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DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
JOSEPH A. HOLMES, DIRECTOR

METAL-MINE ACCIDENTS
IN THE
UNITED STATES
DURING THE CALENDAR YEAR 1913

COMPILED BY

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METAL-MINE ACCIDENTS DURING THE CALENDAR YEAR 1913.

Compiled by ALBERT H. FAY.

INTRODUCTION.

The death rate in the metal mines of the United States in 1913 shows a gratifying decrease from the record of 1912; the total number killed, as reported by the various operators, being 683, as compared with 661 in 1912 and 695 in the preceding year. The number of men employed during 1913 was 193,088, as compared with 169,199 in 1912. The fatality rate was therefore 3.54 per 1,000 men employed, as against 3.91 per 1,000 for 1912 and 4.19 for 1911.

Fatality figures for 1911, 1912, and 1913 for all mines and quarries in the United States follow:

Number of men employed and number killed in and about all mines and quarries in the United States during 1911, 1912, and 1913.

Kind of mines.	Number employed.	Number killed.	
		Total.	Number per 1,000 employed.
Metal mines.....	193,088	683	3.54
Coal mines.....	747,644	2,785	3.73
Quarries.....	106,278	183	1.72
Total for 1913.....	1,047,010	3,651	3.49
Total for 1912.....	1,004,966	3,234	3.22
Total for 1911.....	1,605,281	3,602	3.58

DECREASE OF FATALITY RATE IN 1913.

Although the total number of persons killed in the metal mines during 1913 was slightly more than in 1912, yet there were about 24,000 more men employed, so that the fatality rate is reduced to 3.54 per 1,000 employed during 1913, as compared with 3.91 for 1912. A number of the States show a slight increase, but a majority of the principal mining States show marked decreases.

The important mining States showing a continuous reduction of fatality rates during 1911, 1912, and 1913 are Idaho, Michigan, Montana, Nevada, New Jersey, South Dakota, and Utah, which in 1913 represented 38 per cent of the mining industry. Of the States showing a decreased fatality rate during 1913 as compared with 1912 only, may be mentioned Alabama, Colorado, New York, Oklahoma, Tennessee, Wisconsin, and Wyoming.

This gradual reduction is to be accounted for largely by the introduction of safety appliances, better supervision and a stricter enforcement of rules and regulations, and a closer observance of the State laws. Practically all of the larger companies, and many of the smaller ones, have done much in safeguarding their employees, and have helped to spread the "safety first" movement. By first-aid treatment many slight injuries were properly dressed, so that pain was relieved and a cure effected in a short time, with the added result that many minor injuries were kept from becoming serious or fatal.

Number of men killed in and about the metal mines in the United States during 1911, 1912, and 1913.

State.	Number killed.		
	1911	1912	1913
Alabama.....	10	33	22
Alaska.....	(a)	b 21	25
Arizona.....	70	67	86
Arkansas.....	2	1	0
California.....	38	40	52
Colorado.....	43	48	44
Florida.....	9	6	14
Georgia.....	2	0	1
Idaho.....	23	29	24
Illinois.....	1	1	1
Indiana, Louisiana, Rhode Island, and West Virginia.....	1	0	0
Iowa.....	1	0	0
Kansas.....	2	2	4
Kentucky.....	3	1	0
Michigan.....	134	96	82
Minnesota.....	76	50	63
Missouri.....	38	36	34
Montana.....	62	50	64
Nevada.....	50	34	25
New Hampshire.....	0	1	0
New Jersey.....	23	13	8
New Mexico.....	11	13	23
New York.....	10	17	14
North Carolina.....	4	1	4
Ohio.....	0	1	0
Oklahoma.....	0	2	1
Oregon.....	2	1	3
Pennsylvania.....	1	2	0
South Dakota.....	8	6	8
Tennessee.....	10	12	10
Texas.....	0	0	1
Utah.....	49	41	36
Vermont.....	0	2	1
Virginia.....	6	4	12
Washington.....	3	4	4
Wisconsin.....	3	22	11
Wyoming.....	0	4	1
Total.....	695	661	683

a No report.

b Placer mines not included.

SCOPE OF STATISTICS.

The following tables giving the accidents in the metal mines in the United States for the calendar year 1913 have been compiled by the Bureau of Mines from reports received directly from the operators, except in the case of Alaska, Colorado, and New York. In the compilation of these figures the size of the mines was not considered, and the figures cover reports from prospectors, development companies, and producing mines.

Although the Bureau of Mines is authorized to collect data relating to accidents at mines, there is no Federal law compelling operators to render such reports. However, the majority of the operators promptly and cheerfully replied to the bureau's requests for information. The tabulated statistics represent 6,387 operators who actually worked their mines during the year, this number comparing with 5,967 who reported for 1912 and 5,232 for 1911. As far as can be ascertained, all of the large companies made out detailed reports, so that, measured on the basis of production, the statistics represent the industry. The small number of operators who did not reply represent less than 10 per cent of the names on the mailing list, and on the basis of ore produced represent a much smaller percentage of the industry.

Many of the answers received indicate that one reason why some operators did not reply was that their mines or prospects were small, and that as no accidents occurred a reply was not deemed necessary. It is hoped that all operators, whether large or small, will consider their property worthy of a report for the year 1914, whether an accident occurs or not. The true accident ratio can be obtained only when complete reports are rendered that give the number of men employed, as well as the number of days worked.

The tables in the following pages are arranged so as to represent five divisions of the mining industry, as follows:

Copper mines.—All of the copper mines and prospects that were reported in operation in the various copper-producing States are included in this group. The list represents 694 operators.

Gold and miscellaneous metal mines.—Under this heading are the gold mines, both lode and placer, silver mines, lead-silver mines, gold-silver mines, the lead and zinc mines other than those in the Mississippi Valley, and mines working ores of quicksilver, manganese, tungsten, vanadium, chromium, etc. Pyrite mines are included in this class, as the cinder is used in some of the metallurgical works for its iron and copper content. Bauxite mines, because bauxite is the principal source of metallic aluminum, are classed under this division. This group represents 4,749 operators, who reported their mines as active part or all of the year.

Iron mines.—All of the important iron mines, representing 206 operators, are given in the tables showing statistics relating to iron mining.

Lead and zinc mines (Mississippi Valley).—The lead and zinc mines, represented by reports of 409 operators of that region, are grouped together as representing an industry in which general conditions are similar.

Miscellaneous mineral mines.—The miscellaneous mineral mines, representing 329 operators, include those for asbestos, asphaltum, barite, feldspar, garnet, graphite, gypsum, kaolin, mica, phosphate rock, quartz, talc, salt, and soapstone. Coal mines are not included in this classification.

ACKNOWLEDGMENTS.

The acknowledgements of the bureau are due to the State mine inspectors and other officials of the various State mining departments, who have rendered invaluable assistance in verifying and correcting from their records, often at the expense of considerable time and trouble, the data reported to the bureau by the operators. Special mention should be made of the assistance rendered by the mine inspectors of Alaska, Colorado, Idaho, Missouri, Nevada, New York, and South Dakota, the Industrial Insurance Commission of Washington, and the Industrial Accident Commission of California. To both the operators and the State mining officials the Bureau of Mines extends its thanks for their hearty cooperation. The author acknowledges the assistance rendered by W. W. Adams in the compilation of the data herein contained.

PUBLICATION OF ACCIDENT STATISTICS.

In publishing the statistics presented in this report, the Federal Bureau of Mines has no intent of encroaching on the field covered by the annual or biennial reports of State mine inspectors or mining departments. The bureau hopes, however, that the distribution of the data contained herein will help to establish a uniform basis for recording and reporting mine accidents, the number of men employed, and the number of days' work performed. When all mine-accident statistics are thus placed on the same basis, the making of comparisons and the drawing of conclusions will be rendered much easier.

The plan that is proposed as most likely to the procuring of satisfactory statistics is that of cooperation between the Bureau of Mines and the inspectors or other appropriate representatives of the States. This cooperation will insure such uniformity in method and results as will make the data for each State comparable with the data of any other State, and the data for the mining industries of the United

States comparable with those of the mining industries in other countries. Also, this plan has the merits of avoiding duplication of labor and expense and of insuring satisfactory results at minimum cost to both the Federal Government and the several States.

As bearing on the difficulties that attend the compilation of comparable figures, attention is called to the fact that a number of States have no inspectors for metal mines and there is a lack of uniformity in the reports issued by the various States that have inspectors. The fiscal years of the States are not uniform, some ending in June, others in September or October, and still others conforming to the calendar year.

In those States having an inspection service the fatality figures given herein were submitted to the various inspectors for verification, and from nearly all the bureau has received hearty cooperation. Only a few of the States collect statistics covering serious injuries and still fewer give any attention to slight injuries, so that on these points it is impossible to check closely. Although the total number of deaths reported in the various States agrees closely with the inspectors' reports, there is some variation as to the classification.

The Bureau of Mines will be glad to receive suggestions from State inspectors, and from any person interested in mining, as to the form in which the statistical data can be presented most effectively and as to the method of making their publication most useful to the mining industry.

COPPER MINES.

The figures given in Tables 2, 4, and 6 are compiled from reports of 694 operators of copper mines employing 56,139 men, of whom 39,917 were employed underground and 16,222 on the surface. Of the 694 replies, 395 were from prospects and small mines in which less than 1,000 days' labor was performed. The other 299 were from operators of mines where 1,000 or more days' labor was performed.

The total number of deaths and injuries due to accidents, and the rates per 1,000 employed, as reported (Table 1) are as follows: Deaths, 236, or 4.20 per 1,000 men employed; serious injuries, 2,195, or 39.10 per 1,000; slight injuries, 11,168, or 198.93 per 1,000. Of the total number of fatalities, 203 occurred underground, making the rate per 1,000 men employed 5.09. The number of surface fatalities was 33, or 2.03 per 1,000.

GOLD AND MISCELLANEOUS METAL MINES.

The accidents in and about the gold and miscellaneous metal mines are compiled in Tables 2, 4, and 7 from the reports of 4,749 operators, employing 61,313 men, of whom 46,143 were underground and 15,170 surface men. The number of deaths and injuries due to accidents and the rates per 1,000 employed (Table 1) are as follows: Deaths,

210, or 3.43 per 1,000 men employed; serious injuries, 632, or 10.31 per 1,000; slight injuries, 3,223, or 52.57 per 1,000. Of the total number of fatalities, 180 occurred underground, or 3.90 per 1,000, and 30 on the surface, or 1.98 per 1,000.

The rates of serious and slight injuries are low when compared with the corresponding rates at iron and copper mines. The difference may be explained in part by the fact that in this group are many prospects and small mines that keep no records, and that many of the mines are in States where there is no inspection and the operators are not required to keep accident records. At such mines minor accidents are forgotten, but fatal accidents which impress themselves on the memory are reported. The majority of the larger companies operating gold, silver, and lead-silver mines of the West have, for their own protection, hospital service and medical aid for their employees and are keeping excellent records.

IRON MINES.

The figures given in Tables 2, 4, and 8 are compiled from the reports of 206 iron-mine operators, who employed 51,133 men, of whom 29,384 were employed underground and 21,749 on the surface, including those engaged in steam-shovel work. The number of deaths and injuries resulting from accidents in these mines (Table 1) is as follows: Deaths, 165, or 3.23 per 1,000 men employed; serious injuries, 2,820, or 55.15 per 1,000; and slight injuries, 10,653, or 208.34 per 1,000. Of the total number of fatalities, 122 occurred underground, or 4.15 per 1,000 employed, and 43 employees were killed while engaged in surface work, making this rate 1.98 per 1,000.

LEAD AND ZINC MINES.

The lead and zinc mines for which data are compiled include mines in the Mississippi Valley only. The lead and zinc mines of other States are grouped with miscellaneous metal mines on account of the difficulty of making a distinct classification, as in many places, for instance, in the lead-silver mines in the Coeur d'Alene district of Idaho, lead and zinc occur as associated metals in silver ores. The Mississippi Valley lead and zinc mines form a class by themselves and are easily segregated.

The figures given in Tables 2, 4, and 9 are compiled from the reports of 409 operators, employing 12,697 men, of whom 9,261 were employed underground and 3,436 on the surface. Of the 409 operators reporting, 93 operated small mines and prospects at each of which less than 1,000 days' labor was performed.

The total number of deaths and injuries due to accidents as reported (Table 1) is as follows: Deaths, 42, or 3.31 per 1,000 men employed;

serious injuries, 91, or 7.17 per 1,000; and slight injuries, 1,345, or 105.93 per 1,000. Of the total number of fatalities, 32 occurred underground, making the rate 3.46 per 1,000 men employed below the surface. The surface fatalities were 10, or 2.91 per 1,000 employed.

MISCELLANEOUS MINERAL MINES.

The reports of 329 operators of miscellaneous mineral mines are compiled in Tables 2, 4, and 10. These mines employed 11,806 men, of whom 2,997 were employed underground and 8,809 on the surface. The total number of deaths and injuries due to accidents reported (Table 1) is as follows: Deaths, 30, or 2.54 per 1,000 men employed; serious injuries, 152, or 12.87 per 1,000; and slight injuries, 692, or 58.61 per 1,000. When compared with the rates for the copper and iron mines these ratios seem exceedingly low. Judging from the reports received, this difference is largely explainable by the mines being small and not keeping complete records. The majority of these mines are in States where there are neither State inspection nor compensation laws, and operators are not obliged to keep accident records or make reports of accidents. Furthermore, about 75 per cent of the men are employed on the surface, the danger being thus reduced to the basis of quarry operations. The figures for 1913 show a higher injury ratio than previous years, indicating that more complete records are being kept.

ACCIDENT STATISTICS BY STATES.

A compilation of the accident statistics, by States, is given in Tables 3, 5, 11, 12, and 13, representing 6,387 operators employing 193,088 men, of whom 127,702 were employed underground and 65,386 on the surface. The total number of fatalities and serious and slight injuries due to accidents is as follows: Deaths, 683, or 3.54 per 1,000 men employed; serious injuries, 5,890, or 30.50 per 1,000; and slight injuries, 27,081, or 140.55 per 1,000. Of the total number of fatalities, 548 occurred underground, or at the rate of 4.29 per 1,000, and 135 were killed on the surface, or 2.06 per 1,000 employed.

The great irregularity of the ratio between serious and slight injuries in different States is apparent. The reason for this difference is discussed under the heading "Serious and Slight Injuries," where extracts from the laws relating thereto are given.

CAUSES AND DISTRIBUTION OF ACCIDENTS.

In Table 15 is given the percentage of deaths and injuries due to any one cause in each group of mines and for all of the mines combined. It will be noted, for instance, that 38.10 per cent of the

deaths in lead and zinc mines, 16.48 per cent of the serious injuries, and 14.20 per cent of the slight injuries were due to falls of rock or ore from roof or wall. A similar comparison may be made for any group of mines for any one of the 41 causes enumerated. This table also shows that approximately two-thirds of the total deaths and injuries that occurred in and about metal mines were caused as follows:

Of the fatalities, 36.16 per cent were due to falls of ore or rock from roof, wall, or bank; 13.04 per cent to explosives; 12.31 per cent to falling down stope, shaft, winze, or bank; and 11.42 per cent to haulage systems.

Of the serious injuries, 24.12 per cent were due to falls of roof, wall, or bank; 17.22 per cent to car and haulage systems; 9.43 per cent to machinery; and 12.69 per cent to timber and hand tools.

Of the slight injuries, 22.65 per cent were due to falls of roof, wall, or bank; 13.27 per cent to car and haulage systems; 8.83 per cent to machinery; and 15.78 per cent to timber and hand tools.

Fatalities due to falls of roof or wall are slightly more than in previous years. No fatalities were reported as due to mine fires in 1913, whereas in 1911 there were 37 such fatalities. Those due to falling down shaft were 26, as compared with 40 in 1912 and 57 in 1911. No reduction has been made in the fatalities due to explosives.

FATALITIES AT PLACER MINES.

The accompanying tables contain the combined reports of 745 operators of placer mines, including dredges, hydraulic mines, and underground gravel mines. It will be noted from the tables that 6,680 men were employed at these mines, and that 15 men were killed, representing a fatality rate of 2.25 per 1,000 men employed as compared with 2.43 for 1912. The average length of time these mines were operated was 199 days. The placer mines of Alaska operated approximately 180 days, and all other placers 220 days. The average length of time all metal mines (except placers) were operated was 288 days. Although the fatality rate for placer mines is somewhat lower than that for the other metal mines, yet the length of time the employees were exposed to the mining risk was less. If the number of employees be reduced to the 300-day basis, it becomes equivalent to 4,430 men, with a fatality rate of 3.36, as compared with 3.73 for all other mines, not including placer or coal mines. The figures for 1912 did not include Alaska placers. For the first time these are included in the bureau's report. The serious and slight injuries occurring at Alaska placer mines were not included in the Territorial mine inspector's report, hence these details are lacking in this report.

Accidents in placer mines of the United States during the calendar years 1912 and 1913.

Cause of accident.	1912			1913		
	Number killed.	Number seriously injured.	Number slightly injured.	Number killed. ^a	Number seriously injured.	Number slightly injured.
<i>Dredging.</i>						
Machinery.....	2	11	6	3	14	21
Electricity.....	0	0	0	2	0	1
Boiler explosions or bursting steam pipes.....	0	0	1	0	0	0
Falls of persons.....	0	1	7	0	5	13
Tools.....	0	5	22	0	6	19
Other causes.....	2	3	15	2	22	33
Total number killed or injured by dredging accidents.....	4	20	51	7	47	87
<i>Hydrauliccking.</i>						
Cave of bank.....	2	0	3	0	1	4
Explosives.....	1	0	0	0	0	1
Hydraulic giants.....	1	1	1	0	2	1
Falls of persons.....	0	1	4	0	3	4
Rock while handling.....	0	0	7	0	3	1
Tools.....	0	0	4	6	0	1
Machinery, derricks, etc.....	0	1	0	1	2	0
Other causes.....	0	0	4	0	0	1
Total number killed or injured by hydrauliccking accidents.....	4	3	23	1	8	12
<i>Underground.</i>						
Fall of roof or gravel.....	0	0	5	5	5	4
Timber or hand tools.....	0	0	3	1	0	3
Explosives.....	0	0	1	0	0	0
Falls of persons.....	0	0	0	1	1	0
Haulage.....	0	0	1	0	0	0
Drilling.....	0	0	1	0	0	1
Hoisting.....	0	0	1	0	1	0
Steam (when steam points are used).....	0	0	0	0	0	0
Other causes.....	0	0	0	0	2	0
Total number killed or injured by underground accidents.....	0	0	12	7	9	8
Grand total.....	8	23	86	15	64	107

^aIncludes fatalities in Alaska placers. The fatalities for 1912 and the serious and slight injuries for 1912 and 1913 are not included in this report.

METAL-MINE, COAL-MINE, AND QUARRY ACCIDENTS COMPARED.

Comparative data for metal mines, coal mines, and quarries of the United States during 1912 and 1913 are shown in the tables that follow. The majority of the coal-mining States have systematic coal-mine inspection, which tends to reduce the accidents; whereas many of the metal-mining States have no inspection service.

On account of the great disasters that occur in coal mines and the prominence given to them by the newspapers, coal mining is usually considered much more hazardous than metal mining, but the figures in the tables below show that in 1911 the fatality rate in metal mines was about 10 per cent higher and in 1912 was 20 per cent higher than in the coal mines. In 1913 the rate was about 5 per cent less for metal mines than for coal mines.

As the figures show, metal mines usually do not claim their death toll in disasters that involve many men, most of the men who die from accidents being killed one at a time. Altogether, there were reported in the metal mines in 1913, 31 accidents in which 2 or more men were killed at one time, making the total thus killed 79, or 11.6 per cent of all the fatalities as compared with 12.3 per cent in 1912 and 19.5 in 1911.

Although the fatality rate in metal mines during 1913 was 3.54 per 1,000 men employed, and in coal mines 3.73, yet the comparison is not absolutely fair, for the reason that the metal miners worked 285 days as compared with 238 days for the coal miners. Thus the men in the metal mines were exposed to the mining risk 47 days longer than were the coal miners. If both be reduced to the 300-day basis, the metal-mine fatality rate becomes 3.72 per 1,000 300-day workers in comparison with 4.70 for the coal mines and 2.10 for quarries.

Number of men employed and number of men killed in and about all mines and quarries in the United States during 1911, 1912, and 1913.^a

Year.	Metal mines.			Coal mines.		
	Number employed.	Number killed.		Number employed.	Number killed.	
		Total.	Per 1,000 employed.		Total.	Per 1,000 employed.
1911.....	165,979	695	4.19	728,348	2,719	3.73
1912.....	169,199	661	3.91	722,682	2,860	3.27
1913.....	193,083	683	3.54	747,644	2,765	3.73
Average for 3 years.....	176,089	680	3.86	732,885	2,621	3.58

^a This table continued on p. 14.

Number of men employed and number of men killed in and about all mines and quarries in the United States during 1911, 1912, and 1913—Continued.

Year.	Quarries.			Total, mines and quarries.		
	Number employed.	Number killed.		Number employed.	Number killed.	
		Total.	Per 1,000 employed.		Total.	Per 1,000 employed.
1911.....	110,954	188	1.69	1,005,281	3,602	3.58
1912.....	113,105	213	1.88	1,004,966	3,234	3.23
1913.....	106,278	183	1.72	1,047,010	3,651	3.49
Average for 3 years.....	110,112	195	1.77	1,019,086	3,496	3.43

Percentage of persons killed by different causes in and about metal mines, coal mines, and quarries in the United States during 1911, 1912, and 1913.

Kind of mine.	Cause of death.								
	Falls of overburden, roof, quarry material, ore, or coal.	Explosives.	Haulage and handling rock, ore, or coal.	Falls of person.	Electricity.	Machinery.	Gas and dust explosions.	Other causes.	Total.
1911:									
Metal mines.....	32.52	11.23	7.63	15.39	2.45	3.16	.....	27.62	100.00
Coal mines.....	48.58	4.93	17.54	1.54	3.46	1.77	13.94	8.24	100.00
Quarries.....	25.53	26.60	20.21	8.51	1.06	9.04	.....	9.05	100.00
1912:									
Metal mines.....	34.82	14.21	9.99	13.91	3.78	3.78	.....	19.51	100.00
Coal mines.....	48.77	5.64	19.11	1.19	3.60	1.86	12.75	7.08	100.00
Quarries.....	23.94	22.07	22.07	8.91	1.88	10.80	.....	10.33	100.00
1913:									
Metal mines.....	36.16	13.04	11.42	12.31	3.80	3.94	.....	19.33	100.00
Coal mines.....	45.39	4.96	18.63	1.80	3.16	1.79	18.46	5.81	100.00
Quarries.....	20.77	24.04	18.04	9.29	2.73	10.92	.....	14.21	100.00

METAL-MINE ACCIDENTS IN FOREIGN COUNTRIES.

Table 20 has been compiled from official reports of representative foreign countries in which mining is an important industry. The table shows the number of men employed in and about metal mines, the number killed, and the rate of fatalities per 1,000 men employed. It will be noted that the fatality rates are lower than those of metal mines in the United States. One reason for the difference is that for many years rigid inspection has been enforced in most of the important foreign mining countries. In the older nations, as Great Britain, Germany, and France, the majority of the miners have worked about mines from childhood, as did their fathers and grandfathers before them. Another reason is that in these countries the majority of the miners speak a common language, and there is comparatively little misunderstanding of orders given by mine officials.

In the United States it is not uncommon to find at a large mine men representing 10 or even 20 nationalities, a very large percentage of whom can not speak English nor understand another language than their own. An Italian and a Swede may work side by side in a mine under a shift boss who gives his orders in English, a language not understood by either of the two men. In case an accident happens the survivor testifies through an interpreter before the coroner's jury that he thought the orders of the shift boss—not at all what they actually were—were “so and so.” A common language is essential to safety in mining.

DETERMINATION OF NUMBER OF MEN EMPLOYED.

Although the bureau's request for information on which to base this report called for the average number of men employed during the year, it is possible that some of the companies, especially the smaller ones, may have reported the number of men on the pay roll rather than the average number at work full time. Unless exact records are kept, it is not easy to determine the average number of men actually at work during a year. The number of days a mine is operated and the number of deaths that occur are known and are reported. The number of men on the pay roll is also known, but the average number of men at work during the year must be calculated on the basis of the total number of shifts or days' labor (man-shifts per year) performed. With this figure as a basis the average number of men at work full time, and the average number of days worked per man per year may be obtained thus:

Let a = total actual man-shifts for which wages were paid during the year, as shown on pay-roll.

b = number of men on pay roll;

c = number of days mine was operated during the year,

x = average number of men at work (full time basis),

y = average number of shifts (days) worked per man per year;

then $x = \frac{a}{c}$ = average number of men at work during the year, and

$y = \frac{a}{b}$ = average number of shifts (days) worked per year per man.

As an illustration showing how the fatality rates are affected and different results may be obtained, two mines, A and B, may be cited. Mine A employed men as follows: Fifty men for 100 shifts; 50 men 150 shifts; 100 men 200 shifts; 500 men 250 shifts; and 1,000 men 310 shifts. The number of men on the pay roll was, therefore, 1,700, and the total work done was equivalent to the work of one man for 467,500 days. As the mine was in operation 310 days, the average number of men actually at work was $467,500 \div 310$, or 1,508. If the number of men killed was 8, the rate per 1,000 employed on the pay-roll basis is 4.70; but based on the actual average number of men (1,508) the

rate is 5.31 per 1,000. In other words, the latter rate (5.31) is 13 per cent higher than the rate on the pay-roll basis and is, no doubt, more nearly correct.

If the number of men killed in mine B was 8, the rate per 1,000 employed on the pay-roll basis is 4.70, as in mine A; but, based on the actual average number of men who worked, the rate is 4.91, as compared with 5.31 for mine A, thus indicating that mine B is safer than mine A, an indication that, as shown below, is misleading.

As mine B was operated only 250 days, whereas mine A was operated 310 days, the resulting 8 fatalities in each mine are not directly comparable, as the men in mine B were exposed to the mining risk 60 days less than the men in Mine A. A true comparison, however, can be made by reducing the number employed to a basis of 300-day workers, a number obtained by dividing the total number of days' labor performed at each mine by 300. The death rate per 1,000 300-day workers in mine A is 5.13, as compared with 5.89 in mine B.

A detailed comparison between the two hypothetical mines is given below:

Number of men employed and number of days worked at mines A and B.

MINE A (OPERATED 310 DAYS).

Number of men on pay roll.	Shifts worked per man.	Total days' labor performed.
50.....	100	5,000
50.....	150	7,500
100.....	200	20,000
500.....	250	125,000
1,000.....	310	310,000
1,700.....	275	467,500

MINE B (OPERATED 250 DAYS).

50.....	100	5,000
50.....	150	7,500
100.....	200	20,000
1,500.....	250	375,000
1,700.....	238	407,500

Comparative fatality rates at mines A and B.

Item.	Mine A.	Mine B.
Total men on pay roll.....	1,700	1,700
Average number at work.....	1,508	1,030
Number of 300-day workers.....	1,558	1,358
Total number of days of work.....	467,500	407,500
Average number of shifts or days worked per man.....	275	238
Total number killed.....	8	8
Total killed per 1,000 men (pay-roll basis).....	4.70	4.70
Total killed per 1,000 men (average number at work).....	5.31	4.91
Total killed per 1,000 men (basis of 300-day workers).....	5.13	5.89

**FATALITY RATES COMPARED ON BASIS OF YEAR OF 300
WORKING DAYS.**

A comparison of the fatality rates in the various groups of mines, based on a year of 300 working days, is given in Table 17.

It is evident from the figures given in the table that a true comparison can not be made without reducing the number of days to a common denominator. In order to obtain the number of 300-day workers, it is necessary to know the total number of shifts (days) labor performed during the year, as discussed on a preceding page.

As during the year a mine can be operated only about 300 days, if Sundays, holidays, and a few days for repairs be excluded, a 300-day year has been used in this report, and a comparison of the accidents in the various States has been made upon this basis. Table 16 gives the average number of days actually worked at the mines in the various States during the year, this number ranging from 183 in Kentucky to 323 in Utah, the average for the United States being 285 days. The first column under "fatalities" gives the rate as obtained from the actual number of men reported as working, and the second column gives the rate when the number of employees is reduced to the equivalent of 300-day workers. For example, the number of days worked in Michigan was 280, which gives a fatality rate of 2.91 per 1,000 men employed. Minnesota shows 306 days worked, with a fatality rate of 3.22. This comparison is not fair, inasmuch as the men in Minnesota were subjected to the hazards of mining 26 days longer than in Michigan. By reducing the rate of each to the 300-day basis, the rate for Michigan becomes 3.12 and for Minnesota 3.16. Similar comparisons may be made for other States.

Japan and France report the total number of shifts labor performed during the year, from which it is possible to make comparisons on the 300-day basis. Until all countries have a common system of reporting, classifying, and publishing mine-accident statistics, no true comparisons can be made. It is hoped that all of the mining countries will eventually adopt a uniform year upon which to base their accident ratios.

Fatality rates in metal mines, coal mines, and quarries based on the actual average number of men employed and the equivalent of 300-day workers.

Basis of figures.	1912			1913		
	Number of men employed.	Number killed.	Number killed per 1,000 employed.	Number of men employed.	Number killed.	Number killed per 1,000 employed.
Metal mines:						
Average number employed.....	169,199	661	3.91	193,088	683	3.54
Number of 300-day workers.....	161,662	661	4.09	183,593	683	3.72
Coal mines:						
Average number employed.....	722,662	2,360	3.27	747,644	2,785	3.73
Number of 300-day workers.....	541,997	2,360	4.35	593,131	2,785	4.70
Quarries:						
Average number employed.....	113,105	213	1.88	106,278	183	1.72
Number of 300-day workers.....	93,837	213	2.27	87,141	183	2.10

ACCIDENTS CLASSIFIED BY SYSTEMS AND METHODS OF MINING.

Inasmuch as there are various systems and methods of mining, some methods must necessarily be more dangerous than others. In order to ascertain the comparative risk in different methods the bureau has revised its form for reporting mine accidents, and in 1914 the returns will be analyzed on the basis of the method or system of mining as shown by the outline given below.

METHODS OF MINING.

[Please check principal method used.]

A. Work in narrow veins.

1. Overhand stoping.....
2. Underhand stoping.....
3. "Gophering".....
4.
5.
6.

B. Work in large ore bodies.

1. Overhand stoping (with timber).
2. Room and pillar (without timber)
3. Top slicing and caving.....
4. Glory-hole and mill-hole.....
5. Open pit, with steam shovel.....
6. Open pit, without steam shovel.
7.

Operators when reporting accidents for 1914 should not fail to indicate the principal mining method used, for it is possible that the classification of accidents on this basis will aid materially in bringing about the adoption of safer methods in many mines. It is understood, of course, that ore bodies can not be changed to suit mining systems, and that although safety should be the first consideration, other factors have to be considered in laying out a mine.

SERIOUS AND SLIGHT INJURIES.

The definition of an accident, a fundamental consideration, varies widely among mining companies and is far from being the same in the laws of the various States requiring reports. One operator or

State may require a detailed report of any casualty, however slight, that delays the worker, or that draws blood; another may not consider an accident worthy of record that does not come to the attention of the foreman or shift boss.

The list of reportable accidents has been increased so much within the last three or four years by the enactment of compensation laws, by closer inspection, and by the companies themselves that statistics seem to show a far greater number of casualties now than in the past. However, it is essential that every company have a record of any accident that may result in a serious injury for which compensation may be claimed, and also to prevent unjust claims arising, as then any case can be traced to its origin and the records will show full details. As many companies require a record of all injuries, it is not as easy as it formerly was to substantiate unjust claims. This minute and detailed classification is especially notable in the Lake Superior district.

The distinction made in this paper between a serious and a slight injury is entirely arbitrary. A line had to be drawn at some definite point, and hence a serious accident is considered in this report as one that would disable a man and keep him from duty 20 days or more. This class includes such injuries as broken arms and legs, loss of eye, and severe cuts and bruises.

A slight injury is considered as one that involves a loss of time of not less than 1 day nor more than 20 days. Under this class may be placed such injuries as cuts, sprains, mashed fingers, bruises, dirt in eye, slight burns, effect of powder smoke, etc. Of course any slight injury may become infected and thus result in a serious accident as defined above.

In some States there is no law whatever requiring a record of injuries or a report to any industrial or insurance board, commissioner of labor, or inspector, whereas in other States strict laws govern this feature. In those States where there are such laws the majority of the mining companies keep excellent records from which reports for the Bureau of Mines are compiled, and it is in these States that the injury ratio in many cases is very high. Unless all States report on the same basis, just comparisons can not be made.

In making comparisons of serious and slight injuries in the various States, it is necessary to take into account some of the features of the law governing the report of such injuries. One State may report fatal and serious injuries only, but without defining a "serious injury," and require no reports for slight injuries. One State may require reports of all fatalities and injuries incapacitating the employee for 1 week; others may specify the reporting of accidents causing disabilities ranging from 1 to 14 days. Thus one State may report,

perhaps, only 25 per cent as many injuries as some other States in which the mining industry is of no greater magnitude. At first glance it would appear that mining is much safer in the former State than in any of the latter, but this, however, is a wrong conclusion. The major difference is largely a matter of recording and reporting the serious and slight injuries. The mining risk or hazard in one State as a whole does not vary much from that in any other, if the same tonnage of material is handled and an equal number of men employed.

The data in Tables 11, 12, and 13, in which the number of serious and slight injuries is given, have been arranged so that the data for the different States are grouped according to the State laws relating to inspection or industrial-accident compensation.

Class A includes the principal mining States in which there were in operation during a part or all of 1913 certain laws relating to the recording and reporting of mine-accident statistics. These States are as follows: Arizona, California, Colorado, Idaho, Michigan, Minnesota, Missouri, Montana, Nevada, New Jersey, New York, Oregon, South Dakota, Washington, and Wisconsin.

Class B includes the other mining States which during 1913 had no laws regarding compensation for injuries or requiring reports or records of serious and slight injuries. It also includes those States in which only a little mining is done and in which there are laws relating to industrial accidents.

Though the laws already in force are not uniform, they are a step in the right direction and, it is hoped, will eventually result in a uniform method of keeping mine-accident statistics.

LAWS RELATING TO REPORTING OF ACCIDENTS.

Some features of the laws relating to the reporting of accidents are given in the following pages, by States.

ALASKA.

By an act approved April 30, 1913, and effective April 1, 1914, the Legislature of Alaska authorized the appointment of a Territorial mine inspector subject to instructions from the Federal mine inspector. Sections 5 and 7 of the act provide that all serious or fatal accidents at any mine employing six or more persons shall be reported immediately by the person in charge of the mine to the mine inspector of the district in which the mine is located. Each mine inspector is required by section 6 to render to the governor a monthly report of all accidents in his district which have resulted in serious injury or death.

ARIZONA.

The law ^a of Arizona provides that all accidents causing death or serious injury at any mine shall be reported immediately to the State mine inspector. The inspector renders an annual report to the governor for the year ending November 30 (sec. 16).

By the act of June 8, 1912, as amended May 13, 1913, compulsory compensation is provided for accidental death or injuries causing disability for at least two weeks in all especially dangerous employments, including mining, quarrying, and tunneling. The law is elective as to industries not listed as especially dangerous.

CALIFORNIA.

The Legislature of California passed an act,^b approved April 8, 1911, providing compensation for accidental injuries, and establishing an industrial-accident board to aid in the administration of the act. The act is elective for all employments except for State and local governments, for which it is compulsory. The employee also may elect not to be subject to the act by notifying his employer in writing.

On August 10, 1913, the industrial accident board was superseded by the industrial accident commission.^c

Sections 36 to 50 (act of May 26, 1913) create an insurance fund to be administered by the industrial accident commission for the purpose of insuring the employer, at his option, against liability for compensation. The law became effective January 1, 1914.

COLORADO.

Section 4303 of the revised statutes of Colorado for 1908 provides that all accidents, causing death or serious injury involving the loss of two consecutive days' work, at any metalliferous mine, mill, or metallurgical plant shall be reported immediately to the commissioner of mines. The commissioner is required by section 4268 to render biennial reports to the governor. The published reports are for the calendar year.

On April 1, 1911, the legislature authorized the appointment of a commission to inquire into the subject of workmen's compensation and the operation of such laws elsewhere, but no compensation law has thus far been enacted.

^a Acts of 1912, ch. 33, sec. 13.

^b Laws of 1911, p. 796.

^c Statutes and amendments to the code, 1913, ch. 561, secs. 1 and 2.

IDAHO.

Section 207 of the revised code of Idaho for 1909, provides that all fatal or serious accidents at any mine shall be reported immediately to the inspector of mines or his deputy. The inspector is required by section 209 to render an annual report to the governor. The published reports are for the calendar year.

No compensation law has been enacted.

ILLINOIS.

The law ^a of Illinois requires every employer of labor to report, within 30 days, to the State bureau of labor statistics every accident causing death or serious injury involving a loss of 30 or more days' time.

The legislature passed an act ^b June 28, 1913, relating to compensation of injured employees, and established an industrial board for its administration. The act covers every employer of labor, including operators of underground and surface mines and also quarries, and makes it the duty of all employers to report to the industrial board all accidents which entailed a loss to the injured person of one week's time, or which caused death, for which compensation has been paid under the act. The application of the act is elective on the part of the employer. Section 2 of the act provides that election is presumed unless a written notice to the contrary is filed with the industrial board and notice of such declination is given to the employees.

MARYLAND.

The Legislature of Maryland passed an act April 15, 1912, providing elective insurance in all employments. Under the acts of 1910, chapter 153, compulsory insurance is provided for coal mining in Allegany and Garrett counties, accidents to be reported to the county commissioners in the county where the accident occurs and to the State commissioner of insurance.

MICHIGAN.

Section 8 of law No. 163, approved April 25, 1911, requires the county mine inspector to inspect every working mine in his county at least once every 60 days, and section 10 makes it the duty of all operators to render any needed assistance to the inspector in his work. Section 13 provides that the inspector shall report annually to the county clerk all mine accidents causing death or personal injury. The published reports are for the fiscal year ending September 30.

^a Acts of 1907, sec. 1, p. 308.

^b Laws of 1913, p. 337.

Compensation is provided for accidental deaths or injuries causing at least two weeks' incapacity to earn full wages. The compensation law is elective and is applicable to all industries having one or more persons under contract or hire. Every employer subject to the law is required to keep a record of all injuries, fatal or otherwise, received by his employees and to make a written report thereof within 10 days to the industrial-accident board.

MINNESOTA.

Paragraph 3924, general statutes of Minnesota, 1913, provides for the appointment of a county mine inspector for every county in which at least five mines are in operation. The inspector must visit every mine in his county at least once every 60 days (par. 3926). All operators are required (par. 3931) to give immediate notice to the inspector of all accidents causing loss of life or serious personal injury. The inspector's annual reports are for the fiscal year ending June 30, and are included in the biennial report of the State commissioner of labor (par. 3934).

An elective compensation law provides compensation for injuries causing death or disability for more than two weeks. The law (act of April 24, 1913) applies to all industries except farm and domestic service and interstate or foreign commerce.

MISSOURI.

Section 8462, revised statutes of Missouri, 1909, as amended March 25, 1913, provides that any person having charge of a mine shall report to the State mine inspector all accidents causing loss of life or serious personal injury. The inspector renders an annual report to the governor for the calendar year.

No compensation law has been enacted.

MONTANA.

Sections 1717 and 1720 of the revised code of Montana for 1907 provide that operators of all metalliferous mines in which five or more men are employed shall immediately report to the mine inspector all accidents causing death or serious injury. The inspector's reports are for the fiscal year ending November 30. By act of March 4, 1913, the inspector's office is made a part of the department of labor and industry, and the inspector's reports are to be combined with those of the other branches of the department to form one volume to be published biennially.

A law providing compensation for injuries was enacted in 1909, but was declared unconstitutional, leaving no compensation law in force.

NEVADA.

The Nevada laws of 1912 provide that all mine operators employing wage earners shall render a report to the inspector of mines of all accidents causing death or serious injury. The report of the inspector is for the fiscal year ending November 30.

An elective compensation law (act of Mar. 15, 1913), applicable to all industries employing two or more persons, provides for compensation for accidental injuries resulting in death or incapacity to earn full wages for at least two weeks.

NEW JERSEY.

An act ^a approved by the Legislature of New Jersey March 24, 1904, provides that all accidents resulting in death, or that prevent the injured person from resuming work within two weeks, shall be reported to the department of labor within 24 hours after the expiration of 4 weeks or after the death of the person injured. An act approved April 17, 1914, and effective that date, amended the act of March 24, 1904, by creating the office of inspector of mines and quarries and authorized the appointment of an inspector.

The State has an elective compensation act, and the statutes require every employer to report to the commissioner of labor every accident which prevents an employee from resuming work within two weeks.^b

NEW YORK.

Chapter 15 of the New York laws of 1910 provides that all accidents causing loss of life or injury incapacitating any person for work, in the operation of a mine or quarry, or in the construction or repair of a tunnel, shall be reported within 48 hours to the commissioner of labor. The published reports of the commissioner of labor are for the fiscal year ending September 30.

Under the workmen's compensation law, approved December 16, 1913, effective July 1, 1914, compensation is provided for accidents causing injury or death to persons engaged in certain enumerated industries classed as hazardous, among which are included mining and quarrying. The law is compulsory as to the industries enumerated. No compensation is allowed for the first 14 days of disability except such medical or surgical treatment and hospital service as may be needed and requested by the injured employee. All accidents for which compensation is payable under the law must be reported by the injured person or by another person in his behalf to the employer and to the compensation commission. Nonfatal accidents must be reported within 10 days after injury and fatal accidents within 30 days after the death of the injured employee.

^a Laws of 1904, ch. 64, sec. 28.

^b Acts of 1911, ch. 95; Acts of 1912, ch. 156.

OREGON.

An act approved by the Legislature of Oregon, February 18, 1911, provides that any employer of labor who employs more than 3 persons at a time shall report to the commissioner of labor statistics and inspector of factories and workshops all accidental deaths or injuries causing the injured person to cease work.

An act^a approved February 25, 1913, created a State industrial accident commission and provided for an industrial accident fund. Election on the part of operators to be subject to the law is presumed in the case of certain hazardous industries, including mining and quarrying, unless notice of the employer's declination is filed with the commission; and employers in all other industries may accept the law by affirmative election.

PENNSYLVANIA.

Sections 1 and 5 of an act approved July 19, 1913, provide that all employers shall within 30 days report all accidents resulting in personal injury to the department of labor and industry. The act does not apply to casual employments nor to accidents resulting in disability continuing less than two days.

An act approved June 27, 1913, authorized the governor to appoint an industrial accident commission to inquire into the causes and results of industrial accidents in the mines, mills, factories, and all industrial establishments; to study methods for safeguarding against accidents; to inquire into the subject of fair compensation for accidental injuries and deaths. The commission is to render its report to the general assembly in January, 1915.

SOUTH DAKOTA.

In South Dakota operators of all mines, except those employing no labor other than that of the owner or lessee, are required to report to the inspector of mines all accidents causing death or serious injury. The inspector's reports are for the year ending November 30.

No compensation law has been enacted.

WASHINGTON.

The Legislature of Washington passed an act, approved March 14, 1911, establishing an industrial insurance department to administer a compulsory compensation law applicable to an enumerated list of extra hazardous industries, including mining and quarrying. The law is elective as to other employments. Section 14 requires all employers who are subject to the provisions of the law to render an immediate report of any accident to the industrial insurance department.

^a Laws of 1913, ch. 112.

WISCONSIN.

The Legislature of Wisconsin passed an act on April 3, 1911, effective July 1, 1911, providing for workmen's compensation and creating an industrial commission to administer the act. Section 2394-35 requires all employers of four or more persons to keep a record of all accidents causing death or disability to an employee. Similar records must also be kept by all casualty insurance companies and societies that indemnify employers against liability. All such accidents must be reported within the first five days of every month to the industrial commission.

CLASSIFICATION OF INJURIES IN 1915 STATISTICS.

On account of the enactment of compensation laws in many States, and in order to conform thereto, the bureau's classification of serious and slight injuries for 1915 will be on a 14-day (2 weeks) basis instead of 20-day as at present. Therefore in keeping office records for 1915, it will facilitate the rendering of a report at the close of the year if all companies classify a serious injury as one causing a disability of more than 14 days, and a slight injury as involving a loss of time of more than 1 day and less than 15 days.

TABULATED STATISTICS.

The tables of statistics of metal mine accidents in the United States during the calendar year 1913 follow:

TABLE 1.—Number of men employed and number of men killed and injured in and about all metal and miscellaneous mineral mines (except coal mines) in the United States during the calendar years 1913 and 1912.

1913.

Kind of mine.	Active operators.	Number of employees.			Number killed.					Number seriously injured. (Involving loss of 20 days or more.)					Number slightly injured. (Involving loss of less than 20 days, but more than one day.)					Widows.	Orphans.			
		Underground.	On the surface.	Total.	Underground. ^a	Rate per 1,000 employed.	On the surface.	Rate per 1,000 employed.	Total, underground and surface.	Rate per 1,000 employed.	Underground. ^a	Rate per 1,000 employed.	On the surface.	Rate per 1,000 employed.	Total, underground and surface.	Rate per 1,000 employed.	Underground. ^a	Rate per 1,000 employed.	On the surface.			Rate per 1,000 employed.	Total, underground and surface.	Rate per 1,000 employed.
Copper.....	694	39,917	16,222	56,139	203	5.09	33	2.03	236	4.20	1,833	45.92	362	22.32	2,195	39.10	9,105	228.10	2,063	127.17	11,168	198.93	100	180
Gold and miscellaneous metal.....	4,749	46,143	15,170	61,313	180	3.90	30	1.98	210	3.43	508	11.01	124	8.17	632	10.31	2,817	61.05	406	28.76	3,223	52.57	67	70
Iron.....	205	29,384	21,749	51,133	122	4.15	43	1.98	165	3.23	2,009	63.37	811	37.29	2,820	55.15	7,855	267.32	2,798	128.65	10,653	208.34	81	178
Lead and zinc (Mississippi Valley only).....	409	9,261	3,438	12,697	32	3.46	10	2.91	42	3.31	71	7.67	20	5.82	91	7.17	1,070	115.54	275	80.03	1,345	105.93	25	43
Miscellaneous mineral.....	329	2,997	8,809	11,806	11	3.67	19	2.16	30	2.54	47	15.68	105	11.92	152	12.87	210	70.07	482	54.72	692	58.61	13	27
Total.....	6,387	127,702	65,386	193,088	548	4.29	135	2.06	683	3.54	4,468	34.99	1,422	21.75	5,890	30.50	21,057	164.89	6,024	92.13	27,081	140.23	286	591
Average.....																								

1912.

Copper.....	814	37,539	14,237	51,776	185	4.93	54	3.79	239	4.62	1,501	39.99	306	21.49	1,807	34.90	10,277	273.77	1,553	109.08	11,830	228.45	87	159
Gold and miscellaneous metal.....	4,137	31,322	12,822	44,144	147	4.69	29	2.26	176	3.90	515	16.44	98	7.64	613	13.89	2,796	89.27	384	29.95	3,180	72.04	71	98
Iron.....	194	26,799	18,947	45,746	136	5.07	36	1.90	172	3.76	1,288	48.06	512	27.02	1,800	39.35	6,566	245.01	2,141	113.00	8,707	190.33	84	198
Lead and zinc (Mississippi Valley only).....	484	10,812	3,520	14,332	48	4.44	6	1.70	54	3.77	114	10.54	33	9.88	147	10.26	1,634	151.13	215	61.08	1,849	129.01	26	62
Miscellaneous mineral.....	358	3,584	9,617	13,201	6	1.67	14	1.46	20	1.52	29	8.09	106	11.02	135	10.23	140	39.06	526	54.69	666	50.45	5	3
Total.....	5,967	110,056	59,143	169,199	522	4.74	139	2.35	661	3.91	3,447	31.32	1,055	17.84	4,502	26.61	21,413	194.56	4,819	81.48	26,232	155.04	273	520
Average.....																								

^a Includes shaft accidents.

TABLE 2.—Number of men killed and injured in and about all metal and miscellaneous year 1913,
NUMBER KILLED.

Kind of mine.	Underground.									
	By fall of rock or ore from roof or wall.	By rock or ore while loading at working face.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chutes, winze, raise, or slope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity.	By machinery (not including locomotives or drills).
	1	2	3	4	5	6	7	8	9	10
Copper.....	76	2	1	23	20	25	6	.....	6	.....
Gold and miscellaneous metal.....	68	1	3	35	2	21	2	.....	5	4
Iron.....	52	7	3	11	12	4	2	.....	4	.....
Lead and zinc (Mississippi Valley).....	16	.....	1	7	1	1	.....	.....	1	.....
Miscellaneous mineral.....	8	.....	.....	1	.....	1	.....	.....	1	.....
Total.....	220	10	8	77	35	52	10	.....	16	4
Percentage of grand total killed.....	32.21	1.46	1.17	11.28	5.13	7.62	1.46	.....	2.34	0.58
Percentage of class total killed.....	48.04	2.18	1.75	16.81	7.64	11.36	2.18	.....	3.49	.87
Number killed per 1,000 employed underground ^a	1.72	.08	.06	.60	.28	.41	.08	.....	.13	.03

NUMBER SERIOUSLY INJURED.

Copper.....	516	156	197	46	340	106	50	86	1	19
Gold and miscellaneous metal.....	152	24	44	31	52	44	20	35	2	17
Iron.....	565	124	325	48	395	71	75	90	4	47
Lead and zinc (Mississippi Valley).....	15	11	4	4	18	4	.....	3	.....	2
Miscellaneous mineral.....	12	5	1	3	13	1	.....	5	.....	1
Total.....	1,260	320	571	132	818	226	145	219	7	86
Percentage of grand total seriously injured.....	21.39	5.43	9.69	2.24	13.89	3.84	2.46	3.72	0.12	1.46
Percentage of class total slightly injured.....	29.68	7.54	13.45	3.11	19.27	5.32	3.42	5.16	.17	2.03
Number seriously injured per 1,000 employed underground ^a	9.87	2.51	4.47	1.03	6.41	1.77	1.14	1.71	.05	.67

NUMBER SLIGHTLY INJURED.

Copper.....	2,700	858	1,392	78	1,159	449	429	425	11	116
Gold and miscellaneous metal.....	654	237	316	30	354	139	267	263	6	51
Iron.....	1,883	844	1,429	106	1,335	131	274	467	33	180
Lead and zinc (Mississippi Valley).....	191	274	73	18	116	2	3	109	.....	46
Miscellaneous mineral.....	26	51	14	12	52	.....	.....	17	2	8
Total.....	5,454	2,264	3,224	244	3,016	721	973	1,281	52	401
Percentage of grand total slightly injured.....	20.14	8.36	11.90	0.90	11.14	2.66	3.59	4.73	0.19	1.48
Percentage of class total slightly injured.....	26.54	11.02	15.69	1.19	14.68	3.51	4.74	6.23	.25	1.95
Number slightly injured per 1,000 employed underground ^a	42.71	17.73	25.25	1.91	23.62	5.64	7.62	10.03	.41	3.14

^a Casualty rates per 1,000 employed is based on underground employees for underground accidents, and on surface employees for surface accidents.

neous mineral mines (except coal mines) in the United States during the calendar by causes.

NUMBER KILLED.

Underground—Continued.						Shaft.						
By mine fires.	By suffocation from natural gases.	By inrush of water.	By stepping on nail.	By other causes.	Total, underground fatalities or injuries.	By falling down shafts.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By slip or cage.	By other causes.	Total, shaft fatalities or injuries.
11	12	13	14	15		16	17	18	19	20	21	
				12	171	9	7		1	9	6	32
				6	150	10	3			15	2	30
				3	98	6	1	2	1	11	2	24
				1	28	1	1		1	1		4
				1	11							
	3			23	458	26	15	2	3	34	10	90
	0.44			3.37	67.06	3.81	2.20	0.29	0.44	4.98	1.46	13.18
	.66			5.02	100.00	28.89	16.67	2.22	3.33	37.78	11.11	100.00
	.02			.18	3.59	.20	.12	.01	.02	.27	.08	.70

NUMBER SERIOUSLY INJURED.

5			2	222	1,746	12	18		3	26	28	87
1	1		1	43	467	7	7			18	9	41
	2	9	15	151	1,921	18	22	1		34	13	88
				6	67		1			2	1	4
				3	44	3						3
6	3	9	18	425	4,245	40	48	1	3	80	51	223
0.10	0.05	0.15	0.31	7.22	72.07	0.68	0.81	0.02	0.05	1.36	0.87	3.79
.14	.07	.21	.42	10.01	100.00	17.94	21.52	.45	1.35	35.87	22.87	100.00
.05	.02	.07	.14	3.33	33.24	.31	.38	.01	.02	.63	.40	1.75

NUMBER SLIGHTLY INJURED.

4	5	3	118	1,172	8,919	23	81	2		48	32	186
	9	1	35	360	2,731	11	28	2	2	24	19	86
1	4	4	127	864	7,682	20	63	4	3	53	30	173
1			17	161	1,011	6	25			12	16	59
			3	19	204		4			2		6
6	18	8	300	2,585	20,547	60	201	8	5	139	97	510
0.02	0.07	0.03	1.11	9.55	75.87	0.22	0.74	0.03	0.02	0.51	0.36	1.88
.03	.09	.04	1.46	12.58	100.00	11.76	39.41	1.57	.98	27.26	19.02	100.00
.05	.14	.06	2.35	20.24	160.90	.47	1.57	.06	.04	1.09	.76	3.99

TABLE 2.—Number of men killed and injured in and about all metal and miscellaneous year 1913, by

NUMBER KILLED.

Kind of mine.	Surface.									
	By mine cars or mine locomotives.	By railway cars and locomotives.	By run or fall of ore in, or from ore bins.	By falls of persons.	By stepping on nail.	By hand tools, axes, bars, etc.	By electricity.	By machinery.	By other causes.	Total, surface fatalities or injuries.
	22	23	24	25	26	27	28	29	30	
Copper.....	1	2	.....	.....	.....	.....	2	3	1	9
Gold and miscellaneous metal.....	2	1	.....	2	1	.....	1	6	6	18
Iron.....	4	.....	2	3	.....	.....	1	1	4	15
Lead and zinc (Mississippi Valley).....	2	1	.....	.....	.....	.....	1	2	.....	6
Miscellaneous mineral.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1
Total.....	9	4	2	5	1	.....	5	11	12	49
Percentage of grand total killed..	1.32	0.58	0.29	0.73	0.15	.....	0.73	1.61	1.76	7.17
Percentage of class total killed..	18.37	8.17	4.08	10.20	2.04	.....	10.20	22.45	24.49	100.00
Number killed per 1,000 employed on the surface ^a.....	.13	.06	.03	.08	.02	.....	.08	.17	.18	.75

NUMBER SERIOUSLY INJURED.

Copper.....	15	10	4	29	2	24	4	36	84	208
Gold and miscellaneous metal.....	6	.....	1	4	1	4	1	22	15	54
Iron.....	14	19	.....	53	3	50	1	42	95	277
Lead and zinc (Mississippi Valley).....	.....	3	.....	3	3	3	.....	5	4	18
Miscellaneous mineral.....	3	.....	.....	2	.....	2	.....	2	1	10
Total.....	38	32	5	91	6	83	6	107	199	567
Percentage of grand total seriously injured.....	0.65	0.54	0.08	1.55	0.10	1.41	0.10	1.82	3.38	9.63
Percentage of class total seriously injured.....	6.70	5.64	.88	16.05	1.06	14.64	1.06	18.87	35.10	100.00
Number seriously injured per 1,000 employed on the surface ^a.....	.58	.49	.08	1.39	.09	1.27	.03	1.64	3.04	8.67

NUMBER SLIGHTLY INJURED.

Copper.....	59	17	26	58	23	157	4	87	265	696
Gold and miscellaneous metal.....	23	3	7	29	10	48	3	56	69	253
Iron.....	32	25	12	168	62	358	9	122	362	1,150
Lead and zinc (Mississippi Valley).....	2	52	2	25	25	29	.....	40	77	252
Miscellaneous mineral.....	7	.....	2	5	1	5	.....	6	6	32
Total.....	123	97	49	285	121	597	16	311	779	2,383
Percentage of grand total slightly injured.....	0.47	0.36	0.18	1.05	0.45	2.20	0.06	1.15	2.88	8.80
Percentage of class total slightly injured.....	5.37	4.07	2.06	11.96	5.08	25.05	.67	13.05	32.69	100.00
Number slightly injured per 1,000 employed on the surface ^a	1.96	1.48	.75	4.36	1.85	9.13	.25	4.70	11.91	36.45

^a Casualty rates per 1,000 employed is based on underground employees for underground accidents, and on surface employees for surface accidents.

non-ferrous mineral mines (except coal mines) in the United States during the calendar causes—Continued.

NUMBER KILLED.

Surface (where surface mining is done).												Grand total.		
By falls or slides of rock or ore.	By explosives.	By haulage accidents.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity.	By hand tools.	By other causes.	Total, surface fatalities or injuries (where surface mining is done).	1913	1912	1911
31	32	33	34	35	36	37	38	39	40	41				
4	6	12	.....	.....	.....	.....	2	.....	.....	.....	24	236	239	238
1	2	1	.....	.....	1	.....	3	2	.....	2	12	210	176	193
8	3	11	2	1	.....	.....	2	1	.....	.....	25	165	172	197
1	1	.....	.....	.....	.....	.....	1	.....	.....	1	4	42	54	43
3	.....	6	.....	.....	.....	.....	2	2	.....	5	18	30	20	24
17	12	30	2	1	1	.....	10	5	.....	8	86	683	661	695
2.49	1.76	4.39	0.29	0.15	0.15	.....	1.46	0.73	.....	1.17	12.59	100.00	.....	.....
19.77	13.95	34.88	2.33	1.16	1.16	.....	11.63	5.82	.....	9.30	100.00	.....	.....	.....
.26	.18	.45	.03	.02	.02	.....	.15	.08	.....	.12	1.31	3.54	3.91	4.19

NUMBER SERIOUSLY INJURED.

37	16	24	16	18	.....	.....	11	.....	5	27	154	2,195	1,807	1,326
4	2	4	14	10	3	1	1	.....	8	23	70	632	613	540
102	22	83	79	45	8	3	6	.....	74	112	534	2,820	1,800	2,032
1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	91	147	177
17	8	15	3	11	.....	1	13	3	7	17	95	152	135	94
161	49	126	112	84	11	5	31	3	94	179	855	5,890	4,502	4,169
2.73	0.83	2.14	1.90	1.43	0.19	0.08	0.53	0.05	1.59	3.04	14.51	100.00	.....	.....
18.83	5.73	14.74	13.10	9.82	1.29	.58	3.63	.35	10.99	20.94	100.00	.....	.....	.....
2.46	.75	1.93	1.71	1.28	.17	.08	.47	.05	1.44	2.74	13.08	30.50	26.61	25.12

NUMBER SLIGHTLY INJURED.

324	77	110	51	163	1	3	38	3	107	490	1,367	11,168	11,830	9,016
27	4	6	21	17	.....	.....	8	3	30	37	153	3,223	3,180	3,078
259	68	181	165	103	22	19	64	2	276	486	1,648	10,653	8,707	8,690
7	1	1	1	1	.....	1	1	.....	2	8	23	1,345	1,849	1,311
64	4	55	2	48	8	.....	47	3	39	180	450	692	666	313
681	154	353	240	335	31	23	158	11	454	1,201	3,641	27,081	26,232	22,408
2.51	0.57	1.30	0.89	1.24	0.11	0.09	0.58	0.04	1.68	4.44	13.45	100.00	.....	.....
18.70	4.23	9.70	6.59	9.20	.85	.63	4.34	.30	12.47	32.99	100.00	.....	.....	.....
10.41	2.36	5.40	3.67	5.12	.47	.35	2.42	.17	6.94	18.37	55.68	140.25	155.04	135.01

TABLE 3.—Number of men killed in and about all metal and miscellaneous mineral

State.	Underground.									
	By fall of rock or ore from roof or wall.	By rock or ore while loading at working face.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or stope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity.	By machinery (not including locomotives or drills).
	1	2	3	4	5	6	7	8	9	10
Alabama.....	11			1	4					
Alaska.....	10			5		2				
Arizona.....	29	1		12	14	10	1		6	
Arkansas.....										
California.....	10		2	7		5				2
Colorado.....	23			4	1	6			2	
Connecticut.....										
Florida.....										
Georgia.....										
Idaho.....	4	1	1	2		4	1			2
Illinois.....										
Iowa.....										
Kansas.....	4									
Kentucky.....										
Maine.....										
Maryland.....										
Massachusetts.....										
Michigan.....	31	3		4	3	6	4		1	
Minnesota.....	12	3	3	2	5	2				
Missouri.....	9	3	1	7	1	1			1	
Montana.....	20			5	2	7	2		1	
Nevada.....	8	1		4		1			1	
New Hampshire.....										
New Jersey.....	5			1						
New Mexico.....	4			9		2				
New York.....	4			1	1				2	
North Carolina.....				2						
Ohio.....										
Oklahoma.....	1									
Oregon.....	2			1						
Pennsylvania.....										
South Carolina.....										
South Dakota.....	3			1	1				1	
Tennessee.....	5	1				1				
Texas.....										
Utah.....	14		1	1	2	4	2			
Vermont.....										
Virginia.....	2			7						
Washington.....	3					1				
Wisconsin.....	6			1	1				1	
Wyoming.....										
Other States.....										
Total, 1913.....	220	10	8	77	35	52	10		16	4
Total, 1912.....	212	2	6	73	35	43	10	2	19	2
Total, 1911.....	191	(a)	10	62	20	47	14		15	10

^a Included in "Other causes."

mines (except coal mines) in the different States during the calendar year 1913, by causes.

Underground—Continued.						Shaft.						
By mine fires.	By suffocation from natural gases.	By inrush of water.	By stepping on nail.	By other causes.	Total underground fatalities.	By falling down shafts.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By skip or cage.	By other causes.	Total shaft fatalities.
11	12	13	14	15		16	17	18	19	20	21	
				2	18							
				7	17	1				1		2
					80	1				3		4
	2			2	32	2	1			5		8
					34	3	2			2		7
				3	18	1				1		2
				4					1			1
				2	54	4	3			9		20
				1	28	3	1	2	1	3	1	7
				1	21	1	1			1		3
				3	40	3	4			3	6	17
	1				16				1	3		3
					6	1				1		2
					15		1					1
					8		1			2		4
					2						1	2
					1							
					3							
					6							
					7	1	1					2
				1	25	4						4
				1								
					1		1					1
					4							
					9							
					9							
1	3			23	458	26	15	2	3	34	10	90
37	4			8	422	40	12	2		37	9	100
	8			10	436	57	18	4		(a)	27	106

TABLE 3.—Number of men killed in and about all metal and miscellaneous mineral causes—

State.	Surface.									Total, surface fatalities.
	By mine cars or mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By falls of persons.	By stepping on nail.	By hand tools, axes, bars, etc.	By electricity.	By machinery.	By other causes.	
	22	23	24	25	26	27	28	29	30	
Alabama.....								1	1	2
Alaska.....								1	1	2
Arizona.....		1							1	2
Arkansas.....										
California.....	1						1	1	3	6
Colorado.....	2							1		3
Connecticut.....										
Florida.....										
Georgia.....									1	1
Idaho.....				1	1			1	1	4
Illinois.....										
Iowa.....										
Kansas.....										
Kentucky.....										
Maine.....										
Maryland.....										
Massachusetts.....										
Michigan.....	2	1		1			1		2	7
Minnesota.....				1					1	2
Missouri.....	2	1					1	2	3	6
Montana.....				1					1	2
Nevada.....							2	3		5
New Hampshire.....										
New Jersey.....										
New Mexico.....										
New York.....	1			1						2
North Carolina.....										
Ohio.....										
Oklahoma.....										
Oregon.....										
Pennsylvania.....										
South Carolina.....										
South Dakota.....		1								1
Tennessee.....										
Texas.....								1		1
Utah.....										
Vermont.....										
Virginia.....	1									1
Washington.....										
Wisconsin.....			2							2
Wyoming.....										
Other States.....										
Total, 1913.....	9	4	2	5	1		5	11	12	49
Total, 1912.....	6	5	2	6			5	11	24	59
Total, 1911.....	4	8	3	(a)			2	8	42	67

(a) Included in "Other causes."

mines (except coal mines) in the different States during the calendar year 1913, by Continued.

Surface (where surface mining is done).												Grand total.		
By falls or slides of rock or ore.	By explosives.	By haulage accidents.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity.	By hand tools.	By other causes.	Total, surface fatalities (where surface mining is done).	1913	1912	1911
31	32	33	34	35	36	37	38	39	40	41				
1	1						1			1	3	22	33	10
	1						1				4	25	21	
												86	67	70
					1		2	2		1	6	52	1	2
												44	40	38
1		5					2	2		4	14	14	6	9
												1		2
												24	20	23
												1	1	1
												4	2	1
													1	2
													1	3
1											1	82	96	134
8											26	63	50	76
1	2	11	2	1			1	1		1	4	34	36	38
	1											64	50	62
1		3					2				6	25	34	50
													1	
												8	13	23
1	5	6									12	28	13	11
												14	17	10
												4	1	4
													1	
													1	
												1	2	
												3	1	2
													2	1
												1	6	8
												10	12	10
												1		
3	1	3									7	36	41	49
												1	2	
	1										1	12	4	6
												4	4	3
												11	22	3
													4	
										1	1	1		1
17	12	30	2	1	1		10	5		8	86	683		
16	21	20	4	3	2		6	1		7	80		661	
35	16	21	1	3	1		3		(a)	6	86			695

TABLE 4.—Number of men killed in and about the various groups

COPPER MINES.

State.	Underground.									
	By fall of rock or ore from roof or wall.	By rock or ore while loading at working face.	By timber or hand tools.	By explosives.	By hauling accidents.	By falling down chute, winze, raise, or slope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity.	By machinery (not including locomotives or drills).
	1	2	3	4	5	6	7	8	9	10
Alaska.....										
Arizona.....	27	1		9	14	9			4	
California.....	3		1	2					1	
Colorado ^a										
Idaho.....						2				
Michigan.....	12			2	2	4				
Montana.....	15			5	2	7	2		1	
Nevada.....	2	1		1						
New Mexico.....	1			3						
Oregon.....										
South Dakota.....										
Utah.....	10			1	2	2	2			
Washington.....	2									
Wyoming.....	1					1				
Other States.....										
Total, 1913.....	76	2	1	23	20	25	6		6	
Total, 1912.....	87		4	21	9	16	6	1	9	
Total, 1911.....	82		6	18	5	19	6		6	3

GOLD AND MISCELLANEOUS METAL MINES.

Alabama.....										
Alaska.....	10			5		2				
Arizona.....	2			3		1			2	
California.....	6		1	5		5	1		1	2
Colorado ^b	23			4	1	6				
Georgia.....										
Idaho.....	4	1	1	2		2	1			2
Montana.....	2			3						
Nevada.....	6			3		1			1	
New Mexico.....				6		2				
New York.....										
North Carolina.....										
Oregon.....	2			1						
South Dakota.....	3			1	1				1	
Tennessee.....	2			1						
Texas.....										
Utah.....	4		1			1				
Virginia.....				5						
Washington.....	1					1				
Wyoming.....										
Other States.....	3									
Total, 1913.....	68	1	3	35	2	21	2		5	4
Total, 1912.....	49	1	1	27	7	17	2		5	
Total, 1911.....	40		2	24	7	18	6		7	5

^a Included in gold and miscellaneous metal mines.^b Includes copper and iron mines.

of mines in the United States during the calendar year 1913, by causes.

COPPER MINES.

Underground—Continued.						Shaft.						
By mine fires.	By suffocation from natural gases.	By intrush of water.	By stepping on nail.	By other causes.	Total, underground fatalities.	By falling down shafts.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By skip or cage.	By other causes.	Total, shaft fatalities.
11	12	13	14	15		16	17	18	19	20	21	
				6	70					2		2
					7	1						1
				1	3							
				2	24	2						
				3	38	3	3			4		9
					4		4			3		17
					4							
					17	2			1			2
					2							
					2		1					1
				12	171	9	7		1	9	6	32
	1			3	137	11	2			14	1	25
12	2			1	160	17	5				17	39

GOLD AND MISCELLANEOUS METAL MINES.

				1	17	1				1		2
				2	10	1				1		2
	2				24	1				5		7
					34	3	2			2		7
				2	15	1				1		2
					2							
	1				12					3		3
					8		1					1
											2	2
					3							
					2		1					1
				1	7	2						2
					5	1						1
					2							
					3							
1	3			6	150	10	5			13	2	30
17	5			1	114	16	2			10	2	33
				2	133	16	8				3	30

TABLE 4.—Number of men killed in and about the various groups of COPPER MINES.

State.	Surface.									
	By mine cars or mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By falls of persons.	By stepping on nail.	By hand tools, axes, bars, etc.	By electricity.	By machinery.	By other causes.	Total, surface fatalities.
	22	23	24	25	26	27	28	29	30	
Alaska.....										
Arizona.....		1							1	2
California.....	1									1
Colorado ^a										
Idaho.....										
Michigan.....		1								1
Montana.....							2	3		5
Nevada.....										
New Mexico.....										
Oregon.....										
South Dakota.....										
Utah.....										
Washington.....										
Wyoming.....										
Other States.....										
Total, 1913.....	1	2					2	3	1	9
Total, 1912.....	1	5		4			3	3	15	31
Total, 1911.....		3	1				1	3	14	22

GOLD AND MISCELLANEOUS METAL MINES.

Alabama.....								1	1	2
Alaska.....										
Arizona.....							1	1	3	5
California.....								1		3
Colorado ^b	2									
Georgia.....										
Idaho.....				1	1			1	1	4
Montana.....				1					1	2
Nevada.....										
New Mexico.....										
New York.....										
North Carolina.....										
Oregon.....										
South Dakota.....		1								1
Tennessee.....										
Texas.....								1		1
Utah.....										
Virginia.....										
Washington.....										
Wyoming.....										
Other States.....										
Total, 1913.....	2	1		2	1		1	5	6	18
Total, 1912.....	3						1	5	3	12
Total, 1911.....	3		1				1	3	17	25

^a Included in gold and miscellaneous metal mines.^b Includes copper and iron mines.

TABLE 4.—Number of men killed in and about the various groups of
IRON MINES.

State.	Underground.									
	By fall of rock or ore from roof or wall.	By rock or ore while loading at working face.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or slope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity.	By machinery (not including locomotives or drills).
	1	2	3	4	5	6	7	8	9	10
Alabama.....	11			1	4					
Georgia.....	19	3		2	1	2			1	
Michigan.....	12	3	3	2	5	2				
Missouri.....										
Nevada.....										
New Jersey.....	2			1						
New Mexico.....	1									
New York.....	2			1	1				2	
Ohio.....										
Pennsylvania.....										
Tennessee.....		1								
Utah.....										
Virginia.....	1			1						
Wisconsin.....	4			1	1				1	
Other Eastern States.....				2						
Other Western States.....										
Total, 1913.....	52	7	3	11	12	4	2		4	
Total, 1912.....	55	1	1	15	17	9	1	1	2	2
Total, 1911.....	45		1	11	6	10	2			

LEAD AND ZINC MINES.

Arkansas.....										
Illinois ^a										
Iowa.....										
Kansas.....	4									
Kentucky ^a										
Missouri.....	9		1	7	1	1			1	
Oklahoma.....	1									
Wisconsin.....	2									
Total, 1913.....	16		1	7	1	1			1	
Total, 1912.....	18			9	1	1	1		3	
Total, 1911.....	18		1	3	2				2	

MISCELLANEOUS MINERAL MINES.

All States, 1913.....	8			1		1				
All States, 1912.....	3			1	1					
All States, 1911.....	6			6						

^a Includes fluorspar mines that produce lead as a by-product.

mines in the United States during the calendar year 1913, by causes—Continued.

IRON MINES.

Underground—Continued.						Shaft.						
By mine fires.	By suffocation from natural gases.	By inrush of water.	By stepping on nail.	By other causes.	Total, underground fatalities.	By falling down shafts.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By skip or cage.	By other causes.	Total, shaft fatalities.
11	12	13	14	15		16	17	18	19	20	21	
				2	18							
				1	30				1	5	1	11
					28		1	2		3		7
					3							
					1		1			1		2
					6					2		4
					1							
					2							
					2							
					2							
				3	93	6	2	2	1	11	2	24
8				5	111	7	4			13	1	25
	1				103	23	3	1			6	33

LEAD AND ZINC MINES.

									1			1
					4							
				1	21	1	1			1		3
					1							
					2							
				1	28	1	1		1	1		4
				2	35	5	4				4	13
				2	28	1	2				1	4

MISCELLANEOUS MINERAL MINES.

				1	11							
					5							
					12	1						1

TABLE 4.—Number of men *killed* in and about the various groups of
IRON MINES.

State.	Surface.									
	By mine cars or mine loco- motives.	By railway cars and loco- motives.	By run or fall of ore in or from ore bins.	By falls of persons.	By stepping on nail.	By hand tools, axes, bars, etc.	By electricity.	By machinery.	By other causes.	Total, surface fatalities.
	22	23	24	25	26	27	28	29	30	
Alabama.....								1	1	2
Georgia.....										
Michigan.....	2			1			1		2	6
Minnesota.....				1					1	2
Missouri.....										
Nevada.....										
New Jersey.....										
New Mexico.....										
New York.....	1			1						2
Ohio.....										
Pennsylvania.....										
Tennessee.....										
Utah.....										
Virginia.....	1									1
Wisconsin.....			2							2
Other Eastern States.....										
Other Western States.....										
Total, 1913.....	4		2	3			1	1	4	15
Total, 1912.....	2		2	2			1	1	1	9
Total, 1911.....	1	2	1					2	4	10

LEAD AND ZINC MINES.

Arkansas.....										
Illinois ^c										
Iowa.....										
Kansas.....										
Kentucky ^c										
Missouri.....	2	1					1	2		6
Oklahoma.....										
Wisconsin.....										
Total, 1913.....	2	1					1	2		6
Total, 1912.....								1	4	5
Total, 1911.....		3						7		10

MISCELLANEOUS MINERAL MINES.

All States, 1913.....								1	1	1
All States, 1912.....								1	1	2
All States, 1911.....										

^a Included in Eastern States.^b Included in Western States.

mines in the United States during the calendar year 1913, by causes—Continued.

IRON MINES.

Surface (where surface mining is done).											Grand total.			
By falls or slides of rock or ore.	By explosives.	By haulage accidents.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity.	By hand tools.	By other causes.	Total, surface fatalities (where surface mining is done).	1913	1912	1911
31	32	33	34	35	36	37	38	39	40	41				
	1						1				2	22	32	10
8	2	11	2	1			1	1			26	47	(a) 52	69
												63	50	76
													(b) 7	1
												5	(b) 7	20
												1	(b) 14	6
												12	(a) 14	6
													(a) 2	1
												1	1	2
													(b) 2	2
												3	2	5
												9	9	2
												2	2	2
													3	2
8	3	11	2	1			2	1			28	165		
5	5	11		1			2			1	27		172	
22	10	14	1		2					3	51			197

LEAD AND ZINC MINES.

												1	1	2
												4	2	1
1	1						1			1	4	34	36	37
												1	1	
												2	13	1
1	1						1			1	4	42		
							1			1	1		54	
										1	1			43

MISCELLANEOUS MINERAL MINES.

3		6				2	2		5	18	30			
3	2	1		1		2			3	12		20		
	1	5		1			1		1	12				24

* Includes fluorspar mines that produce lead as a by-product.

TABLE 5.—Number of men employed, number of days worked, and number of men killed per 1,000 employed in and about all metal and miscellaneous mineral mines (except coal mines) in the different States during the calendar year 1913.

State.	Number of active operators.	Number of employees.			Days' work done.	Average number of days worked.	Number killed.					Widows.	Orphans.	
		Under-ground.	On the surface.	Total.			Under-ground. ^a	Per 1,000 employed.	On the surface.	Per 1,000 employed.	Total.			Per 1,000 employed.
Alabama.....	24	3,351	1,861	5,212	1,485,189	285	18	5.37	4	2.15	22	4.22	9	16
Alaska ^b	350	5,925	2,075	8,000	2,096,782	263	19	3.21	6	2.89	25	3.13	2	3
Arizona.....	425	13,031	3,453	16,489	5,194,231	315	84	6.45	2	.58	86	5.22	35	27
Arkansas.....	8	28	309	337	87,046	258								
California.....	1,054	7,437	4,039	11,476	3,115,698	271	40	5.38	12	2.97	52	4.53	21	25
Colorado ^c	1,013	14,382	1,567	15,949	4,767,651	299	41	2.85	3	1.91	44	2.76	19	
Connecticut.....	5	147	108	255	74,004	290								
Florida.....	27	18	4,520	4,538	1,150,343	253			14	3.10	14	3.09	3	10
Georgia.....	21	131	313	444	101,867	229			1	3.19	1	2.25		
Idaho.....	588	4,096	1,673	5,769	1,634,392	283	20	4.88	4	2.39	24	4.16	1	4
Illinois.....	12	317	194	511	135,732	266	1	3.15			1	1.96	1	1
Iowa.....	9	215	16	231	61,042	215								
Kansas.....	40	440	168	608	147,034	242	4	9.09			4	6.58	3	
Kentucky.....	15	228	288	516	94,493	183								
Maine.....	5		121	121	32,178	256								
Maryland.....	16	14	345	359	104,195	290								
Massachusetts.....	3	34	14	48	14,028	292								
Michigan.....	84	19,531	8,643	28,174	7,878,782	280	74	3.79	8	.92	82	2.91	45	133
Minnesota.....	54	8,937	10,609	19,546	5,976,512	306	35	3.92	28	2.64	63	3.22	32	64
Missouri.....	283	7,053	2,694	9,747	2,454,713	252	24	3.40	10	3.71	34	3.49	19	44
Montana.....	384	15,192	4,308	19,500	6,177,500	317	57	3.75	7	1.62	64	3.28	32	54
Nevada.....	566	4,948	2,368	7,316	2,242,654	307	19	3.84	6	2.53	25	3.42	8	10
New Hampshire.....	7	18	63	83	16,010	193								
New Jersey.....	7	1,072	361	1,433	443,973	310	8	7.46			8	5.58	5	14
New Mexico.....	139	2,015	1,751	3,766	914,038	243	12	7.94	12	6.85	28	7.43	11	16
New York ^d	36	2,237	1,108	3,345	930,615	278	16	5.36	2	1.81	14	4.19	6	13
North Carolina.....	60	756	411	1,167	228,245	186	4	5.16			4	3.43	2	3
Ohio.....	7	280	25	305	85,807	281								
Oklahoma.....	36	368	273	641	148,132	231	1	2.72			1	1.56	1	1
Oregon.....	261	709	640	1,349	262,126	194	3	4.23			3	2.22	2	2
Pennsylvania.....	34	111	545	656	171,463	261	3				3			
South Carolina.....	6	22	422	444	96,985	318								
South Dakota.....	74	2,774	1,129	3,903	720,169	185	6	2.16	2	1.77	8	2.05	3	5
Tennessee.....	36	1,275	1,876	3,151	829,277	263	9	7.06	1	.53	10	3.17	5	9
Texas.....	8	241	109	350	102,695	291			1	9.17	1	2.86	1	3
Utah.....	285	4,799	3,073	7,872	2,541,022	323	29	6.04	7	2.28	36	4.59	7	10
Vermont.....	10	76	67	143	33,236	232	1	13.16			1	6.99	1	1
Virginia.....	28	1,129	1,467	2,596	710,805	274	10	8.86	2	1.36	12	4.62	7	18

Washington.....	231	843	459	1,302	260,828	200	4	4.74	2	1.88	4	3.07	1	2
Wisconsin.....	61	3,267	1,063	4,330	1,245,478	288	9	2.75	2	1.88	11	2.54	3	10
Wyoming.....	71	255	361	616	135,280	220								
Other States ^c	3	490	490	490	175,705	359			1	2.04	1	2.04	1	3
Total, 1913.....	6,387	127,702	65,386	193,088	55,077,855	285	548	4.29	135	2.06	683	3.54	286	501
Total, 1912.....	5,967	110,056	59,143	169,199	48,498,510	287	522	4.74	139	2.35	661	3.91	273	520
Total, 1911.....	5,232	104,623	61,356	165,979	46,826,573	282	542	5.18	153	2.49	695	4.19	297	600

^a Includes those killed in shaft accidents.
^b Reported by Sumner S. Smith, United States mine inspector, Juneau, Alaska.
^c Reported by T. R. Henahan, commissioner of metalliferous mines, Denver, Colo.
^d Reported by W. W. Jones, State mine inspector, Albany, N. Y.
^e Includes Louisiana, Rhode Island, and West Virginia.

TABLE 6.—Number of men employed, number of days worked, and number of men killed per 1,000 employed in and about the copper mines in the United States during the calendar year 1913.

State.	Number of active operators.	Number of employees.			Days' work done.	Average number of days worked.	Number killed.					Widows.	Orphans.	
		Under-ground.	On the surface.	Total.			Under-ground.	Per 1,000 employed.	On the surface.	Per 1,000 employed.	Total.			Per 1,000 employed.
Alaska.....	13	235	200	435	145,657	335								
Arizona.....	182	11,679	2,788	14,467	4,716,629	326	7	6.17	2	0.72	74	5.05	30	18
California.....	43	1,317	429	1,746	510,357	292	82	6.07	1	2.33	9	5.15	4	5
Colorado ^a														
Idaho.....	57	398	104	502	140,726	280	3	7.54			3	5.98		3
Michigan.....	37	8,047	4,072	12,119	3,132,860	259	33	4.10	1	.25	34	2.81	19	75
Montana.....	72	13,832	3,520	16,852	5,491,322	326	55	4.13	5	1.42	60	3.56	30	54
Nevada.....	71	1,035	906	1,941	627,492	323	4	3.86	6	6.62	10	5.15	3	3
New Mexico.....	31	470	1,090	1,560	534,604	343	4	8.51	12	11.01	16	10.26	6	8
Oregon.....	24	112	143	260	34,209	132								
South Dakota.....	4	6	20	26	2,193	84								
Utah.....	65	2,199	2,457	4,656	1,606,918	345	19	8.64	6	2.44	25	5.37	7	10
Washington.....	69	397	241	638	167,669	262	2	5.04			2	3.13		
Wyoming.....	19	73	29	102	15,990	157								
Other States ^b	7	617	218	835	242,640	291	3	4.86			3	3.59	1	5
Total, 1913.....	694	39,917	16,222	56,139	17,869,266	327	203	5.09	33	2.03	236	4.20	100	180
Total, 1912.....	814	37,539	14,237	51,776	15,831,250	306	185	4.93	54	3.79	239	4.62	87	159
Total, 1911.....	396	31,557	13,136	44,693	13,774,325	308	199	6.31	39	2.97	238	5.33	91	195

^a Included in gold and miscellaneous metal mines.
^b To avoid disclosing information relating to individual operators, statistics for those States in which there were less than 3 operators are not shown separately. In 1913 these States were Maryland, North Carolina, Pennsylvania, Tennessee, Vermont, and Virginia.

TABLE 7.—Number of men employed, number of days worked, and number of men killed per 1,000 employed in and about the gold and miscellaneous metal mines in the United States during the calendar year 1913.

State.	Number of active operators.	Number of employees.			Days' work done.	Average number of days worked.	Number killed.					Widows.	Orphans.	
		Under-ground.	On the surface.	Total.			Under-ground. ^a	Per 1,000 employed.	On the surface.	Per 1,000 employed.	Total.			Per 1,000 employed.
Alabama.....	3	25	65	90	25,032	278								
Alaska.....	337	5,690	1,875	7,565	1,951,125	258	19	3.34	6	3.20	25	3.30	2	3
Arizona.....	239	1,349	635	1,984	467,090	235	12	8.90			12	6.05	5	9
California.....	990	6,039	3,465	9,504	2,538,133	267	31	5.13	11	3.17	42	4.42	16	20
Colorado ^b	1,013	14,382	1,567	15,949	4,767,651	299	41	2.85	3	1.91	44	2.76	19	
Georgia.....	8	61	134	195	40,816	209								
Idaho.....	522	3,633	1,538	5,171	1,472,143	285	17	4.68	4	2.60	21	4.06	1	2
Montana.....	309	1,812	781	2,593	669,174	258	2	1.10	2	2.56	4	1.54	2	
Nevada.....	487	3,884	1,405	5,289	1,591,057	301	15	.86			15	2.84	5	7
New Mexico.....	97	1,442	538	1,980	330,739	167	9	6.24			9	4.55	3	1
New York ^c	3	105	24	129	37,539	291								
North Carolina.....	13	216	84	300	78,675	262	2	9.26			2	6.67	1	2
Oregon.....	235	596	451	1,047	217,067	207	3	5.03			3	2.87	2	2
South Dakota.....	67	2,755	1,099	3,854	714,766	185	6	2.18	2	1.82	8	2.08	3	5
Texas.....	3	216	47	263	82,130	312			1	21.28	1	3.80	1	3
Utah.....	206	2,514	551	3,065	890,780	291	9	3.58			9	2.94		
Virginia.....	7	236	233	469	137,838	294	6	25.42	1	4.29	7	14.93	3	8
Washington.....	158	436	208	644	92,240	143	2	4.59			2	3.11	1	2
Wyoming.....	43	76	90	166	20,383	123								
Other States ^d	9	676	380	1,056	309,230	293	6	8.88			6	5.68	3	6
Total 1913.....	4,749	46,143	15,170	61,313	16,433,608	268	180	3.90	30	1.98	210	3.43	67	70
Total, 1912.....	4,137	31,322	12,822	44,144	12,229,761	277	147	4.69	29	2.26	176	3.99	71	98
Total, 1911.....	3,817	35,176	13,743	48,919	13,512,633	276	163	4.63	30	2.18	193	3.95	61	118

^a Includes those killed in shaft accidents.^b Reported by T. R. Henaben, commissioner of mines, Denver, Colo.^c Reported by W. W. Jones, State mine inspector, Albany, N. Y.^d Includes Arkansas, New Jersey, Oklahoma, South Carolina, Tennessee, and Wisconsin.

TABLE 8.—Number of men employed, number of days worked, and number of men killed per 1,000 employed in and about the iron mines in the United States during the calendar year 1913.

State.	Number of active operators.	Number of employees.			Days' work done.	Average number of days worked.	Number killed.					Widows.	Orphans.	
		Under-ground.	On the surface.	Total.			Under-ground.	Per 1,000 employed.	On the surface.	Per 1,000 employed.	Total.			Per 1,000 employed.
Alabama.....	17	3,314	1,755	5,069	1,453,165	287	18	5.43	4	2.23	22	4.34	9	16
Michigan.....	42	11,288	4,502	15,790	4,669,852	296	41	3.63	6	1.33	47	2.98	25	58
Minnesota.....	54	8,937	10,609	19,546	5,976,512	306	35	3.92	28	2.64	63	3.22	32	64
Missouri.....	8	26	151	177	31,775	180								
Nevada.....	3	28	12	40	14,137	353								
New Jersey.....	5	642	336	978	301,623	303	5	7.79			5	5.11	3	8
New Mexico.....	3	17	42	59	14,629	243	1	58.82			1	16.95	1	3
New York ^a	10	1,358	786	2,144	630,336	294	10	7.36	2	2.54	12	5.60	4	9
Ohio.....	3	34	6	40	8,013	200								
Pennsylvania.....	11	64	341	405	108,960	269								
Tennessee.....	14	307	714	1,021	211,803	207	1	3.26			1	.98	1	4
Utah.....	5	25	6	31	7,374	233								
Virginia.....	7	595	1,135	1,730	458,875	265	2	3.36	1	.88	3	1.73	3	5
Wisconsin.....	7	2,287	704	2,991	878,415	294	7	3.06	2	2.84	9	3.01	2	10
Other Eastern States ^b	9	297	423	720	184,109	256	2	6.73			2	2.78	1	1
Other Western States ^b	8	165	227	392	114,851	293								
Total, 1913.....	296	29,384	21,749	51,133	15,064,429	295	122	4.15	43	1.98	165	3.23	81	178
Total, 1912.....	194	26,799	18,947	45,746	13,035,485	285	136	5.07	36	1.90	172	3.76	84	198
Total, 1911.....	207	25,461	20,492	45,953	12,749,121	277	136	5.34	61	2.98	197	4.29	114	237

^a Reported by W. W. Jones, State mine inspector, Albany, N. Y.

^b To avoid disclosing information relating to individual operators, statistics for those States in which there were less than 3 operators are not shown separately. In 1913, these States were as follows: Eastern States—Connecticut, Georgia, Kentucky, Maryland, Massachusetts, North Carolina, and West Virginia; Western States—Arizona, California, Idaho, Montana, Washington, and Wyoming.

Iowa.....	6	212	14	226	60,114	266								
Kansas.....	3	52	24	76	20,805	274								
Kentucky.....	4	13	73	86	17,920	208								
Maine.....	5		121	121	32,178	266								
Maryland.....	13	4	178	180	53,705	298								
Michigan.....	5	196	69	265	76,070	287		1	14.49		1	3.77	1	
Missouri.....	11	21	23	44	8,377	190								
Nevada.....	5	1	45	46	9,968	217								
New Hampshire.....	7	18	65	83	16,010	193								
New Mexico.....	8	86	81	167	34,066	204	2	23.26		2	11.98		1	4
New York ^b	23	774	298	1,072	262,640	245	2	2.58		2	1.87		2	4
North Carolina.....	45	390	262	652	94,845	145								
Ohio.....	4	246	19	265	77,794	294								
Oklahoma.....	9	33	153	186	39,974	215								
Pennsylvania.....	22	47	203	250	62,470	250								
South Carolina.....	4	17	416	433	95,395	220								
South Dakota.....	3	13	10	23	3,210	140								
Tennessee.....	18	177	947	1,124	307,347	273	2	11.30	1	1.06	3	2.67	2	
Texas.....	5	25	62	87	20,565	236								
Utah.....	9	61	59	120	35,950	300	1	16.39	1	16.13	2	16.67		
Vermont.....	9	58	62	120	26,336	219	1	17.24			1	8.33	1	1
Virginia.....	13	295	97	392	113,592	290	2	6.78			2	5.10	1	5
Wyoming.....	8	9	31	40	7,739	193								
Other States ^c	13	29	528	557	189,289	340			1	1.90	1	1.81	1	3
Total, 1913.....	329	2,997	8,809	11,866	2,983,883	253	11	3.67	19	2.16	30	2.54	13	27
Total, 1912.....	358	3,584	9,617	13,201	3,619,070	274	6	1.67	14	1.46	23	1.52	5	3
Total, 1911.....	329	3,182	10,711	13,893	3,588,155	258	12	3.77	12	1.12	24	1.73	5	10

^a Included in gold and miscellaneous metal mines.

^b Reported by W. W. Jones, State mine inspector, Albany, N. Y.

^c To avoid disclosing information relating to individual operators, statistics for those States in which there were less than 3 operators are not shown separately. In 1913 these States were Louisiana, Massachusetts, Montana, New Jersey, Oregon, Rhode Island, Washington, and Wisconsin.

TABLE 11.—Number of men seriously injured in and about all metal and miscellaneous the calendar year

State.	Underground.									
	By fall of rock or ore from roof or wall.	By rock or ore while leading at working face.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or slope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity.	By machinery (not including locomotives or drills).
	1	2	3	4	5	6	7	8	9	10
<i>Class A.</i>										
Arizona.....	242	42	84	21	152	42	6	25		7
California.....	35	6	10	4	9	8	3	13	2	9
Colorado.....	32	5	5	7	9	12	1			4
Idaho.....	23	5	2	2	6	4	6	5		4
Michigan.....	237	143	160	20	210	45	28	74		29
Minnesota.....	305	16	209	26	153	36	45	21		10
Missouri.....	9	5	3	4	11	3		2		2
Montana.....	133	1	46	5	56	47	36	9		2
Nevada.....	33	10	16	7	14	9	3	16	1	1
New Jersey.....	10	2	3	3	7	1		1		2
New York.....	15	30	3	3	25		3	12		2
Oregon.....	2		1			2				
South Dakota.....	5	2	1	1	4	1	4			
Washington.....			2	7		1		4		
Wisconsin.....	41	8	10	1	34	5	4	3	4	6
<i>Class B.</i>										
Alabama.....	68	38	8	5	91	2		24		7
Alaska.....	1									
Arkansas.....	1		1							
Connecticut.....			1							
Florida.....			1							
Georgia.....										
Illinois.....					2					
Indiana, Louisiana, and West Virginia.....										
Iowa.....	1				2					
Kansas.....	2									
Kentucky.....	2									
Maine.....										
Maryland.....										
Massachusetts.....	1				1					
New Hampshire.....										
New Mexico.....	3			2		1				
North Carolina.....	2			1	2			2		
Ohio.....					2			1		
Oklahoma.....	2				2					
Pennsylvania.....										
South Carolina.....										
Tennessee.....	4	7		2	4	1		3		1
Texas.....	1									
Utah.....	49		6	7	22	5	3	3		4
Vermont.....						1				
Virginia.....	4			3			1	1		
Wyoming.....										
Total, 1913.....	1,260	320	571	132	818	223	145	219	7	83
Total, 1912.....	1,102	261	313	153	579	201	113	203	7	51
Total, 1911.....	1,214		267	133	606	161	105	190	3	106

laneous mineral mines (except coal mines) in the United States (by States) during 1913, by causes.

Underground—Continued.						Shaft.						
By mine fires.	By suffocation from natural gases.	By inrush of water.	By stepping on nail.	By other causes.	Total, underground.	By falling down shafts.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By skip or cage.	By other causes.	Total, shaft.
11	12	13	14	15		16	17	18	19	20	21	
2			2	77	702	1	2		1	12	6	22
				21	120	1	2			8	2	13
				1	72	1	1			6	3	11
1			1	8	67		1				2	3
	2		5	141	1,094	11	16			22	14	63
		9	6	54	890	10	13			10	7	40
				2	41		1					3
3				39	379	1	6		1	3	14	25
	1			7	116	4	2			5	1	12
				3	33			1				1
			1	8	104	1				5		6
				5	5							
				1	19	1	1					2
					14							
			2	43	161	3	2			2	2	9
			1	10	254							
					1		1					1
					1							
					1							
				1	1							
					2							
					3							
					2							
					2							
					2							
					2							
					2							
				1	1							
				1	7							
				1	8					1		1
					3							
					4							
				1	23	3	1					4
					1							
				5	104	1			1	4		6
					1							
					9	1						1
6	3	9	18	425	4,245	40	48	1	3	80	51	223
1	5	3	9	269	3,270	35	50	3		71	18	177
	1			318	3,110	42	40	2	12		57	153

TABLE 11.—Number of men seriously injured in and about all metal and miscellaneous calendar year 1913.

State.	Surface.									
	By mine cars and mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By falls of persons.	By stepping on mail.	By hand tools, axes, bars, etc.	By electricity.	By machinery.	By other causes.	Total, surface.
	22	23	24	25	26	27	28	29	30	
<i>Class A.</i>										
Arizona.....	8	3	1	10	1	6	1	9	40	79
California.....		1		1		1		8	5	16
Colorado.....	2			1				6	2	11
Idaho.....				1		2		3	4	10
Michigan.....	3	9	3	32	4	32	1	33	61	178
Minnesota.....	4	15		22		20	1	14	50	132
Missouri.....		2		1		1		4	2	10
Montana.....	5			9		6	3	7	13	43
Nevada.....	3					1		1	3	8
New Jersey.....	1			1		1			4	6
New York.....	2							1	1	5
Oregon.....					1					1
South Dakota.....	1			1						2
Washington.....								1	1	2
Wisconsin.....	1			4		4		3	5	17
<i>Class B.</i>										
Alabama.....		1		3		1		1	1	7
Alaska.....									1	1
Arkansas.....										
Connecticut.....										
Florida.....										
Georgia.....										
Illinois.....		1				1		1		3
Indiana, Louisiana, and West Virginia.....										
Iowa.....										
Kansas.....										
Kentucky.....										
Maine.....										
Maryland.....										
Massachusetts.....										
New Hampshire.....										
New Mexico.....								2		2
North Carolina.....	1							2	1	4
Ohio.....										
Oklahoma.....				1						1
Pennsylvania.....										
South Carolina.....										
Tennessee.....	3		1	3		2		4	1	14
Texas.....										
Utah.....	2							7	4	13
Vermont.....										
Virginia.....	2									2
Wyoming.....										
Total, 1913.....	38	32	5	91	6	83	6	107	199	567
Total, 1912.....	32	27	19	87	6	63	4	104	123	465
Total, 1911.....	50	15	16				1	92	182	356

laneous mineral mines (except coal mines) in the United States (by States) during the by causes—Continued.

Surface (where surface mining is done).												Grand total.		
By falls or slides of rock or ore.	By explosives.	By haulage accidents.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity.	By hand tools.	By other causes.	Total, surface (where surface mining is done).	1913	1912	1911
31	32	33	34	35	36	37	38	39	40	41				
1		2									4	807	549	336
3	1	1	13	8	2				8	22	57	206	167	123
							1				1	95	137	128
1	1										2	82	61	43
1	1						1				3	1,338	1,213	1,208
96	20	76	70	43	7	3	5		73	111	510	1,572	857	1,131
1	1	1									3	57	102	140
14	5	7	6	3	1		8		4		2	449	224	138
				2							2	184	162	75
3		5									2	42	55	29
											8	123	70	83
												6	5	4
				2								23	25	39
										2		16	3	6
											4	191	82	58
		5		1					1		7	268	287	153
1		1									1	4	25	
											1	2	3	2
7	6	10	1	9		1	8	3	5	4	54	55	39	34
							2				2	2		9
2		2							2	8	14	5	15	7
												14	20	
											3	3		4
											2		3	9
														5
										1				3
										1	1	1		
											2			
5		4	3	2						12	26	35	13	30
1							1			2	4	17	13	11
	1											3	5	9
		1								1		6	2	2
											1	2	6	
1		2					1				4	2	10	
												45	75	52
											1	1		
22	10	11	7	13			3	1	16		83	206	237	204
							1				1	2	6	
2		2	1	1	1	1	1				7	19	21	33
	2	1									3	3	1	
161	49	126	112	84	11	5	31	3	94	179	855	5,890		
124	54	77	70	46	13	1	25	6	45	129	590		4,502	
94	41	123	64	50	10	4	46	3		115	550			4,169

TABLE 12.—Number of men *slightly injured* in and about all metal and miscellaneous calendar year

State.	Underground.									
	By fall of rock or ore from roof or wall.	By rock or ore while loading at working face.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or slope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity.	By machinery (not including locomotives or drills).
	1	2	3	4	5	6	7	8	9	10
<i>Class A.</i>										
Arizona.....	1,325	264	699	44	504	192	135	128	8	23
California.....	107	41	45	1	64	22	23	26		13
Colorado.....	51	8	9	7	20	14	1	6	2	
Idaho.....	160	67	78	1	56	29	13	77	1	9
Michigan.....	1,036	740	605	42	615	95	193	337	1	114
Minnesota.....	835	161	760	51	355	47	102	72	8	53
Missouri.....	105	227	66	12	103	2	1	83		40
Montana.....	726	18	417	10	297	189	190	64	2	15
Nevada.....	203	30	115	8	116	36	45	57	1	20
New Jersey.....	47	10	51	4	46	8	64	21		9
New York.....	25	111	15	6	82	5	5	49	5	5
Oregon.....	6	2	2		1			4		
South Dakota.....	38	45	20	8	56	10	119	34		
Washington.....	4	1	2	1	3		2	2		
Wisconsin.....	262	41	103	16	108	9	12	25	21	41
<i>Class 1</i>										
Alabama.....	134	387	137	4	454	17	2	169		21
Alaska ^a	1		1	2	1		2			
Arkansas.....	1									
Connecticut.....										
Florida.....										
Georgia.....	3	2	1			1		2		
Illinois.....	2	3	2	1			1	1		
Indiana, Louisiana, and West Virginia.....										
Iowa.....		15	4	1	7			2		4
Kansas.....	16	1	1							1
Kentucky.....	5									1
Maine.....										
Maryland.....										
Massachusetts.....				1						
New Hampshire.....										
New Mexico.....	10	2	1		4	1	1	1		
North Carolina.....		2	3		1					
Ohio.....	2	5	3	1	9			5	1	
Oklahoma.....	48	6	4	1	4		1	17		2
Pennsylvania.....										
South Carolina.....										
Tennessee.....	25	50	4	6	24	5	13	40		12
Texas.....	6					1		4		
Utah.....	253	19	71	7	75	36	48	49	3	14
Vermont.....	3									
Virginia.....	14	6	5	9	10	2		5		3
Wyoming.....	1				1					
Total, 1913.....	5,454	2,264	3,224	244	3,016	721	973	1,281	53	400
Total, 1912.....	5,882	2,873	2,543	246	2,732	740	928	1,410	32	420
Total, 1911.....	6,042	(b)	1,796	242	2,924	747	876	1,207	30	576

^a Does not include placer mines.^b Included in "Other causes."

new mineral mines (except coal mines) in the United States (by States) during the 1913, by causes.

Underground—Continued.						Shaft.						
By mine fires.	By suffocation from natural gases.	By inrush of water.	By stepping on nail.	By other causes.	Total, underground.	By falling down shafts.	By objects falling down shafts.	By breaking of cable.	By overwinding.	By skip or cage.	By other causes.	Total shaft.
11	12	13	14	15		16	17	18	19	20	21	
3	5	1	87	533	3,955	5	10			13	5	33
	2		4	105	454	2	3		1	11	4	21
				10	128	3	2	1		3	4	13
	4	3	10	101	602	3	6			4	3	16
			53	558	4,398	26	57	4		50	26	164
1		4	14	134	2,734	7	10	2	1	10	13	51
1			22	287	2,337	4	21			9	13	47
			13	29	674	3	47			11	11	72
	2		2	12	274	1	7	1		3	3	15
			1	30	339	2	1		1	1		5
				15	15				2	6		17
			1	112	443		1				2	3
			2	2	17							
			17	276	931		6			3	2	11
				8	71							
				1	1							
				2	2							
				1	9							
				8	11		1					1
				2	41			1				
				1	21		1				2	4
				7	7							
				1	1							
				2	22		1					3
				2	9					2	2	2
				1	27					1		1
			1	8	92			2		2		4
				6	185		1					
			1	12	12					2		14
1	5		5	60	646					8		9
			2		6							
			1		55			1			2	3
				2	2							
6	18	8	300	2,585	20,547	60	201	8	5	139	97	510
11	30	7	232	2,723	20,809	69	228	3	5	174	125	604
24	17	14	(b)	3,147	17,642	51	216	5	14	(b)	187	473

TABLE 12.—Number of men *slightly injured in and about all metal and miscellaneous* calendar year 1913,

State.	Surface.									Total, surface.
	By mine cars and mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By falls of persons.	By stepping on rail.	By hand tools, axes, bars, etc.	By electricity.	By machinery.	By other causes.	
	22	23	24	25	26	27	28	29	30	
<i>Class A.</i>										
Arizona.....	28	4	0	17	13	42		35	107	252
California.....	6	1	2	5	3	5		14	15	48
Colorado.....	1			3				2	5	16
Idaho.....	2			6		5		9	24	46
Michigan.....	22	15	15	73	33	157	4	32	216	617
Minnesota.....	10	7	3	66	22	138	1	32	197	476
Missouri.....	1	52	2	19	20	20		31	52	197
Montana.....	20	2	5	13	3	65	1	14	56	177
Nevada.....	4	2	3	13	1	16	3	17	12	74
New Jersey.....		3		1	1	3		4	10	22
New York.....	1		2			2	4		1	10
Oregon.....				1		2		1	3	3
South Dakota.....	9			3	1	1		2	8	22
Washington.....				3		1			3	7
Wisconsin.....	3	1	1	15	9	27	2	9	33	100
<i>Class B.</i>										
Alabama.....	2	7	3	38	3	74	1	20	6	154
Alaska ^a										
Arkansas.....										
Connecticut.....						1				1
Florida.....										
Georgia.....						1				1
Illinois.....								1		1
Indiana, Louisiana, and West Virginia.....										
Iowa.....										
Kansas.....					1			2	2	5
Kentucky.....									5	5
Maine.....										
Maryland.....									1	1
Massachusetts.....										
New Hampshire.....										
New Mexico.....									1	1
North Carolina.....	1				1	3		1	1	7
Ohio.....										
Oklahoma.....				1	2	4		2	14	23
Pennsylvania.....										
South Carolina.....										
Tennessee.....	15	5	3	9	2	17		8	6	65
Texas.....								1		1
Utah.....			3	2		11		19	4	39
Vermont.....			1							1
Virginia.....	1				3	1		5		10
Wyoming.....						1				1
Total, 1913.....	128	97	49	285	121	597	16	311	779	2,333
Total, 1912.....	138	52	101	306	117	499	25	369	603	2,210
Total, 1911.....	135	42	100	(b)	(b)	(b)	22	289	1,048	1,636

^a Does not include placer mines.^b Included in "Other causes."

accus mineral mines (except coal mines) in the United States (by States) during the by causes—Continued.

Surface (where surface mining is done).											Grand total.			
By falls or slides of rock or ore.	By explosives.	By haulage accidents.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity.	By hand tools.	By other causes.	Total surface (where surface mining is done).	1913	1912	1911
31	32	33	34	35	36	37	38	39	40	41				
7	5	8		1	1					7	29	4,269	3,670	2,314
15	3	1	21	15							113	636	(98)	610
2											2	159	688	610
2											6	687	659	575
238	59	161	154	101	13	18	54	2	254	473	1,527	5,183	6,851	6,084
6	1	1	1	1			1		2	8	21	4,788	3,587	5,059
							1				1	1,053	1,586	1,100
34	7	8	22	17			12				1	2,487	1,998	1,075
3		1									1	909	662	298
1	1										6	307	520	389
1											3	369	330	274
											4	22	25	15
											1	468	151	665
1						1					3	25	20	14
												1,045	537	278
7	4	12	10	5	9	1	1		20	1	70	1,628	1,761	1,284
2	3	5		4		2		3			17	25	^a 64	
2		2		1				2			8	9	10	9
14	2	20	1	19	3		31	3	26	85	2	3		1
3		1		1			1				6	16	29	13
												13	24	20
33		2		23			7		8	68	141	141	219	1
				1							1	43	17	18
		1									1	31	27	69
		1									2	14	9	13
					1						1	1		
									1		1	1	1	7
											1	1	5	1
35	5	45	16	18			12		12	91	234	260	154	63
		3									3	21	50	21
												28	20	32
3							1				4	123	48	5
3							2				6	6	2	5
1	10	1		2		2					16	16	26	1
3	3	19	1	2	1	1	3		5	24	62	326	315	226
												13	3	
254	57	43	13	125			17	3	51	392	955	1,649	1,184	1,245
												6	6	1
11	4	9			1		6			10	40	108	100	94
											1	4	3	4
681	164	344	239	337	29	25	156	14	451	1,201	3,641	27,081		
433	120	301	238	285	35	8	147	7	330	705	2,609		26,232	
426	109	377	180	297	69	9	301	9	(b)	880	2,657			22,408

TABLE 13.—Number of men seriously and slightly injured per 1,000 employed in and United States (by States)

State.	Number seriously injured.					
	Under-ground. ^a	Per 1,000 employed.	On the surface.	Per 1,000 employed.	Total.	Per 1,000 employed.
<i>Class A.</i>						
Arizona.....	724	55.56	83	24.00	807	48.94
California.....	133	17.88	73	18.07	206	17.95
Colorado ^b	83	5.77	12	7.66	95	5.96
Idaho.....	70	17.09	12	7.17	82	14.21
Michigan.....	1,157	59.24	181	20.94	1,338	47.49
Minnesota.....	930	104.06	642	60.51	1,572	80.43
Missouri.....	44	6.24	13	4.83	57	5.85
Montana.....	404	26.59	45	10.45	449	23.03
Nevada.....	128	25.87	56	23.65	184	25.15
New Jersey.....	34	31.72	8	22.16	42	29.31
New York ^c	110	49.17	13	11.73	123	36.77
Oregon.....	5	7.05	1	1.56	6	4.45
South Dakota.....	21	7.57	2	1.77	23	5.89
Washington.....	14	16.61	2	4.36	16	12.29
Wisconsin.....	170	52.04	21	19.76	191	44.11
<i>Class B.</i>						
Alabama.....	254	79.80	14	7.52	268	51.42
Alaska ^d	2	.34	2	.96	4	.50
Arkansas.....	1	35.71	1	3.24	2	5.93
Connecticut.....	1	6.80			1	3.92
Florida.....	1	55.56	54	11.95	55	12.12
Georgia.....			2	6.39	2	4.50
Illinois.....	2	6.31	3	15.40	5	9.78
Indiana, Louisiana, Rhode Island, and West Virginia.....			14	28.57	14	28.57
Iowa.....	3	13.95			3	12.99
Kansas.....	2	4.55			2	3.29
Kentucky.....						
Maine.....						
Maryland.....			1	2.90	1	2.79
Massachusetts.....	2	58.82			2	41.67
New Hampshire.....	1	55.56			1	12.05
New Mexico.....	7	3.47	28	15.99	35	9.29
North Carolina.....	9	11.90	8	19.46	17	14.57
Ohio.....	3	10.71			3	9.84
Oklahoma.....	4	10.87	2	7.33	6	9.36
Pennsylvania.....			2	3.67	2	3.05
South Carolina.....						
Tennessee.....	27	21.18	18	9.59	45	14.28
Texas.....	1	4.15			1	2.86
Utah.....	110	22.92	96	31.24	206	26.17
Vermont.....	1	13.16	1	14.93	2	13.99
Virginia.....	10	8.86	9	6.13	19	7.32
Wyoming.....			3	8.31	3	4.87
Total, 1913.....	4,468	34.99	1,422	21.75	5,890	30.50
Total, 1912.....	3,447	31.32	1,055	17.84	4,502	28.61
Total, 1911.....	3,263	31.19	906	14.77	4,169	25.12

^a Includes those killed in shaft accidents.^b Reported by T. R. Henahan, commissioner of mines, Denver, Colo.

about all metal and miscellaneous mineral mines (except coal mines) in the during the calendar year 1913.

Number slightly injured.						Character of accidents that must be reported according to State law.
Underground. ^a	Per 1,000 employed.	On the surface.	Per 1,000 employed.	Total.	Per 1,000 employed.	
3,988	306.04	281	81.26	4,269	258.90	Fatal or serious. Acts of 1912, ch. 33.
475	63.87	161	39.86	636	55.42	
141	9.80	18	11.49	159	9.97	Fatal and more than one week. Acts of 1911.
618	150.88	49	29.29	667	115.62	Fatal and two consecutive days. Rev. Stats., 1908, sec. 4303.
4,560	233.47	623	72.08	5,183	183.96	Fatal or serious. Rev. Code, 1909, sec. 207.
2,785	311.63	2,003	188.80	4,788	244.96	Fatal or serious. Act of Apr. 25, 1911; sec. 8.
835	118.39	218	80.92	1,053	108.03	Fatal or serious. Gen. Stats., 1913, par. 3924.
2,309	151.99	178	41.32	2,487	127.54	Fatal or serious. Rev. Stats., 1909, sec. 81.
689	139.25	220	92.91	909	124.25	Fatal or serious at mines employing 5 or more men. Code 1907, secs. 1717 and 1720.
279	260.26	28	77.53	307	214.24	Fatal or serious at mines employing wage earners. Laws of 1912.
356	159.14	13	11.73	369	110.31	Fatal and two weeks. Acts of 1911, ch. 5; act of Mar. 21, 1904, and Apr. 17, 1914.
15	21.16	7	10.94	22	16.31	All fatal and nonfatal. Laws of 1910, ch. 15.
446	160.77	22	19.49	468	119.91	Fatal and serious injuries, causing employees to cease work. Act of Feb. 18, 1911.
17	20.17	8	17.43	25	19.20	Fatal or serious, at all mines not worked exclusively by owner or lessee. Grantham's Annotated S. Dak. Stats., 1901, secs. 132, 133, and 138.
942	288.34	103	96.90	1,045	241.34	"Any accident." Laws of 1911, sec. 14.
1,404	418.98	224	120.37	1,628	312.36	All "causing death or disability." Laws of 1911, sec. 2394, par. 35.
8	1.35	17	8.19	25	3.13	Fatal or serious, at mines employing 6 or more men. Act of Apr. 30, 1913, effective Apr. 1, 1914.
1	35.71	8	25.89	9	26.71	
2	111.11	3	27.78	3	11.76	
9	68.70	204	45.13	206	45.39	
12	37.85	7	22.30	16	36.04	
		1	5.15	13	25.44	
		141	287.76	141	287.76	Fatal or 30 days. Acts of 1907, sec. 1, p. 308.
42	195.35	1	62.50	43	186.15	
25	56.82	6	35.71	31	50.99	
7	30.70	7	24.31	14	27.13	
		1	8.26	1	8.26	
		2	5.80	2	5.57	
1	29.41			1	20.83	
		1	15.33	1	12.05	
25	12.41	235	134.21	260	69.04	
11	14.54	10	24.33	21	17.99	
28	100.00			28	91.80	
90	260.87	27	98.90	123	191.89	
		6	11.01	6	9.15	
		16	37.91	16	36.04	
199	156.08	127	67.70	326	103.46	Fatal and 2 days. Act of July 19, 1913.
12	49.79	1	9.17	13	37.14	
655	136.49	994	323.47	1,649	209.48	
5	65.79	1	14.93	6	41.96	
58	51.37	50	34.08	108	41.60	
2	7.84	2	5.54	4	6.49	
21,057	164.89	6,024	92.13	27,081	140.25	
21,413	194.56	4,819	81.48	26,232	155.04	
18,115	173.15	4,293	69.97	22,408	135.01	

^c Reported by W. W. Jones, State mine inspector, Albany, N. Y.

^d Reported by S. S. Smith, United States mine inspector, Juneau, Alaska.

TABLE 14.—Number of mine operators reporting less than 1,000 days' work performed, and number of those reporting 1,000 or more days' work performed during the calendar year 1913.

State.	Less than 1,000 days' work done.					1,000 or more days' work done.					Grand total.			
	Copper.	Iron.	Lead and zinc.	Gold and miscellaneous metal.	Nonmetal.	Total.	Copper.	Iron.	Lead and zinc.	Gold and miscellaneous metal.	Nonmetal.	Total.	1913.	1912.
Alabama.....				(a)	2	2		17		3	2	22	24	20
Alaska.....	4					4	9			337		346	350	b 30
Arizona.....	88	1		165	1	255	94			74	3	171	426	479
Arkansas.....			4			4			2			4	8	11
California.....	26	1		694	14	735	17			296	6	319	1,054	1,048
Colorado ^c	(a)	(a)		200	(a)	200	(a)			813	(a)	813	1,013	624
Connecticut.....							1				4	4	5	5
Florida.....					1	1					26	26	27	24
Georgia.....		1		2	1	4	1			6	10	17	21	29
Idaho.....	45	1		407	3	456	12			115	4	132	588	639
Illinois.....								12				12	12	8
Iowa.....			3		1	4					5	5	9	12
Kansas.....			11			11			26		3	29	40	50
Kentucky.....							1		10			15	15	14
Maine.....					2	2					3	3	5	4
Maryland.....					3	3	1	2			10	13	16	19
Massachusetts.....					1	1						2	2	4
Michigan.....		1				1	37	41			5	83	84	79
Minnesota.....								54				54	54	43
Missouri.....		3	56		9	68		5	208		2	215	283	318
Montana.....	48			228	1	277	24	1		81	1	107	384	405
Nevada.....	41	2		283	4	330	30	1		204	1	236	566	554
New Hampshire.....					2	2				5	5	5	7	7
New Jersey.....								5		1	1	7	7	10
New Mexico.....	17	1		56	2	76	14	2		41	6	63	139	163
New York ^c								10		3	23	36	36	39
North Carolina.....				6	25	31	1	1		7	20	29	60	70
Ohio.....		1				1		2			4	6	7	7
Oklahoma.....			3			3		23		1	9	33	36	30
Oregon.....	22			194	1	217	2			41	1	44	261	260
Pennsylvania.....	1			10	11	11		11		12	23	23	34	38
South Carolina.....				1	1	2				1	3	4	6	7
South Dakota.....	3			44	1	48	1			23	2	26	74	63
Tennessee.....					2	2	2	14				34	36	36
Texas.....										3	5	8	8	8
Utah.....	34	4		133	2	173	31	1		73	7	112	285	336
Vermont.....					3	3	1				6	7	10	11
Virginia.....	1				4	5		7			9	23	28	33
Washington.....	50	2		137	2	191	19			21		40	231	277
Wisconsin.....			16		1	17		7	35			44	61	77
Wyoming.....	15			37	6	58	4	1		6		13	71	74
Other States ^d					1	1					2	2	3	2
Total, 1913.....	395	18	93	2,588	105	3,199	299	188	316	2,161	224	3,188	6,387	
Total, 1912.....	455	20	137	2,848	126	3,586	359	174	327	1,289	232	2,381		5,967

^a Not segregated.^b Placer mines not included.^c Total number of operators reported by inspector.^d Includes Indiana, Louisiana, Rhode Island, and West Virginia.

TABLE 15.—Percentages of deaths in and about all metal and miscellaneous mineral mines (except coal mines) in the United States resulting from various causes during the calendar years 1913, 1912, and 1911.

Cause of death.	Killed.							
	Copper mines.	Gold and miscellaneous metal mines.	Iron mines.	Lead and zinc mines (Mississippi Valley).	Miscellaneous mineral mines.	Average for all mines, 1913.	Average for all mines, 1912.	Average for all mines, 1911.
Fall of rock or ore from roof or wall.....	Per cent 32.20	Per cent 32.38	Per cent 31.52	Per cent 38.10	Per cent 26.67	Per cent 32.21	Per cent 32.10	Per cent 27.48
Rock or ore while loading at working face.....	.84	.48	4.24	.....	.....	1.46	.30	(a)
Timber or hand tools.....	.43	1.43	1.82	2.38	.....	1.17	.90	1.44
Explosives.....	9.74	16.67	6.67	16.67	3.33	11.28	11.04	8.92
Haulage accidents.....	8.47	.95	7.27	2.38	.....	5.13	5.29	2.88
Fall down chute, winze, raise, or stoppe.....	10.59	10.00	2.42	2.38	3.33	7.62	6.50	6.76
Run of ore from chute or pocket.....	2.55	.95	1.21	.....	.....	1.46	1.51	2.01
Drilling accidents.....	.....	.....	.....	.....	.....	.....	.30	.....
Electricity.....	2.55	2.38	2.42	2.38	.....	2.34	2.87	2.16
Machinery (not including locomotives or drills).....	.....	1.90	.....	.....	.....	.58	.30	1.44
Mine fires.....	.....	.....	.....	.....	.....	.....	.15	5.32
Suffocation from natural gases.....	.....	1.43	.....	.....	.....	.44	.61	1.15
Inrush of water.....	.....	.....	.....	.....	.....	.....	.76	1.73
Stepping on nail.....	.....	.....	.....	.....	.....	.....	.....	(a)
Other causes.....	5.09	2.85	1.82	2.38	3.33	3.37	1.21	1.44
Total killed underground.....	72.46	71.42	59.39	66.67	36.67	67.06	63.84	62.73
Falling down shafts.....	3.81	4.77	3.64	2.38	.....	3.81	6.05	8.20
Objects falling down shaft.....	2.96	2.38	1.21	2.38	.....	2.20	1.82	2.59
Breaking of cables.....	.....	.....	1.21	.....	.....	.29	.30	.58
Overwinding.....	.43	.....	.61	2.38	.....	.44	.....	.....
Skip or cage.....	3.81	6.19	6.67	2.38	.....	4.98	5.00	.....
Other causes.....	2.55	.95	1.21	.....	.....	1.46	1.36	3.88
Total killed in shaft.....	13.56	14.29	14.55	9.52	.....	13.18	15.13	15.25
Mine cars or mine locomotives.....	.43	.95	2.42	4.76	.....	1.32	.91	.58
Railway cars or locomotives.....	.84	.48	.....	2.38	.....	.58	.76	1.15
Run or fall of ore in or from ore bins.....	.....	.....	1.21	.....	.....	.29	.30	.43
Falls of persons.....	.....	.95	1.82	.....	.....	.73	.91	(a)
Stepping on nail.....	.....	.48	.....	.....	.....	.15	.....	(a)
Hand tools, axes, bars, etc.....	.....	.....	.61	.....	.....	.....	.....	(a)
Electricity.....	.84	.48	.61	2.38	.....	.73	.76	.29
Machinery.....	1.27	2.38	.61	4.76	.....	1.61	1.66	1.15
Other causes.....	.43	2.85	2.42	.....	3.33	1.76	3.63	6.04
Total killed on surface.....	3.81	8.57	9.09	14.29	3.33	7.17	8.93	9.64
Falls or slides of rock or ore.....	1.69	.48	4.84	2.38	10.00	2.49	2.42	5.04
Explosives.....	2.55	.95	1.82	2.38	.....	1.76	3.17	2.31
Haulage accidents.....	5.09	.48	6.67	.....	20.00	4.39	3.03	3.02
Steam shovels.....	.....	.....	1.21	.....	.....	.29	.61	.14
Falls of persons.....	.....	.....	.61	.....	.....	.15	.45	.43
Falls of derricks, booms, etc.....	.....	.48	.....	.....	.....	.15	.30	.14
Run or fall of ore in or from ore bins.....	.....	.....	.....	.....	.....	.....	.....	.....
Machinery (other than locomotives or steam shovels).....	.84	1.43	1.21	2.38	6.67	1.46	.91	.43
Electricity.....	.....	.95	.61	.....	6.67	.73	.15	.....
Hand tools.....	.....	.....	.....	.....	.....	.....	.....	(a)
Other causes.....	.....	.95	.....	2.38	16.66	1.17	1.06	.87
Total killed by surface accidents (where surface mining is done).....	10.17	5.72	16.97	9.52	60.00	12.59	12.10	12.38
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

a Included in "Other causes."

TABLE 16.—Percentages of injuries in and about all metal and miscellaneous mines—the calendar years

Causes of injury.	Seriously injured.				
	Copper mines.	Gold and miscellaneous metal mines.	Iron mines.	Lead and zinc mines (Mississippi Valley).	Miscellaneous mineral mines.
	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Fall of rock or ore from roof or wall.....	23.51	24.05	20.04	16.48	7.90
Rock or ore while loading at working face.....	7.11	3.80	4.40	12.08	3.28
Timber or hand tools.....	8.97	6.96	11.52	4.40	.66
Explosives.....	2.10	4.90	1.70	4.40	1.98
Haulage accidents.....	15.49	8.23	14.01	19.78	8.55
Fall down chute, winze, raise, or stope.....	4.83	6.96	2.52	4.40	.66
Run of ore from chute or pocket.....	2.28	3.16	2.66	.....	.....
Drilling accidents.....	3.92	5.54	3.19	3.29	3.28
Electricity.....	.04	.32	.14	.....	.....
Machinery (not including locomotives or drills).....	.86	2.69	1.67	2.20	.66
Mine fires.....	.23	.16	.....	.....	.....
Suffocation from natural gases.....	.....	.16	.07	.....	.....
Inrush of water.....	.....	.....	.32	.....	.....
Stepping on nail.....	.09	.16	.53	.....	.....
Other causes.....	10.11	6.80	5.35	6.69	1.98
Total injured underground.....	79.54	73.89	68.12	73.62	28.95
Falling down shafts.....	.55	1.11	.64	.....	1.98
Objects falling down shafts.....	.82	1.11	.78	1.10	.....
Breaking of cables.....	.....	.....	.03	.....	.....
Overwinding.....	.14	.....	.....	.....	.....
Skip or cage.....	1.18	2.85	1.21	2.20	.....
Other causes.....	1.27	1.42	.46	1.10	.....
Total injured in shaft.....	3.96	6.49	3.12	4.40	1.98
Mine cars or mine locomotives.....	.68	.95	.50	.....	1.98
Railway cars or locomotives.....	.46	.....	.67	3.29	.....
Run or fall of ore in or from ore bins.....	.18	.16	.....	.....	.....
Falls of persons.....	1.32	.63	1.88	3.29	1.31
Stepping on nail.....	.09	.16	.11	.....	.....
Hand tools, axes, bars, etc.....	1.10	.63	1.77	3.29	1.31
Electricity.....	.18	.16	.03	.....	.....
Machinery.....	1.64	3.48	1.49	5.50	1.31
Other causes.....	3.83	2.37	3.37	4.40	.66
Total injured on surface.....	9.48	8.54	9.82	19.78	6.57
Falls or slides of rock or ore.....	1.69	.63	3.62	1.10	11.18
Explosives.....	.73	.32	.78	1.10	5.26
Haulage accidents.....	1.09	.63	2.94	.....	9.87
Steam shovels.....	.73	2.22	2.80	.....	1.98
Falls of persons.....	.82	1.58	1.60	.....	7.23
Falls of derricks, booms, etc.....	.....	.47	.28	.....	.....
Run or fall of ore in or from bins.....	.....	.16	.11	.....	.66
Machinery (other than locomotives or steam shovels).....	.50	.16	.21	.....	8.55
Electricity.....	.....	.....	.....	.....	1.98
Hand tools.....	.23	1.27	2.63	.....	4.61
Other causes.....	1.23	3.64	3.97	.....	11.18
Total injured by surface accidents (where surface mining is done).....	7.02	11.08	18.94	2.20	62.50
	100.00	100.00	100.00	100.00	100.00

eral mines (except coal mines) in the United States resulting from various causes during 1913, 1912, and 1911.

Seriously injured—Continued.			Slightly injured.							
Average for all mines, 1913.	Average for all mines, 1912.	Average for all mines, 1911.	Copper mines.	Gold and miscellaneous metal mines.	Iron mines.	Lead and zinc mines (Mississippi Valley).	Miscellaneous mineral mines.	Average for all mines, 1913.	Average for all mines, 1912.	Average for all mines, 1911.
<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>P. ct.</i>	<i>P. ct.</i>
21.39	24.48	29.12	24.17	20.30	17.68	14.20	3.76	20.14	22.42	26.96
5.43	5.80	(a)	7.68	7.35	7.92	20.37	7.37	8.36	10.95	(a)
9.69	6.95	6.41	12.46	9.81	13.41	5.43	2.02	11.90	9.70	8.05
2.24	3.40	3.33	.70	.93	1.00	1.34	1.73	.90	.94	1.08
13.89	12.86	14.54	10.38	10.98	12.53	8.62	7.52	11.14	10.41	13.05
3.84	4.46	3.86	4.02	4.31	1.23	.15	.....	2.66	2.82	3.33
2.46	2.51	2.52	3.84	8.28	2.57	.22	.....	3.59	3.54	3.91
3.72	4.51	4.56	3.80	8.16	4.38	8.11	2.46	4.73	5.38	5.39
.12	.16	.07	.10	.19	.31	.....	.29	.19	.12	.13
1.46	1.13	2.54	1.04	1.58	1.69	3.42	1.15	1.48	1.60	2.57
.10	.02	.....	.04	.....	.01	.07	.....	.02	.04	.11
.05	.11	.02	.05	.28	.04	.....	.....	.07	.11	.08
.15	.07	.....	.03	.03	.04	.....	.....	.03	.03	.06
.31	.20	(a)	1.06	1.09	1.19	1.27	.43	1.11	.89	(a)
7.22	5.97	7.63	10.49	11.45	8.11	11.97	2.75	9.55	10.38	14.04
72.07	72.63	74.60	79.86	84.74	72.11	75.17	29.48	75.87	79.33	78.73
.68	.78	1.01	.20	.34	.19	.45	.....	.22	.26	.23
.81	1.11	.96	.73	.87	.59	1.86	.58	.74	.87	.96
.02	.07	.05	.02	.06	.04	.....	.....	.03	.01	.02
.05	.....	.29	.....	.06	.03	.....	.....	.02	.02	.06
1.36	1.57	(a)	.43	.74	.49	.89	.29	.51	.66	(a)
.87	.40	1.36	.29	.59	.28	1.19	.....	.36	.48	.84
3.79	3.93	3.67	1.67	2.66	1.62	4.39	.87	1.88	2.30	2.11
.65	.71	1.20	.53	.87	.30	.15	1.01	.47	.53	.06
.54	.60	.36	.15	.09	.24	3.87	.....	.36	.20	.19
.08	.42	.38	.23	.22	.11	.15	.29	.18	.38	.44
1.55	1.93	(a)	.52	.90	1.58	1.86	.72	1.05	1.17	(a)
.10	.14	(a)	.20	.31	.58	1.86	.14	.45	.44	(a)
1.41	1.40	(a)	1.41	1.49	3.36	2.15	.72	2.20	1.90	(a)
.10	.09	.02	.04	.09	.08	.....	.....	.06	.09	.10
1.82	2.31	2.21	.78	1.74	1.15	2.97	.87	1.15	1.41	1.29
3.38	2.73	4.37	2.37	2.14	3.40	5.72	.87	2.88	2.30	4.68
9.63	10.33	8.54	6.23	7.85	10.80	18.73	4.62	8.80	8.42	7.30
2.73	2.75	2.25	2.90	.84	2.43	.53	9.25	2.51	1.65	1.90
.83	1.20	.98	.69	.12	.64	.07	.58	.57	.46	1.49
2.14	1.71	2.95	.98	.19	1.70	.07	7.95	1.30	1.15	1.68
1.90	1.55	1.54	.45	.65	1.55	.07	.29	.89	.91	.80
1.43	1.02	1.20	1.46	.53	.99	.07	6.94	1.24	1.08	1.33
.19	.29	.24	.01	.....	.21	.....	1.15	.11	.13	.31
.08	.02	.10	.03	.....	.18	.07	.....	.09	.03	.04
.53	.56	1.10	.34	.25	.60	.07	6.79	.58	.56	1.34
.05	.14	.07	.03	.09	.02	.....	.43	.04	.03	.04
1.69	1.00	(a)	.96	.93	2.59	.15	5.64	1.68	1.26	(a)
3.04	2.87	2.76	4.39	1.15	4.56	.60	26.01	4.44	2.69	3.93
14.51	13.11	13.19	12.24	4.75	15.47	1.71	65.03	13.45	9.95	11.86
100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

• Included in "Other causes."

TABLE 17.—Number of men killed or injured per 1,000 employed in and about all *metal and miscellaneous mineral mines (except coal mines)* in the United States, based on the actual average number of days worked, compared with similar data based on a year of 300 working days.^a

State.	Average days worked, 1913.	Number of fatalities.		Number of serious injuries.		Number of slight injuries.	
		As reported.	On 300-day basis.	As reported.	On 300-day basis.	As reported.	On 300-day basis.
Alabama.....	285	4.22	4.44	51.42	54.13	312.36	328.82
Alaska ^b	263	3.13	3.58	.50	.57	3.13	3.58
Arizona.....	315	5.22	4.97	48.94	46.61	258.90	246.56
Arkansas.....	258	.....	.....	5.93	6.90	26.71	31.03
California.....	271	4.53	5.01	17.95	19.83	55.42	61.24
Colorado.....	299	2.76	2.77	5.96	5.98	9.97	10.01
Connecticut.....	290	.....	.....	3.92	4.05	11.76	12.15
Florida.....	253	3.09	3.65	12.12	14.35	45.39	53.73
Georgia.....	229	2.25	2.94	4.50	5.88	36.04	47.06
Idaho.....	283	4.16	4.41	14.21	15.05	115.62	122.43
Illinois.....	266	1.96	2.21	9.78	11.06	25.44	28.76
Iowa.....	284	.....	.....	12.99	14.78	186.15	211.82
Kansas.....	212	6.58	8.16	3.29	4.08	50.99	63.27
Kentucky.....	183	.....	.....	.....	.....	27.13	44.44
Maine.....	266	.....	.....	.....	.....	8.26	9.35
Maryland.....	290	.....	.....	2.79	2.88	5.77	5.78
Massachusetts.....	292	.....	.....	41.67	42.55	20.83	21.28
Michigan.....	280	2.91	3.12	47.49	50.95	183.96	197.35
Minnesota.....	306	3.22	3.16	80.43	78.91	244.96	240.34
Missouri.....	252	3.49	4.16	5.85	6.97	108.03	128.70
Montana.....	317	3.28	3.11	23.03	21.80	127.54	120.78
Nevada.....	307	3.42	3.34	23.15	24.61	124.25	121.59
New Hampshire.....	193	.....	.....	12.05	18.87	12.05	18.87
New Jersey.....	310	5.58	5.41	29.31	28.33	214.24	207.43
New Mexico.....	243	7.43	9.19	9.29	11.49	69.04	85.33
New York.....	278	4.19	4.51	36.77	39.65	110.31	118.96
North Carolina.....	186	3.43	5.26	14.57	22.34	17.99	27.60
Ohio.....	281	.....	.....	9.84	10.49	91.80	97.90
Oklahoma.....	231	1.56	2.02	9.36	12.15	191.89	248.89
Oregon.....	194	2.22	3.43	4.45	6.86	16.31	25.17
Pennsylvania.....	261	.....	.....	3.05	.....	9.15	10.49
South Carolina.....	318	.....	.....	.....	.....	36.04	49.54
South Dakota.....	185	2.05	3.33	5.89	9.53	119.91	194.32
Tennessee.....	263	3.17	3.62	14.28	16.28	103.46	117.95
Texas.....	291	2.86	2.92	2.86	2.92	37.14	38.01
Utah.....	323	4.59	4.25	26.17	24.22	209.48	194.69
Vermont.....	232	6.69	9.01	13.69	18.02	41.96	54.05
Virginia.....	274	4.62	5.07	7.32	8.62	41.60	48.69

Washington.....	200	3.07	4.60	12.29	18.41	19.20	28.77
Wisconsin.....	288	2.54	2.65	44.11	46.00	241.34	251.69
Wyoming.....	220			4.87	6.65	6.49	8.87
Other States.....	359	2.04	1.71	28.57	23.89	287.76	240.61
Total, 1913.....	285	3.54	3.72	30.50	32.09	140.25	147.54
Total, 1912.....	287	3.91	4.09	26.61	27.85	155.04	162.26
Total, 1911.....	282	4.19	4.45	25.12	26.71	135.01	143.56

^a For details giving number killed, number employed, and days worked, see Table 5; for number injured, see Table 13.

^b Serious and slight injuries not reported for Alaska placers, hence low injury ratio.

TABLE 18.—Number of men employed, number of days worked, and number of men killed per 1,000 employed in and about all metal and miscellaneous mineral mines in the different States in the calendar year 1912.

State.	Number of active operators.	Number of employees.			Days' work done.	Average number of days worked.	Number killed.					Widows.	Orphans.	
		Underground.	On the surface.	Total.			Underground. ^a	Per 1,000 employed.	On the surface.	Per 1,000 employed.	Total.			Per 1,000 employed.
Alabama.....	20	2,770	2,057	4,827	1,302,041	270	26	9.39	7	3.40	33	6.84	19	37
Alaska.....	30	1,562	352	1,914	652,873	341	11	7.04	10	28.41	21	10.97	4	9
Arizona.....	479	11,575	4,016	15,591	4,701,702	302	63	5.44	4	1.00	67	4.30	23	42
Arkansas.....	11	379	25	404	103,735	257	0	.....	1	40.00	1	2.48	1	2
California.....	1,048	6,167	4,145	10,312	2,845,815	276	27	4.38	13	3.14	40	3.88	14	24
Colorado.....	624	6,778	2,114	8,892	2,656,168	299	44	6.49	4	1.89	48	5.40	21	18
Connecticut.....	5	158	101	259	76,930	297	0	.....	0	.....	0	.....	0	0
Florida.....	24	240	4,221	4,461	1,320,480	296	0	.....	6	1.42	6	1.34	1	0
Georgia.....	29	231	284	515	112,081	218	0	.....	0	.....	0	.....	0	0
Idaho.....	639	4,430	1,799	6,229	1,692,351	272	26	5.87	3	1.47	29	4.66	5	7
Illinois.....	8	326	114	440	132,658	301	1	3.07	0	.....	1	2.27	0	0
Indiana, Louisiana, and West Virginia.....	2	.....	591	591	214,065	362	0	.....	0	.....	0	.....	0	0
Iowa.....	12	184	16	200	48,753	244	0	.....	0	.....	0	.....	0	0
Kansas.....	50	613	218	831	194,238	234	2	3.26	0	.....	2	2.41	2	0
Kentucky.....	14	106	354	460	85,873	187	1	9.43	0	.....	1	2.17	0	0
Maine.....	4	.....	72	72	16,230	225	0	.....	0	.....	0	.....	0	0
Maryland.....	19	62	267	329	89,136	271	0	.....	0	.....	0	.....	0	0
Massachusetts.....	4	46	12	58	15,100	280	0	.....	0	.....	0	.....	0	0
Michigan.....	79	21,427	8,042	29,469	8,946,517	304	83	4.11	8	0.99	96	3.26	52	141
Minnesota.....	43	8,528	8,031	16,559	4,760,330	287	28	3.28	22	2.74	50	3.02	26	59
Missouri.....	318	8,531	2,872	11,403	3,046,934	267	32	3.75	4	1.39	36	3.16	18	52
Montana.....	405	10,403	2,937	13,340	3,979,041	298	44	4.23	6	2.04	50	3.75	15	20
Nevada.....	554	5,145	2,402	7,547	2,226,733	295	16	3.11	18	7.49	34	4.51	18	12
New Hampshire.....	7	17	73	90	16,804	187	1	58.82	0	.....	1	11.11	0	0
New Jersey.....	10	1,266	367	1,633	460,997	282	11	8.69	2	5.45	13	7.96	7	14
New Mexico.....	163	1,289	1,213	2,502	669,707	268	10	7.76	3	2.47	13	5.20	4	6
New York.....	39	1,923	787	2,710	789,982	292	16	8.32	1	1.27	17	6.27	(d)	(d)
North Carolina.....	70	729	339	1,068	215,194	201	1	1.37	0	.....	1	0.94	0	0
Ohio.....	7	262	48	310	76,397	246	0	.....	1	20.83	1	3.23	1	0
Oklahoma.....	30	315	226	541	113,041	209	1	3.17	1	4.42	2	3.70	2	6
Oregon.....	260	595	457	1,052	198,906	189	1	1.68	0	.....	1	0.95	0	0
Pennsylvania.....	38	104	658	762	191,254	251	2	19.23	0	.....	2	2.62	0	0
South Carolina.....	7	40	1,041	1,041	286,514	275	0	.....	0	.....	0	.....	0	0
South Dakota.....	63	1,641	322	1,963	589,427	300	3	1.83	3	9.32	6	3.06	6	10
Tennessee.....	36	1,136	2,344	3,480	881,291	253	5	4.40	7	2.99	12	3.45	5	5
Texas.....	8	226	160	386	106,940	277	0	.....	0	.....	0	.....	0	0
Utah.....	336	5,796	2,662	8,458	2,555,037	302	32	5.52	9	3.38	41	4.85	12	22

Vermont.....	11	90	91	181	45,325	230	2	22.22	0	2	11.05	0	0	
Virginia.....	33	1,068	1,448	2,516	689,800	274	2	1.87	2	4	1.59	2	5	
Washington.....	277	853	449	1,307	196,807	151	2	2.33	2	4	3.06	2	0	
Wisconsin.....	77	2,772	1,062	3,834	1,039,400	271	20	7.22	2	22	5.74	11	28	
Wyoming.....	74	268	394	662	155,903	236	4	14.93	0	4	6.04	2	1	
Total, 1912.....	5,967	110,056	59,143	169,199	48,498,510	287	522	4.74	139	2.35	661	3.91	273	520
Total, 1911.....	5,232	104,623	61,356	165,979	46,826,573	282	542	5.18	153	2.49	695	4.19	297	600

a Includes those killed in shaft accidents.

b Placer mines not included. Snow slide killed 9 men.

c Fatalities and employees reported by W. W. Jones, State mine inspector, Albany, N. Y. Segregation of underground and surface employees estimated from returns for 1911.

d Not reported.

TABLE 19.—Number of men seriously and slightly injured per 1,000 employed in and about States (by States) during

State.	Number seriously injured.					
	Under-ground. ^a	Per 1,000 employed.	On the surface.	Per 1,000 employed.	Total.	Per 1,000 employed.
<i>Class A.</i>						
Arizona.....	467	40.35	82	20.42	549	35.21
California.....	129	20.92	38	9.17	167	16.19
Colorado.....	119	17.56	18	8.51	137	15.41
Idaho.....	51	11.51	10	5.56	61	9.79
Michigan.....	1,070	49.94	143	17.78	1,213	41.16
Minnesota.....	479	56.18	378	47.07	857	51.75
Missouri.....	84	9.85	18	6.27	102	8.95
Montana.....	193	18.55	31	10.55	224	16.79
Nevada.....	123	23.91	39	16.24	162	21.47
New Jersey.....	50	39.49	5	13.62	55	33.68
New York.....	64	33.28	6	7.62	70	25.83
Oregon.....	1	1.68	4	8.75	5	4.75
South Dakota.....	23	14.02	2	6.21	25	12.74
Washington.....	0	0	3	6.68	3	2.30
Wisconsin.....	68	24.53	14	13.18	82	21.39
<i>Class B.</i>						
Alabama.....	263	94.95	24	11.67	287	59.46
Alaska ^b	20	12.80	5	14.20	25	13.06
Arkansas.....	1	2.64	2	80.00	3	7.43
Connecticut.....	0	0.00	0	0.00	0	0.00
Florida.....	1	4.17	33	9.00	39	8.74
Georgia.....	0	0.00	0	0.00	0	0.00
Illinois.....	9	27.61	6	52.63	15	34.09
Indiana, Louisiana, and West Virginia.....	0	0.00	29	49.07	29	49.07
Iowa.....	0	0.00	0	0.00	0	0.00
Kansas.....	2	3.26	1	4.59	3	3.61
Kentucky.....	0	0.00	0	0.00	0	0.00
Maine.....	0	0.00	0	0.00	0	0.00
Maryland.....	0	0.00	0	0.00	0	0.00
Massachusetts.....	0	0.00	0	0.00	0	0.00
New Hampshire.....	0	0.00	0	0.00	0	0.00
New Mexico.....	7	5.43	6	4.95	13	5.20
North Carolina.....	7	9.60	6	17.70	13	12.17
Ohio.....	5	19.08	0	0.00	5	16.13
Oklahoma.....	1	3.17	1	4.42	2	3.70
Pennsylvania.....	0	0.00	6	9.12	6	7.87
South Carolina.....	0	0.00	10	10.00	10	9.61
Tennessee.....	38	33.45	37	15.78	75	21.55
Texas.....	0	0.00	0	0.00	0	0.00
Utah.....	153	26.40	84	31.56	237	28.02
Vermont.....	3	33.33	3	32.97	6	33.15
Virginia.....	15	14.05	6	4.14	21	8.35
Wyoming.....	1	3.73	0	0.00	1	1.51
Total, 1912.....	3,447	31.32	1,055	17.84	4,502	26.61
Total, 1911.....	3,263	31.19	906	14.77	4,169	25.12

^a Includes those injured in shaft accidents.^b Does not include placer mines.

all metal and miscellaneous mineral mines (except coal mines) in the United the calendar year 1912.

Number slightly injured.						Character of accidents that must be reported according to State law.
Underground. (a)	Per 1,000 employed.	On the surface.	Per 1,000 employed.	Total.	Per 1,000 employed.	
3,398	203.56	272	67.73	3,670	235.29	All fatal and serious. Laws of 1912, sec. 16. "More than one week." Laws of 1911, sec. 8. "Fatal and two consecutive days." Rev. Stats., 1908 sec. 4303.
581	94.21	117	28.23	698	67.69	
598	83.23	90	42.57	688	77.37	
618	139.50	41	22.79	659	105.80	All fatal and serious. Rev. Code, 1908, sec. 207.
6,287	293.41	594	70.13	6,851	232.48	All injuries, fatal or otherwise. Laws of 1912, sec. 17.
2,150	252.11	1,417	176.44	3,567	215.41	"Any and all accidents." Laws of 1909, sec. 1.
1,422	166.69	164	57.10	1,586	139.09	All loss of life or serious injury. Rev. Stat., 1899, sec. 8815.
1,830	175.91	168	57.20	1,998	149.78	All fatal or serious in mines employing five or more men. Rev. Code, 1907, sec. 1719.
511	99.32	151	62.86	662	87.72	All "fatal and serious." Laws of 1912, sec. 4207-10.
499	39.41	21	57.22	520	318.43	Two weeks. Laws of 1912, chap. 156.
320	166.41	10	12.71	330	121.77	All "injuries causing incapacity." Laws of 1910, sec. 126.
19	81.93	6	12.25	25	23.76	All preventing duty and requiring physician. Laws of 1911, chap. 102, sec. 1.
149	90.80	2	6.21	151	76.92	All serious or fatal. Rev. Code, 1903, sec. 143.
17	19.81	3	6.68	20	15.30	"Any accident." Laws of 1911, sec. 14.
413	14.90	124	116.76	537	140.06	All "causing death or disability." Laws of 1911, sec. 2394, par. 35.
1,536	554.51	225	100.38	1,761	364.82	Fatal or serious, at mines employing 6 or more men. Act of April 30, 1913, effective April 1, 1914.
42	26.89	22	62.50	64	33.44	
5	13.19	5	200.00	10	24.75	Fatal or 30 days. Acts of 1907, sec. 1, p. 308.
0	0.00	0	0.00	0	0.00	
0	0.00	192	45.49	192	43.04	Fatal or 2 days. Act of July 19, 1913.
14	60.61	15	52.82	29	56.31	
21	64.42	3	26.32	24	54.55	Fatal or 2 days. Act of July 19, 1913.
0	0.00	219	370.56	219	370.56	
17	92.39	0	0.00	17	85.00	Fatal or 2 days. Act of July 19, 1913.
23	37.52	4	18.35	27	32.49	
5	47.17	4	11.30	9	19.57	Fatal or 2 days. Act of July 19, 1913.
0	0.00	0	0.00	0	0.00	
0	0.00	1	3.75	1	3.04	Fatal or 2 days. Act of July 19, 1913.
1	21.74	0	0.00	1	17.24	
4	235.29	1	13.70	5	55.56	Fatal or 2 days. Act of July 19, 1913.
20	15.52	134	110.47	154	61.55	
32	43.90	18	53.10	50	46.82	Fatal or 2 days. Act of July 19, 1913.
20	76.34	0	0.00	20	64.52	
45	142.86	3	13.27	48	88.72	Fatal or 2 days. Act of July 19, 1913.
0	0.00	2	3.04	2	2.62	
0	0.00	26	25.97	26	24.98	Fatal or 2 days. Act of July 19, 1913.
158	139.08	157	66.98	315	90.52	
2	8.85	1	6.25	3	7.77	Fatal or 2 days. Act of July 19, 1913.
609	105.07	575	216.00	1,184	139.99	
0	0.00	6	65.93	6	33.15	Fatal or 2 days. Act of July 19, 1913.
44	41.20	56	38.67	100	39.75	
3	11.19	0	0.00	3	4.53	Fatal or 2 days. Act of July 19, 1913.
21,413	194.56	4,819	81.48	26,232	155.04	
18,115	173.15	4,293	69.97	22,408	135.01	

TABLE 20.—Comparison, by years, of the number of men employed in the metal mines of the principal countries, showing the fatality rate per 1,000 persons employed. ^a

Country.	1907			1908			1909			1910			1911			1912			1913		
	Number employed.	Number killed.	Number killed per 1,000 employed.	Number employed.	Number killed.	Number killed per 1,000 employed.	Number employed.	Number killed.	Number killed per 1,000 employed.	Number employed.	Number killed.	Number killed per 1,000 employed.	Number employed.	Number killed.	Number killed per 1,000 employed.	Number employed.	Number killed.	Number killed per 1,000 employed.	Number employed.	Number killed.	Number killed per 1,000 employed.
Australasia:																					
New South Wales.....	26,402	24	0.91	20,881	32	1.53	17,836	20	1.12	19,369	29	1.50	19,360	35	1.81	19,807	31	1.57	19,914	30	1.51
New Zealand.....	9,389	7	40.75	8,880	15	1.69	7,651	14	1.83	8,121	15	1.85	7,400	5	.68						
Queensland.....	15,416	13	.84	13,759	29	2.11	12,050	26	2.16	12,342	18	1.46	11,091	10	.90	10,608	26	2.45	9,978	11	1.10
Tasmania ^b	7,516	6	.80	6,464	6	.93	6,054	6	.99	5,770	8	1.39	5,247	4	.76	5,566	53	9.52			
Victoria.....	23,291	27	1.16	20,853	19	.91	18,671	15	.80	16,553	12	.72	14,051	19	1.35	11,856	16	1.35	11,931	9	.75
Western Australia.....	16,058	42	2.62	16,075	40	2.49	17,027	33	1.94	16,279	27	1.66	15,428	36	2.33	13,700	34	2.48	13,445	24	1.79
Austria.....	20,411	21	1.03	20,235	10	.49	19,582	19	.97	19,621	16	.82	19,934	10	.50	20,890	20	1.00			
France.....	24,197	55	2.27	24,179	51	2.11	24,436	73	2.99	27,183	86	3.16	29,998	85	2.84	31,602	104	3.29			
Germany.....	98,441	155	1.57	97,062	115	1.18	93,928	91	.97	93,645	141	1.51	92,964	148	1.59	93,591	173	1.85			
Great Britain ^c	31,602	34	1.08	29,927	37	1.24	28,437	40	1.41	28,676	43	1.50	29,025	43	1.48	28,058	43	1.53	27,412	32	1.16
Greece.....	11,720	23	1.96				8,389	13	1.55	6,933	9	1.30									
Italy.....	59,597	113	1.90				52,648	69	1.31	49,995	59	1.18									
Japan.....	85,663	113	1.32	75,590	70	.93	81,312	138	1.70	84,728	118	1.39	80,896	142	1.76						
Mexico ^d	92,421	479	5.18	85,107	395	4.64	81,438	471	5.78												
Peru ^e	16,936			17,349	40	2.31	17,580	21	1.19	20,410	118	5.78									
Portugal.....	3,928	10	2.55	6,991	9	1.29	7,858	11	1.40	6,554	11	1.68	7,484	10	1.34						
Russia.....	194,916	155	.80	191,334	178	.93															
Spain ^e	155,792	304	1.95	147,581	275	1.86	150,681	282	1.87	155,182	256	1.65	143,863	180	1.25	149,884	260	1.73			
Sweden ^f	14,204			14,628	16	1.09	13,238	16	1.21	13,775											
Transvaal.....	168,991	805	4.76	181,637	761	4.19	192,038	1,018	5.30	205,687	882	4.29	225,538	934	4.14	240,000	900	3.75	223,350	851	3.81
United States.....													165,979	695	4.19	169,199	661	3.91	193,088	683	3.54

^a Compiled from official reports.

^b Figures for mines in Tasmania also cover coal mines and smelting works. The high rate for 1912 is due to one disastrous mine fire.

^c Figures cover only mines coming under the "Metalliferous Mines Regulation Act."

^d Figures also cover coal mines.

^e Figures also cover coal mines in which about 25,000 men are employed, and metallurgical works employing about 25,000 men annually.

^f Figures also cover coal mines and quarries.

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