.
Washington.....	Bureau of Labor.....	Commissioner.....	Olympia.
West Virginia.....	Bureau of Labor.....	Commissioner.....	Wheeling.
Wisconsin.....	Bureau of Labor and Industrial Sta- tistics.....	Commissioner.....	Madison.
<b>FOREIGN COUN- TRIES.</b>			
Argentina.....	Departamento Nacional del Trabajo.....	Presidente.....	Buenos Aires.
Austria.....	K. K. Arbeitsstatistisches Amt im Handelsministerium.....	Vorstand.....	Wien.
Belgium.....	Office du Travail (Ministère de l'In- dustrie et du Travail).....	Directeur General.....	Bruxelles.
Canada.....	Department of Labor.....	Minister of Labor.....	Ottawa.
Canada: Ontario.....	Bureau of Labor (Department of Pub- lic Works).....	Secretary.....	Toronto.
Chile.....	Oficina de Estadística del Trabajo.....	Jefe.....	Santiago.
Finland.....	Industriystyrelsen (a).....	.....	Helsingfors.
France.....	Office du Travail (Ministère du Tra- vail et de la Prévoyance Sociale).....	Directeur.....	Paris.
Germany.....	Abteilung für Arbeiterstatistik, Kais- erliches Statistisches Amt.....	Präsident.....	Berlin.
Great Britain and Ireland.....	Labor Department (Board of Trade).....	Commissioner of La- bor.....	London.

a Issues a bulletin of labor.

State.	Name of bureau.	Title of chief officer.	Location of bureau.
FOREIGN COUNTRIES—cont'd.			
Italy.....	Ufficio del Lavoro (Ministero di Agricoltura, Industria e Commercio).	Direttore Generale....	Rome.
Netherlands.....	Centraal Bureau voor de Statistiek (a).	Directeur.....	'S-Gravenhage.
New South Wales.....	State Labor Bureau.....	Director of Labor.....	Sydney.
New Zealand.....	Department of Labor.....	Minister of Labor.....	Wellington.
Spain.....	Instituto de Reformas Sociales.....	Secretario General.....	Madrid.
Sweden.....	Afdelning för Arbetsstatistik (Kgl. Kommerskollegii).	Direktör.....	Stockholm.
Switzerland.....	Secrétariat Ouvrier Suisse (semiofficial).	Secrétaire.....	Zürich.
Uruguay.....	Oficina del Trabajo (Ministerio de Industrias, Trabajo é Instrucción Pública).	.....	Montevideo.
International.....	International Labor Office.....	Director.....	Basle, Switzerland.

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