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UNITED STATES

1923

BY

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COAL-MINE FATALITIES IN THE UNITED STATES, 1923.

By WILLIAM W. ADAMS.

INTRODUCTION.

Reports for the calendar year 1923 that have been transmitted to the Bureau of Mines of the Department of the Interior by mine officials of the various coal-producing States show that accidents in and around the coal mines resulted in the death of 2,452 men. The output of coal during the year, as reported to the United States Geological Survey, was 641,476,000 tons; hence the fatality rate per million tons was 3.82 as compared with 4.15 for 1922, a decline of about 8 per cent. The average rate for the decade ending with 1922 was 4.11. This reduction of 8 per cent in the fatal-accident rate per million tons is equivalent to the saving of 210 lives—that is, had the fatality rate of 1922 continued through 1923 the number of lives lost would have been 210 more than they actually were.

Not only was there a net reduction in the fatality rate from all causes combined, but each of the main causes of coal-mine fatalities also showed a decline. Falls of roof and coal, which generally account for nearly half of all deaths in coal mines, were responsible for 1,158 fatalities in 1923, which represents a rate of 1.81 per million tons as compared with 1.90 in 1922. (See Table 2.) Haulage accidents underground usually cause about 17 per cent of all fatalities, and the reports for 1923 show that 413 deaths were due to this cause, indicating a rate of 0.64 per million tons, as against 0.71 for the previous year. Gas and dust explosions killed 372 men, the fatality rate being 0.58; the rate for 1922 was 0.65. Seventy-five deaths were due to electricity, for which class of accidents the fatality rate per million tons was 0.12 as compared with 0.16 the year before. Powder and other explosives caused 114 deaths, representing a rate of 0.18 as compared with 0.19 for 1922.

Of the 2,452 fatal accidents during the year, 2,249 occurred underground, 46 in shafts, and 157 on the surface. At bituminous coal mines the number of deaths was 1,943, of which 1,816 were underground, 31 in shafts, and 96 on the surface. At the anthracite mines

in Pennsylvania the number of employees killed was 509, of whom 433 were killed in accidents underground, 15 in shafts, and 61 on the surface.

The fatality rate for bituminous mines was 3.56 per million tons as compared with 3.98 for 1922 and 3.73 for 10 years ending with 1922; the rate for anthracite mines was 5.32 per million tons as compared with 5.49 for 1922 and 6.20 for the 10 years ending with 1922.

As previously noted, the production of coal during 1923 was 641,476,000 tons. Of this quantity, 545,758,000 tons was bituminous coal and 95,718,000 tons was anthracite. In 1922 the production was 422,268,000 tons of bituminous, 54,683,000 tons of anthracite, total 476,951,000 tons. The output in 1922 was greatly curtailed by the miners suspending work for five months.

During the year covered by this report there were 11 coal-mine disasters in each of which 5 or more men were killed, the total number of lives lost being 301; during the previous year 14 similar disasters resulted in the loss of 280 lives. These figures indicate a death rate from major disasters of 0.47 per million tons in 1923 as compared with 0.59 in 1922.

Table 1 summarizes the chief data concerning coal-mine fatalities since 1907.

TABLE 1.—*Fatality rates for the years 1907 to 1923.*

Year.	Men employed.		Average days active.	Total shifts.	Men killed.	Killed per 1,000 300-day workers.	Production (short tons).	Production per death (short tons).	Average production per man.	
	Actual number.	Equivalent in 300-day workers.							Tons per year.	Tons per day.
1907 ^a	674, 613	519, 452	231	155, 835, 603	3, 242	6. 24	477, 892, 536	147, 407	708	3. 07
1908 ^a	678, 873	441, 267	195	132, 380, 235	2, 445	5. 54	409, 309, 857	107, 407	603	3. 09
1909 ^a	666, 535				2, 642		460, 807, 263	174, 416	691	
1910	725, 030	531, 689	220	159, 506, 600	2, 821	5. 31	501, 596, 378	177, 808	692	3. 14
1911	728, 348	534, 122	220	160, 236, 560	2, 656	4. 97	496, 371, 126	186, 887	682	3. 10
1912	722, 662	541, 997	225	162, 598, 950	2, 419	4. 46	534, 466, 580	220, 945	740	3. 29
1913	747, 644	593, 131	238	177, 939, 272	2, 785	4. 70	570, 048, 125	204, 685	762	3. 20
1914	763, 185	526, 598	207	157, 079, 295	2, 454	4. 66	513, 525, 477	209, 261	673	3. 25
1915	734, 008	511, 598	209	153, 479, 495	2, 269	4. 44	531, 619, 487	234, 297	724	3. 46
1916	720, 971	565, 766	235	169, 729, 816	2, 226	3. 93	590, 098, 175	265, 064	818	3. 48
1917	757, 317	634, 666	251	190, 399, 680	2, 696	4. 25	651, 402, 374	241, 618	860	3. 42
1918	762, 426	654, 973	258	196, 491, 984	2, 580	3. 94	678, 211, 904	262, 873	890	3. 45
1919	776, 569	542, 217	209	162, 665, 023	2, 317	4. 27	553, 952, 259	239, 082	713	3. 41
1920	784, 021	601, 283	230	180, 384, 942	2, 271	3. 78	658, 264, 932	289, 857	839	3. 65
1921	823, 253	474, 529	173	142, 358, 691	1, 987	4. 19	506, 395, 401	254, 854	615	3. 56
1922	844, 807	405, 056	144	121, 516, 822	1, 979	4. 89	476, 951, 121	241, 006	565	3. 92
1923	^b 846, 990				2, 452		641, 476, 000	261, 613		

^a Figures are only for States under inspection service. Figures omitted for 1909 (census year) because not comparable.

^b Number of employees based on estimates of State mine inspectors.

^c Estimated.

TABLE 2.—United States: Fatalities at coal mines for the years ended December 31, 1922 and 1923.

Cause.	Number killed.		Rate per million tons.	
	1922	1923	1922	1923
Underground:				
Falls of roof or face.....	905	1,158	1.09	1.81
Mine cars and locomotives.....	341	413	.71	.64
Gas and dust explosions.....	311	372	.65	.58
Explosives.....	92	114	.19	.18
Electricity.....	74	75	.16	.12
Mine fires.....				
Miscellaneous underground.....	77	117	.16	.18
Total underground.....	1,800	2,249	3.77	3.51
Shaft: Total shaft.....	41	46	.09	.07
Surface:				
Haulage.....	54	59	.11	.09
Machinery.....	23	26	.05	.04
Miscellaneous.....	61	72	.13	.11
Total surface.....	138	157	.29	.24
Grand total.....	1,979	2,452	4.15	3.82

ACKNOWLEDGMENTS.

Without the hearty cooperation of every State coal-mine inspector, the Bureau of Mines could not issue a prompt and complete summary of coal-mine fatalities for each month as the year progressed nor an annual compilation so soon after the close of the year. The bureau, therefore, gratefully acknowledges the assistance it has received from the mine officials of all coal-producing States. For assistance in the compilation and verification of the tables herein presented the writer is indebted to Miss Lillian Chenoweth, of the Bureau of Mines. Acknowledgment is also due the United States Geological Survey for statistics on coal production and the number of employees at coal mines.

CAUSES OF FATALITIES IN 1923, BY STATES AND MONTHS.

The causes of fatal accidents at coal mines in 1923, by States and months, are shown in Tables 3 to 16, inclusive.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 3.—United States: Coal-mine fatalities during the year ended December 31, 1923, by causes and States.

State.	Underground.											Shaft.					Surface.					Total by States.					
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas explosions and burning gas.	Coal-dust explosions (including gas and dust combined).	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip, or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Railway cars and locomotives.	Other causes.	Total.	1923	1922
Alabama.....	44	1	19	8	1	1	8	1	1	1	1	82							1	2			3	1	7	89	183
Alaska.....																										0	0
Arkansas.....	2			1			1					4														4	6
California, Idaho, and Nevada.....																										0	0
Colorado.....	16	13	9	17	2	2	2	1			1	61										3	3		64	75	
Georgia and North Carolina.....	84	1	47	7	9	6	6	2	3	5	184		1						4			1		1	170	125	
Illinois.....	24		17	3	5	11	1	1	1	3	65		1						3			2		2	70	49	
Indiana.....	12		3		1	1	1	1	1	1	17		1						4					2	21	19	
Iowa.....	8		1	4	1	1	1	1	1	1	17		1						1					1	9	9	
Kansas.....	58	6	34	5	9	2	7			3	124		2						3			2		1	129	125	
Kentucky.....	5		1								5								1						5	3	
Maryland.....	2										2														5	3	
Michigan.....	12										14		1						1						5	6	
Missouri.....	13	1	3		1	1	2	2		11	11		1						1						11	10	
Montana.....	8										14		1						1						11	10	
New Mexico.....	13	1	3		120	2	2			141									1						141	21	
North Dakota.....	86		19	2	3	1	3		2	3	119		2						3			1		1	2	4	
Ohio.....	4										1		1						2			1		2	8	130	
Oklahoma.....	8		1								1		1						1			2			2	8	
Oregon.....	226	27	67		13	1	15	1	4	15	389		2						2	9	2	4	5	11	402	436	
Pennsylvania (bituminous).....	6		6	1	1	2	1	1			18														18	28	
South Dakota.....																									0	0	
Tennessee.....	10	2	4	2	1	1	2	1			20								1			2		2	23	22	
Texas.....	23	5	6		1	1	1	2			38								1			2		1	39	25	
Utah.....	9			3							19														1	20	
Virginia.....	203	11	94	32	10	14	15	1	8	2	389		1	1	4			6	10	3		4	18	35	430	364	
Washington.....	15	2	7	99					1		128														126	23	
West Virginia.....																											
Wyoming.....																											
Total (bituminous).....	870	69	340	184	146	65	70	7	22		86	1,816	12	2	16	1		31	21	5	12	15	43	96	1,943	1,679	
Pennsylvania (anthracite).....	177	42	73	42		49	3	5	3	1	38	433	10	1	4			15	14	3	14	9	21	61	609	300	
Total, 1923.....	1,047	111	413	226	146	114	10	76	10	23	74	2,249	22	3	20	1		46	35	8	26	24	64	157	2,452		
Total, 1922.....	785	120	341	185	176	92	9	74	5	20	43	1,800	14	4	20	3		41	32	9	20	3	22	52	1,979		

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 4.—United States: Coal-mine fatalities during the year ended December 31, 1922 and 1923, by causes and months.

Month.	Underground.											Shaft.					Surface.						Grand total.		
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas explosions and burning gas.	Coal-dust explosions (including gas and dust combined).	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip, or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Railway cars and locomotives.		Other causes.	Total.
1922.																									
January.....	66	16	30	6	10	8	4	2	4	1	1	1	1	1	1	1	1	1	6	1	1	2	2	5	14
February.....	88	12	46	12	34	11	7	2	8	2	2	2	2	2	1	1	1	4	3	3	1	1	1	2	10
March.....	77	15	38	10	18	10	5	3	5	2	1	1	1	1	1	1	1	2	2	1	3	2	3	1	12
April.....	37	6	18	2	2	1	1	5	2	2	1	1	1	1	1	1	1	1	1	1	1	3	1	1	6
May.....	38	2	21	11	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6
June.....	47	8	14	5	3	6	7	1	2	2	1	1	1	1	1	1	1	2	2	3	2	2	4	4	14
July.....	49	3	8	1	6	6	8	1	2	2	1	1	1	1	1	1	1	3	3	2	3	2	4	4	14
August.....	59	3	22	1	1	1	1	1	3	3	1	1	1	1	1	1	1	3	3	2	2	1	9	9	13
September.....	64	10	31	2	6	11	14	2	4	2	2	2	2	2	2	2	2	4	5	2	3	1	6	2	18
October.....	87	25	40	9	12	11	11	1	4	2	1	1	1	1	1	1	1	2	2	2	3	1	1	1	12
November.....	102	9	33	88	91	17	3	2	5	2	2	2	2	2	2	2	2	4	2	2	3	1	1	1	13
December.....	71	11	40	1	3	8	5	1	6	1	1	1	1	1	1	1	1	4	3	1	1	4	4	4	13
Total, 1922.....	785	120	341	135	176	92	74	5	20	43	1,800	14	4	20	3	41	32	9	20	3	22	52	138	1,979	
1923.																									
January.....	100	8	36	8	4	11	7	2	3	3	182	4	4	3	4	4	2	1	6	1	3	3	8	20	
February.....	84	10	28	9	12	3	5	2	3	7	231	2	2	2	3	3	4	3	4	4	3	3	3	19	
March.....	84	13	38	2	17	1	6	6	2	5	163	2	1	3	1	5	6	3	1	1	2	2	2	7	
April.....	89	8	27	14	12	10	10	1	2	10	174	3	3	3	1	6	6	2	2	2	1	3	3	16	
May.....	95	9	42	15	12	2	5	2	2	10	174	3	3	3	1	6	6	2	2	2	1	3	3	9	
June.....	98	9	42	15	12	2	5	2	2	10	174	3	3	3	1	6	6	2	2	2	1	3	3	13	
July.....	98	18	43	5	8	10	10	1	2	7	187	1	1	1	1	2	2	3	3	1	1	6	4	13	
August.....	88	11	50	107	14	2	9	2	2	7	192	3	3	4	4	6	5	1	1	1	2	2	4	11	
September.....	84	4	24	6	138	5	6	2	3	2	291	3	2	1	1	6	5	1	1	2	1	1	10	18	
October.....	91	6	34	13	8	8	6	2	3	2	168	1	1	2	1	2	2	1	1	1	2	2	5	8	
November.....	72	13	26	35	1	4	2	1	2	5	161	1	1	2	3	1	2	1	2	2	2	3	3	9	
December.....	77	5	27	1	9	11	1	1	2	11	145	1	1	2	2	3	2	1	4	4	1	1	2	11	
Total, 1923.....	1,047	111	413	293	146	114	10	75	23	74	2,249	22	3	20	1	46	35	8	26	8	24	64	157	2,452	

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 6.—United States: Coal-mine fatalities during February, 1923, by causes and States.

State.	Underground.											Shaft.				Surface.						Total by States.				
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas explosions and burning gas.	Coal-dust explosions (including gas and dust combined).	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip, or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Hallway cars and locomotives.	Other causes.	Total.	1923	1922
Alabama		3					1																	1	5	15
Alaska																									0	0
Arizona				1																					1	0
California, Idaho, and Nevada	2	2																							0	0
Colorado																									4	5
Georgia and North Carolina	12		5			1			1																19	22
Illinois	3		1																						5	5
Indiana	2																								2	1
Iowa																									2	1
Kansas			3	1																					10	22
Kentucky																									0	0
Maine																									0	0
Maryland																									1	2
Michigan																									1	2
Missouri																									2	0
Montana																									2	0
New Mexico			1		120																				121	0
North Dakota		7																							0	1
Ohio																									9	11
Oklahoma																									2	3
Oregon																									0	0
Pennsylvania (bituminous)	23		10																						37	55
South Dakota																									1	7
Tennessee																									0	0
Texas																									0	2
Utah																									4	3
Virginia			3																						4	4
Washington			8																						4	4
West Virginia																									1	1
Wyoming																									22	35
Total (bituminous)	71	2	31	5	120	1	5	2	2	5	245	5	2	2	1	1	1	1	1	1	1	1	1	6	7	191
Pennsylvania (anthracite)	13	4	7	6		2	1	1	1	1	36	2	2	2	2	2	2	2	2	2	4	4	4	2	12	50
Total February 1923	84	6	38	11	120	3	5	2	3	7	281	7	3	3	3	3	3	3	3	3	4	4	4	8	19	308
Total, February, 1922	88	12	46	12	34	11	7	1	2	8	292	8	2	2	2	2	2	2	2	2	3	3	3	2	10	237

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 7.—United States: Coal-mine fatalities during March, 1923, by causes and States.

State.	Underground.											Shaft.					Surface.					Total by States.							
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas explosions and burning gas.	Coal-dust explosions (including gas and dust combined).	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Shafts or slopes.	Cage, skip, or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Railway cars and locomotives.	Other causes.	Total.	1923	1922	
Alabama.....	5		1				2																				8	6	
Alaska.....																												0	0
Arkansas.....																												0	0
California, Idaho, and Nevada.....																												0	0
Colorado.....	2	1	2																								5	25	
Georgia and North Carolina.....																												0	0
Illinois.....	5	1	2	1	2																						10	10	
Iowa.....																											5	4	
Kansas.....	1																										1	3	
Kentucky.....																											1	1	
Maryland.....	3	3	2	1	4																						10	8	
Michigan.....	1																										1	0	
Missouri.....	1																										1	1	
Montana.....	1																										0	0	
New Mexico.....																											0	0	
North Dakota.....																											0	2	
Ohio.....	4																										1	11	
Oklahoma.....																											0	0	
Oregon.....																											0	0	
Pennsylvania (bituminous).....	14	1	4		3		2																				31	27	
South Dakota.....																											0	0	
Tennessee.....	2																										2	2	
Texas.....																											0	0	
Utah.....	1																										4	3	
Virginia.....	1																										2	2	
Washington.....																											0	0	
West Virginia.....	18	2	4		10		1																				37	32	
Wyoming.....	2																										1	2	
Total (bituminous).....	62	8	19	8	12	6	6	5	1	3	124	1	2	3	124	1	2	3	2	1	1	1	2	2	8	135	145		
Pennsylvania (anthracite).....	23	2	9	1	3	1	1	1	1	1	39	1	1	2	39	1	1	1	1	1	1	1	1	1	1	5	48	51	
Total, March, 1923.....	85	10	28	9	12	9	1	6	1	3	163	2	1	5	163	2	1	3	2	1	1	1	3	7	15	163	183		
Total, March, 1922.....	77	15	38	10	18	10	5	5	3	5	181	2	1	8	181	2	1	2	2	1	3	2	4	2	12	196	196		

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 8.—United States: Coal-mine fatalities during April, 1923, by causes and States.

State.	Underground.											Shaft.					Surface.					Total by States.				
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas explosions and burning gas.	Coal-dust explosions (including gas and dust combined).	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Shafts or skips, or cages, bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or pipes bursting / steam.	Hallway cars and locomotives.	Other causes.	Total.	1923	1922
Alabama.....	3		1				2															2			8	7
Alaska.....																									0	0
Arkansas.....	1																								1	0
California, Idaho, and Nevada.....																									0	0
Colorado.....	1		2																						6	1
Georgia and North Carolina.....																									0	0
Illinois.....	8		5																						18	4
Indiana.....			2																						7	0
Iowa.....			1																						0	0
Kansas.....			5																						0	0
Kentucky.....			2																						9	0
Maryland.....																									0	0
Michigan.....																									0	0
Missouri.....	2																								0	0
Montana.....																									0	0
New Mexico.....	2																								0	0
North Dakota.....																									9	1
Ohio.....	6		2																						0	0
Oklahoma.....																									0	0
Oregon.....																									0	0
Pennsylvania (bituminous).....	21	4	1																						31	18
Pennsylvania (anthracite).....																									0	0
South Dakota.....																									0	0
Tennessee.....																									0	0
Texas.....																									0	0
Utah.....	1																								1	0
Virginia.....	6		1																						7	1
Washington.....	1																								1	1
West Virginia.....	17	2	12																						40	25
Wyoming.....	2																								2	0
Total (bituminous).....	71	8	32				6		2		3	132	1		2	1	4	4						12	148	78
Pennsylvania (anthracite).....	13	5	6	2	7							85	1		1	2	2	2						3	40	0
Total, April, 1923.....	84	13	38	2	17		6		2		5	167	2		3	1	6	6						2	15	188
Total, April, 1922.....	37	6	18		2	1	1		5		2	72			3	1	6	1						15	168	78

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 10.—United States: Coal-mine fatalities during June, 1923, by causes and States.

State.	Underground.										Shaft.					Surface.					Total by States.						
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas explosions and burning gas.	Coal-dust explosions (including gas and dust combined).	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Care, skip, or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Railway cars and locomotives.	Other causes.	Total.	1923	1922
Alabama.....	6		3										9									1			1	10	3
Alaska.....																										0	0
Arkansas.....							1						1													0	5
California, Idaho, and Nevada.....													1													0	0
Colorado.....				1									1													1	3
Georgia and North Carolina.....													16													0	0
Illinois.....	8		3								2		7													16	2
Indiana.....	2												2													0	0
Iowa.....	2												2													0	0
Kansas.....													1													0	0
Kentucky.....	6		6	1							1		15	1												16	10
Maryland.....																										0	0
Michigan.....													1													0	0
Missouri.....													1													0	0
Montana.....	1												2													0	0
New Mexico.....	2												2													0	0
North Dakota.....	1												2													1	1
Ohio.....	7		2			1							9													2	1
Oklahoma.....	1												1													1	0
Oregon.....																										0	0
Pennsylvania (bituminous).....	18	5	3			2					1		31								1					35	25
South Dakota.....													2													0	0
Tennessee.....	2																									2	2
Texas.....																										0	0
Utah.....	2												3													3	3
Virginia.....	2		1										3													3	2
Washington.....	2												4													3	3
West Virginia.....	2												1													4	4
Wyoming.....	15	1	8	2		1							27								1					33	42
Wyoming.....	1												1													1	1
Total (bituminous)	78	6	35	4		4	1	5			5		138	1					1						10	150	107
Pennsylvania (anthracite).....	17		3	7	11	8				2			49													52	3
Total, June, 1923	95	9	42	15		12	2	5		7			187	1					1						13	202	140
Total, June, 1922	47	8	14	5		4	6	7	1	2			94						2	3	2	3	4	4	14	110	110

TABLE 11.—United States: Coal-mine fatalities during July, 1923, by causes and States.

State.	Underground.											Shaft.					Surface.					Total by States.					
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas explosions and burning gas.	Coal-dust explosions (including gas and dust combined).	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip, or shafts or slopes.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Hallway cars and locomotives.	Other causes.	Total.	1923	1922
Alabama.....	4																								4	7	
Alaska.....																										0	0
Arkansas.....																									0	0	
California, Idaho, and Nevada.....																									0	0	
Colorado.....	1	6			1																				8	3	
Georgia and North Carolina.....	4	2	2	2																					12	1	
Illinois.....	2		3																						10	1	
Indiana.....																									1	2	
Iowa.....																									1	0	
Kansas.....	1		3																						1	2	
Kentucky.....	8					2																			13	12	
Maryland.....																									0	0	
Michigan.....	1		1																						2	0	
Missouri.....	1																								2	0	
Montana.....	2																								0	0	
New Mexico.....																									0	0	
North Dakota.....																									0	0	
Ohio.....	11		1																						12	4	
Oklahoma.....																									0	0	
Oregon.....																									0	0	
Pennsylvania (bituminous).....	21	4	10		2	3	1	3	1	3	44														48	24	
South Dakota.....																									0	0	
Tennessee.....																									0	0	
Texas.....																									0	2	
Utah.....																									0	0	
Virginia.....																									0	0	
Washington.....																									0	0	
West Virginia.....	23		14		1	3					41														1	4	
Wyoming.....	3		2								5														4	22	
Total (bituminous)	92	10	37	2	4	4	9	1	2	3	150	3	1	1	4	2	1	3	1	1	1	1	1	2	6	160	
Pennsylvania (anthracite).....	16	8	6	3	4	1	1				4	42	2												5	50	
Total, July, 1923.	98	18	43	5	8	8	10	1	2	7	192	3	3	3	4	7	3	3	1	1	1	1	2	4	11	210	
Total, July, 1922.	49	3	8	1	6	8	8	1	1	1	76	2	1	2	1	1	1	1	1	1	1	1	1	9	13	92	

TABLE 12.—United States: Coal-mine fatalities during August, 1923, by causes and States.

State.	Underground.											Shaft.					Surface.					Total by States.				
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas explosions and burning gas.	Coal-dust explosions (including gas and dust combined).	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip, or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Railway cars and locomotives.	Other causes.	Total.	1923	1922
Alabama.....	1	1	3				1		1												1				8	10
Alaska.....																									0	0
Arkansas.....																									0	0
California, Idaho, and Nevada.....																									0	0
Colorado.....	2	1	1				2																		5	3
Georgia and North Carolina.....	7	6	2																						18	8
Illinois.....	2	2	3	1	1																				9	4
Indiana.....	2	1	1																						4	2
Iowa.....																									0	0
Kansas.....			3																						10	11
Kentucky.....																									0	0
Maryland.....																									0	0
Michigan.....																									4	1
Missouri.....	2						1																		0	1
Montana.....																									0	3
New Mexico.....																									0	2
North Dakota.....			2			2																			0	3
Ohio.....	5	2	2																						10	5
Oklahoma.....	1																								1	1
Oregon.....																									0	0
Pennsylvania (bituminous).....	20	3	8				1				3										1				40	16
South Dakota.....																									2	1
Tennessee.....			1	1																					0	0
Texas.....																									0	0
Utah.....	2																								2	0
Virginia.....	1	3				1																			7	0
Washington.....	1																								1	3
West Virginia.....	20	11																							43	30
Wyoming.....	1	1	1	99																					101	0
Total (bituminous).....	72	7	40	105	8	2	8	2	2	4	248	3	2	1	6	3	2	1	6	3	2	1	7	13	287	101
Pennsylvania (anthracite).....	16	4	10	2	6	2	1	1	1	3	43	2	1	3	5	3	48	2	3	5	48	2	2	5	48	2
Total, August, 1923.....	88	11	50	107	14	2	9	1	2	7	291	3	2	1	6	5	1	6	5	2	2	1	10	18	315	103
Total, August, 1922.....	59	3	22	1	1	1	6	6	3	95	3	1	1	1	1	1	2	1	1	2	2	2	2	8	103	

TABLE 13.—United States: Coal-mine fatalities during September, 1923, by causes and States.

State.	Underground.										Shaft.					Surface.					Total by States.							
	Falls of roof (coal, tar coal, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas explosions and burning gas.	Coal-dust explosions (including gas and dust combined).	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip, or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Railway cars and locomotives.	Other causes.	Total.	1923	1922	
Alabama.....	3		2	1			1																				7	5
Alaska.....																											0	0
Arkansas.....																											0	0
California, Idaho, and Nevada.....	1																										0	0
Colorado.....																											0	0
Georgia and North Carolina.....	12		2	1		2	1	1																			19	20
Illinois.....	1		1																								6	3
Indiana.....	1		1																								3	3
Iowa.....	1		1																								1	1
Kansas.....	6		2																								8	5
Kentucky.....																											1	1
Maryland.....																											0	0
Michigan.....																											0	0
Missouri.....	1																										1	1
Montana.....																											0	0
New Mexico.....	1		1																								2	2
North Dakota.....	10		2																								0	0
Ohio.....	1		1																								2	5
Oklahoma.....	1		1																								1	1
Oregon.....																											0	0
Pennsylvania (bituminous).....	22	1	3		1	1	2	1	1											1							32	36
South Dakota.....																											0	0
Tennessee.....			1																								0	0
Texas.....																											0	0
Utah.....	1																										1	1
Virginia.....	1																										1	1
Washington.....																											0	0
West Virginia.....	13	1	6	3			3		1																		28	43
Wyoming.....																											0	8
Total (bituminous)	79	3	22	5	8	2	7	2	2	2	2	15	1	133	1	1	2	2	1	1	1	3	4	3	4	129	148	
Pennsylvania (anthracite).....	5	1	2	1	2	2	2	2	2	2	2	15	1	15	1	1	1	1	1	1	1	1	2	2	4	20	24	
Total, September, 1923	84	4	24	6	5	4	9	2	2	2	2	138	2	138	2	1	3	1	1	1	3	5	8	6	149	172		
Total, September, 1922	64	10	31	2	6	11	14	2	1	4	4	148	2	148	6	6	1	1	1	3	5	8	18	8	149	172		

TABLE 14.—United States: Coal-mine fatalities during October, 1922, by causes and States.

State.	Underground.										Shaft.				Surface.					Total by States.							
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas explosions and burning gas.	Coal-dust explosions (including gas and dust combined).	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip, or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Railway cars and locomotives.	Other causes.	Total.	1922	1923
Alabama.....	4		5									9													1	10	13
Alaska.....																										0	0
Arkansas.....																										0	0
California, Idaho, and Nevada.....																										0	0
Colorado.....	1	1	1	6								9													9	0	0
Georgia and North Carolina.....			6									12													12	13	13
Illinois.....	4	2	2			1					1	6													2	1	2
Iowa.....	2	2	2			4						2													2	1	2
Kansas.....	2	2	2									8													2	1	2
Kentucky.....	4	4	4									1													1	13	14
Maryland.....	1	1	2	1								1													1	1	2
Michigan.....																									0	0	0
Missouri.....																									0	0	0
Montana.....	1											1													1	1	2
New Mexico.....	4											4													0	0	0
North Dakota.....	5		3								2	10													1	11	12
Ohio.....																									0	0	0
Oklahoma.....																									0	0	0
Oregon.....																									0	0	0
Pennsylvania (bituminous).....	18	1	6			1			1			28													1	29	42
South Dakota.....																									1	1	2
Tennessee.....												1													1	1	2
Texas.....																									0	0	0
Utah.....	2											2													1	1	2
Virginia.....	3											3													2	4	6
Washington.....																									1	1	2
West Virginia.....	19	1	6						1			29													1	1	2
Wyoming.....	1											2													2	3	5
Total (bituminous).....	72	4	29	7	6	6	6	6	3	3	3	130	3	138	2	2	2	2	2	2	2	1	3	8	176	188	176
Pennsylvania (anthracite).....	19	2	5	6	2	2	4	38	1	4	30	1	1	31	1	1	1	1	1	1	1	1	1	1	40	31	40
Total, October, 1923.....	91	6	34	13	8	8	7	168	3	7	168	1	1	188	1	2	2	2	2	2	2	2	3	9	178	178	178
Total, October, 1922.....	87	25	40	9	1	12	4	191	2	4	191	1	1	207	1	2	4	2	2	2	1	9	12	9	207	207	207

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 15.—United States: Coal-mine fatalities during November, 1923, by causes and States.

State.	Underground.										Shaft.				Surface.				Total by States.								
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas explosions and burning gas.	Coal-dust explosions (including gas and dust combined).	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip, or shafts or slopes.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or pipes bursting steam.	Railway cars and locomotives.	Other causes.	Total.	1923	1922
Alabama.....	3		1	2																						6	95
Alaska.....																										0	0
Arkansas.....																										0	0
California, Idaho, and Nevada.....																										0	0
Colorado.....	2	1									1														4	12	
Georgia and North Carolina.....																									0	0	
Illinois.....	2		2																						8	10	
Indiana.....	4		1	1																					2	3	
Iowa.....						1																			4	4	
Kansas.....	2		1																						0	1	
Kentucky.....	2		2																						0	1	
Maryland.....	2																								0	1	
Michigan.....																									0	0	
Missouri.....	1																								1	0	
Montana.....																									1	1	
New Mexico.....	1																								1	10	
North Dakota.....																									1	1	
Ohio.....	8		1			1																			11	15	
Oklahoma.....																									2	0	
Oregon.....																									0	0	
Pennsylvania (bituminous).....	15	2	5																						24	117	
South Dakota.....																									0	0	
Tennessee.....	1		2																						0	0	
Texas.....																									0	0	
Utah.....			2																						0	0	
Virginia.....	1	1																							4	2	
Washington.....																									3	2	
West Virginia.....	10	3	7	27		2																			54	31	
Wyoming.....	1																								3	5	
Total (bituminous).....	60	9	23	32	1	4	2	2			1	2	136			3				2			1	3	147	322	
Pennsylvania (anthracite).....	12	4	3	3								3	25							2					3	28	
Total, November, 1923.....	72	13	26	35	1	4	2	2			1	5	161			3				4			1	3	11	175	
Total, November, 1922.....	102	9	33	88	91	17	1	3			2	5	351			4				6			1	6	13	370	

TABLE 16.—United States: Coal-mine fatalities during December, 1923, by causes and States.

State.	Underground.										Shaft.				Surface.				Total by States.								
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas explosions and burning gas.	Coal-dust explosions (including gas and dust combined).	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip, or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or pipes.	Railway cars and locomotives.	Other causes.	Total.	1923	1922
Alabama.....	5	2																								7	1
Alaska.....																											0
Arkansas.....																											0
California, Idaho, and Nevada.....																											0
Colorado.....		1																									9
Georgia and North Carolina.....	3	2																									0
Illinois.....	2																										8
Indiana.....	2																										13
Iowa.....	1																										8
Kansas.....	1																										5
Kentucky.....	3	3																									0
Maryland.....	1																										0
Michigan.....	1																										0
Missouri.....	1																										0
Montana.....																											0
New Mexico.....																											0
North Dakota.....																											0
Ohio.....	5	2																									10
Oklahoma.....																											0
Oregon.....																											0
Pennsylvania (bituminous).....	12	3	4																								33
South Dakota.....																											0
Tennessee.....																											0
Texas.....																											0
Utah.....																											0
Virginia.....	3																										0
Washington.....	1																										3
West Virginia.....	24	6																									2
Wyoming.....	2	8																									22
Total (bituminous).....	64	3	24	9	5	6	1	1	2	7	115	2	2	2	2	1	1	1	1	1	2	4	30	1	2	121	
Pennsylvania (anthracite).....	13	2	3	1	6	4	30	1	4	4	30	1	1	1	1	1	1	1	1	1	2	5	36	48	118		
Total, December, 1923.....	77	5	27	1	9	11	1	1	2	11	145	1	2	4	3	2	1	4	2	1	4	1	4	9	157		
Total, December, 1922.....	71	11	40	1	3	8	1	5	1	6	147	1	4	6	3	3	1	4	2	1	4	4	13	166			

DETAILS RELATING TO PRINCIPAL CAUSES OF ACCIDENTS.

In order that more detailed information may be available regarding accidents attributed generally to falls of roof, haulage, electricity, explosives, etc., all fatal accidents at coal mines since 1916 have been presented in Table 17 according to the bureau's classification of causes. It is believed that the figures contained should be of considerable assistance to safety engineers and others interested in the prevention of mine accidents.

TABLE 17.—United States: Coal-mine fatalities, by detailed causes, 1916 to 1923.

Cause.	1923												Total.							
	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.								
NUMBER KILLED UNDERGROUND.																				
1. Falls of roof (coal, rock, etc.):																				
(a) At working face.....	670	707	764	707	643	632	518	508	75	60	64	60	69	68	66	55	74	63	59	778
(b) In room or chamber.....	147	178	179	122	189	214	122	189	15	10	10	10	11	10	14	14	8	5	9	124
(c) On road, entry, or gangway.....	137	164	225	164	173	183	144	9	9	14	10	9	19	12	19	7	12	8	4	132
(d) On slope.....	8	8	14	17	10	9	11	1	1	3	3	3	3	1	1	1	3	1	1	13
Total.....	962	1,057	1,182	946	1,004	924	785	100	84	85	84	89	95	98	88	84	91	72	77	1,047
2. Falls of face or pillar coal:																				
(a) At working face.....	87	151	95	120	99	86	106	8	4	8	13	7	9	13	11	4	5	12	5	99
(b) On road, entry, or gangway.....	16	22	17	25	29	14	14	2	2	2	2	1	1	5	5	1	1	1	1	12
Total.....	103	173	112	154	128	100	120	8	6	10	13	8	9	18	11	4	6	13	5	111
3. Mine cars and locomotives:																				
(a) Switching and spragging.....	17	6	15	12	6	13	3	3	2	1	1	1	3	1	1	1	3	1	1	5
(b) Coupling cars.....	12	7	11	6	13	18	4	4	1	1	1	1	3	1	1	1	3	2	2	12
(c) Falling from trips.....	43	29	36	17	26	11	12	1	1	1	1	1	1	3	3	1	3	3	2	15
(d) Run over by car or motor.....	147	187	203	149	164	120	135	12	13	7	12	3	18	17	23	8	14	6	13	146
(e) Caught between car and rib.....	87	122	113	105	99	98	105	13	15	12	12	10	8	14	10	3	4	9	10	130
(f) Caught between car and roof while riding.....	12	20	27	23	18	26	24	3	5	1	4	1	3	1	3	1	2	1	2	26
(g) Runaway car or trip.....	42	67	68	42	43	32	34	3	3	5	5	5	4	4	3	5	6	1	1	51
(h) Miscellaneous.....	30	50	33	27	39	23	24	2	1	2	4	5	4	2	3	3	6	2	7	38
Total.....	390	488	506	381	408	341	341	36	38	28	38	27	42	43	50	24	34	26	27	413

4. Gas explosions and burning gas:																				
(a) Due to open light.....	61	111	55	66	87	69	109	8	3	2	2	13	12	3	104	1	9	5	1	163
(b) Due to defective safety lamps.....	11	22	22	22	22	5	7						1	2						1
(c) Due to electric arc.....	4	22	3	19	10	2	5												27	94
(d) Due to shot.....	5	5	9	6	9	4	9	3	5	5									2	10
(e) Due to explosions of powder.....	2	2	3	3	3	9	9	2	2	2	2	1	2						3	3
(f) Miscellaneous.....	87	57	23	28	15	7	3												3	15
Total.....	170	197	95	144	130	96	135	8	11	9	2	14	15	5	107	6	13	35	1	226
5. Coal-dust explosions (including gas and coal dust combined):																				
(a) Due to open light.....	31	123	2	22	3	2	12													
(b) Due to defective safety lamps.....			4																	
(c) Due to electric arc.....	22	8	27	24	22	11	46	4	120	12									1	9
(d) Due to shot.....	3	11	1	1	8	6	10													26
(e) Due to explosions of powder.....		21			1	1	1													
(f) Miscellaneous.....																				
Total.....	56	163	34	47	34	20	176	4	120	12									1	9
6. Explosives:																				
(a) Transportation.....	21	6	4	97	3	7														5
(b) Charging.....	9	5	13	14	4	10	5													6
(c) Suffocation.....	7	10	4	3	4	28	5	1												6
(d) Drilling into old holes.....	3	1	2	2	3	4	1													6
(e) Striking in loose rock or coal.....			1			3	1													1
(f) Thawing.....																				
(g) Caps, detonators, etc.....	3	2	3	3	3	2	3													3
(h) Unguarded shots.....						9	3	2												3
(i) Returned too soon.....	15	8	18	5	12	12	11	3	2	1	1	2	1	1	4	2	2			15
(j) Premature shot.....	58	44	44	56	57	41	32	4	2	7	7	7	3	3	1	2	1	2	3	35
(k) Sparks from match, lamp, or candle.....	5	5	13	7	5	9	7	1												4
(l) Delayed blast.....	11	5	4	2	13	13	7	1												6
(m) Shot breaking through rib or pillar.....	7	10	9	6	1	2	6													4
(n) Miscellaneous.....	7	12	20	10	21	12	11	1												13
Total.....	146	110	135	206	128	152	92	11	3	9	17	12	12	8	14	5	8	4	11	114
7. Suffocation from mine gases:																				
(a) Direct contact with trolley wire.....	66	46	55	39	29	35	28	1	3	3	3	4	2	7	5	3	3			1
(b) Bar or tool striking trolley wire.....	5	2	4	2	3	3	3							2						4
(c) Contact with mining machine.....	7	5	7	4	9	6	4	3	1											5
(d) Contact with machine feed wire.....	7	16	12	14	10	11	12	1						2	1	1	1			12
(e) Contact with haulage motor.....	1	1	1	2	3	5	1													1
(f) Miscellaneous.....	4	6	9	8	22	20	26	2	1	2	2	1	1	1	1	5	2	1		18
Total.....	90	79	88	69	76	80	74	7	5	5	6	10	5	10	9	6	2	1		75
8. Electricity:																				
(a) Direct contact with trolley wire.....	66	46	55	39	29	35	28	1	3	3	3	4	2	7	5	3	3			1
(b) Bar or tool striking trolley wire.....	5	2	4	2	3	3	3							2						4
(c) Contact with mining machine.....	7	5	7	4	9	6	4	3	1											5
(d) Contact with machine feed wire.....	7	16	12	14	10	11	12	1						2	1	1	1			12
(e) Contact with haulage motor.....	1	1	1	2	3	5	1													1
(f) Miscellaneous.....	4	6	9	8	22	20	26	2	1	2	2	1	1	1	1	5	2	1		18
Total.....	90	79	88	69	76	80	74	7	5	5	6	10	5	10	9	6	2	1		75

PRINCIPAL COAL-MINE DISASTERS.

Table 18 gives what is believed to be a complete list of all coal-mine disasters in the United States causing 100 or more deaths each, and all disasters since January 1, 1916, in each of which 5 or more men were killed.

TABLE 18.—*Coal-mine disasters in the United States in which 100 or more men were killed, and those since 1916 in which 5 or more men were killed.*

Date.	Name of mine.	Location of mine.	Nature of accident.	Killed.	
1869	Sept. 6	Avondale	Plymouth, Pa.	Mine fire	179
1884	Mar. 13	Laurel	Pocahontas, Va.	Explosion	112
1891	Jan. 27	Mainmouth	Mount Pleasant, Pa.	Gas explosion	109
1892	Jan. 7	No. 11	Krebs, Okla.	Explosion	100
1900	May 1	Winter quarters Nos. 1 and 4	Scofield, Utah	Coal-dust explosion	200
1902	May 19	Fraterville	Coal Creek, Tenn.	do	184
1902	July 10	Rolling Mill	Johnstown, Pa.	Gas explosion	112
1903	June 30	Hanna No. 1	Hanna, Wyo.	Mine explosion and fire	169
1904	Jan. 25	Harwick	Cheswick, Pa.	Coal-dust explosion	179
1905	Feb. 20	Virginia City	Virginia City, Ala.	do	108
1907	Dec. 6	Monongah Nos. 6 and 8	Monongah, W. Va.	do	361
1907	Dec. 19	Darr	Jacobs Creek, Pa.	do	239
1908	Nov. 28	Rachel and Agnes	Marianna, Pa.	do	154
1909	Nov. 13	St. Paul No. 2	Cherry, Ill.	Mine fire	259
1911	Apr. 8	Banner	Littleton, Ala.	Coal-dust explosion	128
1913	Oct. 22	Stag Canon No. 2	Dawson, N. Mex.	do	263
1914	Apr. 28	Eccles Nos. 5 and 6	Eccles, W. Va.	Gas explosion	181
1915	Mar. 2	Layland No. 3	Layland, W. Va.	Coal-dust explosion	112
1917	Apr. 27	Hastings	Hastings, Colo.	do	121
1923	Feb. 8	Dawson No. 1	Dawson, N. Mex.	do	120
1916	Feb. 8	Lance	Plymouth, Pa.	Gas explosion	7
1916	Feb. 11	Jefferson and Clearfield No. 2	Ernest, Pa.	do	27
1916	Feb. 29	Davis No. 42	Kempton, W. Va.-Md.	Coal-dust explosion	16
1916	Mar. 9	Hollenback	Wilkes-Barre, Pa.	Gas explosion	6
1916	Mar. 28	King	Kimball, W. Va.	do	6
1916	Mar. 30	Robindale	Seward, Pa.	do	8
1916	Aug. 8	Woodward	Wilkes-Barre, Pa.	do	6
1916	Oct. 19	Jamison No. 7	Barrackville, W. Va.	do	10
1916	Oct. 22	Roden	Marvel, Ala.	do	18
1916	Nov. 4	Bessie	Palos, Ala.	do	30
1916	Dec. 13	Fidelity No. 9	Stone City, Kans.	do	20
1917	Mar. 13	Henderson No. 1	Hendersonville, Pa.	do	14
1917	Apr. 18	Lynden	Mason, W. Va.	Lightning exploded powder in powder house	5
1917	Apr. 27	Hastings	Hastings, Colo.	Coal-dust explosion	121
1917	June 2	Rend No. 2	Herrin, Ill.	Gas explosion	9
1917	Aug. 4	West Kentucky No. 7	Clay, Ky.	do	62
1917	Nov. 29	Old Ben No. 11	Christopher, Ill.	Coal-dust explosion	17
1917	Dec. 15	Yukon No. 1	Bluefield, W. Va.	Gas explosion	17
1917	Dec. 17	Wilkeson	Wilkeson, Wash.	Inrush of water and gravel	6
1917	Dec. 20	Nemo	Harriman, Tenn.	Coal-dust explosion	11
1918	May 20	Villa	Charleston, W. Va.	Mine fire	13
1918	Aug. 7	Harmar	Harmarville, Pa.	Gas explosion	8
1918	Aug. 28	Burnett	Burnett, Wash.	Coal-dust explosion	12
1918	Sept. 28	North	Royalton, Ill.	Gas explosion	21
1919	Mar. 31	Empire	Aguilar, Colo.	do	13
1919	Apr. 29	Majestic	Majestic, Ala.	Coal-dust explosion	22
1919	June 5	Baltimore tunnel No. 2	Wilkes-Barre, Pa.	Powder explosion	92
1919	June 30	Alderson No. 5	Alderson, Okla.	Gas explosion	15
1919	July 8	Lansford colliery	Lansford, Pa.	do	8
1919	July 18	Carswell	Kimball, W. Va.	do	6
1919	Aug. 6	Weirwood	Weirwood, W. Va.	do	7
1919	Aug. 18	Oakdale	Laveta, Colo.	do	18
1919	Oct. 29	Amsterdam No. 2	Amsterdam, Ohio	Mine fire	20
1920	Apr. 14	Dawson Nos. 1 and 6	Dawson, N. Mex.	Coal-dust explosion	5
1920	May 3	Submarine	Clinton, Ind.	Gas explosion	5
1920	June 2	Ontario	Cokeburg, Pa.	do	6
1920	July 19	Union	Renton, Pa.	do	9
1920	July 26	No. 6	Sublet, Wyo.	Blowing up of powder magazine	8
1920	Aug. 21	No. 19	Degnan, Okla.	Gas explosion	10
1920	Nov. 16	Arnold	Earlington, Ky.	Mine fire	6
1920	Nov. 23	Parrish	Parrish, Ala.	Gas explosion	12

TABLE 18.—*Coal-mine disasters in the United States in which 100 or more men were killed, and those since 1916 in which 5 or more men were killed—Continued.*

Date.	Name of mine.	Location of mine.	Nature of accident.	Killed.	
1921	Feb. 12	Oak Hill Nos. 1 and 2.....	Oak Creek, Colo.....	Coal-dust explosion.....	5
1921	Feb. 23	Kathleen.....	Dowell, Ill.....	Mine fire.....	7
1921	Mar. 9	Rahn No. 11.....	Seek, Pa.....	Gas explosion.....	5
1921	Aug. 31	Harco.....	Harrisburg, Ill.....	do.....	11
1921	Dec. 13	Satanic.....	Morrison, Colo.....	Mine fire.....	6
1922	Jan. 30	Layman.....	Pineville, Ky.....	Coal-dust explosion.....	6
1922	Feb. 2	Belle Ellen No. 2.....	Belle Ellen, Ala.....	Gas-explosion.....	9
1922	do.	Gates No. 2.....	Brownsville, Pa.....	Coal-dust explosion.....	25
1922	Feb. 7	Marietta.....	Pinson Fork, Ky.....	do.....	9
1922	Mar. 20	Dilltown No. 1.....	Dilltown, Pa.....	Gas explosion.....	5
1922	Mar. 24	Sopris.....	Sopris, Colo.....	Coal-dust explosion.....	17
1922	May 25	Acmar No. 3.....	Acmar, Ala.....	do.....	11
1922	June 25	No. 6.....	Huntington, Ark.....	Suffocation from mine gases.....	5
1922	Sept. 23	Raleigh-Wyoming No. 2.....	Glen Rogers, W. Va.....	Falling cage.....	5
1922	Oct. 30	No. 11.....	McCurain, Okla.....	Gas explosion.....	8
1922	Nov. 3	Eddy Creek.....	Olyphant, Pa.....	Premature shot.....	6
1922	Nov. 6	Relly No. 1.....	Spangler, Pa.....	Gas explosion.....	77
1922	Nov. 22	Dolomite No. 3.....	Dolomite, Ala.....	Coal-dust explosion.....	90
1922	Nov. 25	No. 4.....	Cerrillos, N. Mex.....	Gas explosion.....	7
1923	Jan. 10	Dolomite No. 1.....	Dolomite, Ala.....	do.....	5
1923	Feb. 8	Dawson No. 1.....	Dawson, N. Mex.....	Coal-dust explosion.....	120
1923	Feb. 21	Alliance.....	Schuylkill, Pa.....	Gas explosion.....	5
1923	Mar. 2	Arista.....	Arista, W. Va.....	Coal-dust explosion.....	10
1923	May 5	Southwestern.....	Aguilar, Colo.....	Gas explosion.....	10
1923	June 26	Richards colliery.....	Mount Carmel, Pa.....	do.....	5
1923	Aug. 14	Frontier No. 1.....	Kemmerer, Wyo.....	do.....	99
1923	Oct. 7	Midwest.....	Palisades, Colo.....	do.....	6
1923	Nov. 6	Glen Rogers.....	Beckley, W. Va.....	do.....	27
1923	Dec. 7	Happy.....	Happy Perry Co., Ky.....	Coal-dust explosion.....	9
1923	Dec. 8	Mount Jessup No. 2.....	Jessup, Pa.....	Fall of roof.....	5

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 19.—Production, men employed, and number killed in and about the coal mines in the United States during the year ended December 31, 1922.

State.	Production (short tons).	Number employed.*			Number of days of labor performed. ^a	Average days active. ^a	Number killed.		Number killed per 1,000 300-day workers.		Number killed per 1,000,000 short tons mined.	Production per death (short tons).	
		Underground.					Total.	Under-ground.	Sur-face.	Under-ground.			Total.
		Miners, loaders, etc. ^b	All others.	Total.									
Alabama.....	18,324,740	16,615	6,528	23,143	28,169	5,026	182	1	183	10.97	0.28	9.99	100,135
Alaska.....	70,275	1,113	6,113	2,262	4,480	168	6	0	6	6.59	.....	5.41	185,008
Arkansas.....	1,110,046	2,365	3,359	676	4,035	15	.....	.....	.....	.....	.....	.....	.....
California, Idaho, and Nevada ^c	26,893	20	972	45	60	14	.....	.....	.....	.....	.....	.....	.....
Colorado.....	10,019,507	7,911	3,158	11,069	13,506	2,437	72	3	75	10.20	1.93	7.49	133,595
Georgia and North Carolina.....	130,206	.....	68	.....	.....	91	.....	.....	.....	.....	.....	.....	.....
Illinois.....	58,467,736	61,592	24,704	86,296	10,040	10,040	121	4	125	3.51	1.00	5.21	139,206
Indiana.....	19,192,880	20,605	8,298	28,903	4,315	4,315	48	1	49	4.53	0.63	3.25	214,467,742
Iowa.....	1,325,161	8,269	3,477	11,846	1,011	1,011	18	1	19	3.49	2.27	4.02	390,467
Kansas.....	2,965,170	8,093	1,310	6,412	1,947	1,947	8	1	9	3.00	2.54	3.05	328,352
Kentucky.....	42,134,175	34,180	16,207	50,396	60,924	10,528	120	5	125	5.10	1.02	4.39	337,073
Maryland.....	1,223,707	2,563	693	3,226	3,755	10,528	3	.....	3	2.76	.....	2.37	407,569
Michigan.....	926,300	2,335	630	1,974	2,168	192	3	.....	3	2.82	.....	3.23	309,797
Minnesota.....	2,924,760	1,370	1,848	7,218	8,750	1,532	6	.....	6	2.20	.....	2.05	487,458
Missouri.....	2,573,221	2,104	904	3,008	3,435	779	10	.....	10	6.01	.....	3.89	257,222
Montana.....	2,147,173	2,283	666	3,222	4,001	779	21	.....	21	9.04	.....	6.87	149,865
New Mexico.....	3,337,564	2,846	990	1,136	1,648	512	3	.....	3	4.54	3.36	3.01	331,891
North Dakota.....	96,953,791	34,134	11,772	45,906	54,194	8,288	90	.....	96	5.90	2.18	5.83	280,769
Ohio.....	2,802,511	4,300	2,234	6,624	7,838	1,204	19	1	20	7.54	2.18	7.14	140,126
Oklahoma.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oregon.....	113,148,308	114,541	44,910	159,451	188,838	29,387	398	38	436	4.87	2.53	3.85	269,514
Pennsylvania (bituminous).....	7,752	32	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pennsylvania (anthracite).....	429,368,029	407,772	174,637	582,409	687,956	105,549	1,577	102	1,679	5.71	2.04	3.98	251,500
Texas.....	4,876,774	6,996	2,547	9,533	11,449	1,916	26	2	28	5.02	1.92	5.74	174,171
Vermont.....	1,108,007	994	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Virginia.....	4,929,098	2,200	1,327	3,527	3,841	306	4	.....	4	2.56	.....	3.62	276,502
Washington.....	10,401,174	2,200	1,567	3,767	4,721	1,092	20	2	22	8.11	2.70	4.41	226,909
West Virginia.....	2,581,165	2,434	1,170	3,604	4,399	697	25	.....	25	3.40	.....	3.38	419,647
Wyoming.....	80,689,192	57,765	33,029	90,814	110,014	19,200	331	33	364	8.57	3.52	7.68	117,326
Wyoming.....	5,971,724	3,266	2,377	7,643	8,045	1,402	22	1	23	6.76	1.68	5.87	259,640
Total (bituminous).....	429,368,029	407,772	174,637	582,409	687,956	105,549	1,577	102	1,679	5.71	2.04	3.98	251,500
Total (anthracite).....	54,683,022	72,527	41,752	114,279	156,849	23,636,506	151	36	300	4.60	1.68	5.49	182,277
Total.....	479,951,121	480,299	216,389	696,688	844,807	149,119	1,841	138	1,979	5.51	1.94	4.89	241,006

* Data furnished by the U. S. Geological Survey. ^b Includes also shot fires. ^c Includes Oregon. ^d Included with California, Idaho, and Nevada.

TABLE 20.—United States: Coal-mine fatalities during the year ended December 31, 1922, by causes and States.

State	Underground.											Shaft.					Surface.					Total by States.						
	Falls of roof (coal, rock, etc.)	Falls of face or pillar coal.	Mine cars and locomotives.	Gas explosions and gas burning gas.	Coal-dust explosions (including gas and dust combined).	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.)	Other causes.	Total	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cages, skip, or buckets.	Other causes.	Total	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Railway cars and locomotives.	Other causes.	Total	1922	1921	
Alabama	48		14	10	101	1	6				2	182						1							1	183	80	
Alaska																										0	0	
Arizona		1				5						6														0	17	
California, Idaho, and Nevada							3					71				1			1	1					3	75	52	
Colorado	32	9	9	1	17																				4	125	183	
Georgia and North Carolina	61	2	31	7	8	3	4				1	117	3	1								4			4	125	183	
Illinois	19		15		3	4					3	45	1		2										1	48	64	
Indiana	12	1	1		1		1					16	1		1										1	19	22	
Iowa	7											8													1	9	14	
Kansas	57	1	24		17	5	7				1	116	8		4							2			5	125	128	
Kentucky	1					1						3													3	7	7	
Maryland	2		1									3													3	3	3	
Michigan	6		3									6													6	12	12	
Missouri	7		2									10													10	13	10	
Montana	6		3			1						6													10	13	10	
New Mexico	7	1	2	7			1				1	20													21	15	15	
New York	1											3													3	4	4	
North Dakota	58		13	1		5	6				4	88													6	96	109	
Ohio	7					1						3													20	20	20	
Oklahoma	6			8	2	3						19													1	0	1	
Oregon	123	50	72	82	26	10	7	1	8	8	387	4	2	4	1							1	8	20	438	288	288	
Pennsylvania (bituminous)		4	2	1			2				1	26													2	28	12	
South Dakota	16											3													4	2	2	
Tennessee																										4	4	
Texas	6		6			2	1					20													2	22	15	
Utah	18		3				1				1	25													2	25	17	
Virginia	8		1	3								20													2	25	15	
Washington	179	13	77	3	1	17	23	1	6	4	324	2													3	232	7	
West Virginia	14		2			1	3				1	92													7	10	5	
Wyoming																									1	1	23	23
Total (bituminous)	687	90	283	122	176	54	6	71	3	20	27	1,541	11	3	19	3						1	20	42	102	1,670	1,440	
Pennsylvania (anthracite)	98	30	58	13		35	1	3	2		16	289	3	1	1							2	10	2	36	300	547	
Total, 1922	785	120	341	135	176	82	9	74	5	20	43	1,800	14	4	20	3						3	22	52	138	1,979	1,979	
Total, 1921	924	100	341	96	20	152	9	80	7	18	9	1,831	18	9	9							1	20	41	120	1,987	1,987	

TABLE 21.—Coal-mine fatalities: Percentages, by causes, 1913 to 1923.

Cause.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Total, 10 years.	1923
Underground:												
Falls of face (coal, rock, etc.).....	38.06	40.14	40.50	43.22	39.21	45.82	40.83	44.21	46.50	39.67	41.69	42.70
Falls of roof or pillar coal.....	7.33	5.95	7.05	4.63	6.42	4.34	6.65	5.64	5.03	6.07	5.94	6.52
Mine cars and locomotives.....	15.22	15.48	15.29	17.52	18.10	19.61	16.44	17.97	17.16	17.23	17.00	16.84
Gas explosion and burning gas.....	3.27	13.53	6.74	7.64	7.31	3.08	6.21	5.72	4.83	6.82	6.55	9.22
Coal-dust explosions (including gas and dust combined).....	15.19	.69	6.66	2.51	6.04	1.32	2.03	1.50	1.01	8.90	4.76	5.95
Explosives.....	4.96	5.95	6.83	6.56	4.08	5.23	8.89	5.64	7.65	4.65	5.98	4.65
Suffocation from mine gases.....	1.18	.57	.71	.47	.30	.58	.47	.79	.45	.45	.62	.41
Electricity.....	2.87	3.63	3.92	4.04	2.93	3.41	2.98	3.35	4.03	3.74	3.45	3.06
Animals.....	.32	.29	.13	.36	.33	.31	.09	.17	.35	.17	.26	.41
Mining machines.....	.86	.81	.53	.90	.70	.66	1.12	1.63	.91	1.01	.90	.94
Mine fires (burned, suffocated, etc.).....	.14	.29	.05	.13	.07	1.01	.95	.35	.45	1.01	.35	.94
Other causes.....	2.59	2.32	2.78	3.01	2.60	2.44	2.98	1.98	3.78	2.17	2.65	3.02
Total	91.99	89.65	91.19	91.06	88.09	88.41	89.64	88.95	92.15	90.96	90.15	91.72
Shaft:												
Falling down shafts or slopes.....	1.80	2.85	1.36	1.39	.78	.81	.86	1.19	.91	.71	1.28	.90
Objects falling down shafts or slopes.....	.04	.21	.09	.09	.45	.35	.26	.35	.45	.20	.25	.12
Cage, skip, or bucket.....	.32	.49	.66	.54	.82	.65	.91	.83	.45	1.01	.63	.82
Other causes.....	.07	.04	.31	.18	.18	.19	.26	.09	-----	.15	.12	.04
Total	2.23	3.59	1.76	2.20	2.23	2.01	2.29	2.46	1.81	2.07	2.28	1.88
Surface:												
Mine cars and mine locomotives.....	2.80	2.77	2.73	2.65	2.74	3.38	3.06	2.38	1.26	1.62	2.59	1.43
Electricity.....	.29	.44	.44	.31	.63	.58	.43	.75	.86	.45	.51	.32
Machinery.....	.93	1.06	1.15	.99	1.71	1.55	.95	1.10	.80	1.01	1.14	1.06
Boiler explosions or bursting steam pipes.....	.04	.21	.26	.18	.30	.27	.26	.17	.05	.15	.19	-----
Railway cars and locomotives.....	.29	.53	.62	.72	1.33	1.20	.95	1.06	.01	1.11	.87	.98
Other causes.....	1.43	1.75	1.85	1.89	2.97	2.60	2.42	3.13	2.06	2.63	2.27	2.61
Total	5.78	6.76	7.05	6.74	9.68	9.58	8.07	8.59	6.04	6.97	7.57	6.40
Grand total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total killed.....	2,785	2,454	2,269	2,226	2,696	2,580	2,317	2,271	1,987	1,979	23,564	2,452

**COAL PRODUCTION AND FATALITIES, BY MONTHS, 1914 TO
1923.**

Table 22 shows the monthly production of coal since 1914, as estimated by the United States Geological Survey. The number of coal-mine fatalities, arranged by corresponding months, appear in Table 23. Considered together, these two tables are of interest as indicating the fluctuations in output and number of fatalities in different seasons of the year, as well as the relationship between production and accidents in different months, as shown in Table 24.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 22.---Monthly production of anthracite and of bituminous coal in the United States, 1914 to 1923.^a

[Net tons--000 omitted.]

	1914		1915		1916		1917		1918		1919		1920		1921		1922		1923. ^b	
	Tons.	Per cent.	Tons.	Per cent.	Tons.	Per cent.	Tons.	Per cent.	Tons.	Per cent.	Tons.	Per cent.	Tons.	Per cent.	Tons.	Per cent.	Tons.	Per cent.	Tons.	Per cent.
Bituminous:	40,188	9.5	37,190	8.4	46,596	9.3	47,967	8.7	42,227	7.3	42,193	9.0	49,748	8.7	41,148	9.9	38,928	9.2	50,178	9.2
January	35,472	8.4	29,321	6.6	45,187	9.0	41,353	7.5	48,177	8.3	32,103	6.9	41,055	7.2	31,524	7.6	42,423	10.0	42,160	7.7
February	23,699	5.6	29,968	6.8	33,628	6.8	41,864	7.6	46,041	8.0	34,395	7.0	38,764	6.8	31,054	7.5	31,933	12.3	46,802	8.6
March	28,551	6.8	30,938	7.0	38,804	7.7	47,086	8.5	50,443	8.7	32,112	7.0	30,841	7.0	28,154	6.8	16,332	3.9	42,564	7.8
April	31,412	7.4	33,957	7.7	37,742	7.7	46,824	8.4	50,493	8.7	38,185	8.2	46,895	8.1	34,637	8.2	23,001	5.0	46,076	8.4
May	34,305	8.1	35,573	8.0	38,113	7.6	46,292	8.4	54,974	9.5	43,445	8.3	45,988	8.1	34,635	7.5	23,114	5.5	45,490	8.3
June	37,751	8.9	38,161	8.6	42,696	8.5	47,372	8.6	55,114	9.5	43,615	8.3	40,974	8.8	31,947	7.5	17,602	4.2	45,126	8.3
July	39,019	9.2	40,964	9.3	42,098	8.4	45,108	8.2	51,185	8.8	45,509	10.3	50,241	8.8	35,870	8.6	40,901	9.7	48,216	8.5
August	37,683	8.9	44,198	10.0	44,807	8.9	48,337	8.7	52,300	9.0	47,200	12.3	52,278	9.4	44,687	10.7	46,730	11.0	49,177	9.0
September	33,392	7.9	44,737	10.1	44,927	8.9	47,090	8.6	43,885	7.6	49,000	8.1	52,576	9.4	36,805	8.8	46,808	11.1	42,911	7.9
October	35,862	8.5	45,814	10.3	44,098	8.8	44,037	8.0	40,184	6.9	37,255	8.0	53,257	9.4	31,550	7.6	48,085	11.4	39,836	7.3
November	422,704	100.0	442,636	100.0	502,520	100.0	551,791	100.0	579,386	100.0	465,860	100.0	586,667	100.0	415,922	100.0	422,268	100.0	545,400	100.0
December	6,878	7.6	6,337	7.1	7,649	8.7	7,672	7.7	7,270	7.3	7,810	8.9	7,459	8.3	7,681	8.5	6,566	13.0	8,713	9.1
Anthracite:	3,477	6.0	5,703	6.4	7,404	9.1	6,688	6.7	7,474	7.6	5,190	5.8	6,415	7.2	7,083	8.8	7,096	13.0	7,773	8.1
January	6,863	8.9	6,654	7.5	7,964	9.1	9,026	9.1	9,352	9.3	8,192	5.0	9,935	8.0	7,677	8.5	9,181	16.8	6,882	9.8
February	8,069	9.2	7,807	8.8	8,725	9.8	8,887	7.3	8,222	7.3	6,864	7.8	6,285	7.0	7,985	8.8	9,27	(c)	8,063	8.4
March	8,147	9.0	7,157	8.0	7,327	8.4	8,353	3.0	8,649	9.0	7,493	8.4	8,037	9.0	7,752	8.9	8,66	1.1	8,573	9.0
April	7,165	7.9	6,091	7.5	7,062	8.1	8,084	3.7	8,853	9.0	7,074	8.1	8,251	9.2	8,077	8.9	8,66	1.1	8,665	9.1
May	7,288	8.0	7,161	8.0	7,190	8.2	8,058	8.7	8,134	9.4	7,047	9.2	8,242	9.3	7,450	8.1	118	2.2	8,320	8.7
June	8,301	9.1	7,423	8.3	7,206	8.2	8,058	8.2	8,238	8.2	8,006	9.1	8,105	9.0	7,450	8.2	164	3.3	8,868	9.3
July	8,830	9.7	8,761	9.9	7,630	8.7	9,183	3.2	8,003	8.2	7,464	8.8	8,148	9.2	7,385	8.7	5,075	9.3	2,917	3.1
August	7,878	8.7	8,514	9.6	7,790	8.9	8,453	5.5	8,303	8.9	8,645	8.9	8,148	9.1	7,858	8.7	8,806	16.3	8,724	9.2
September	7,578	8.3	5,062	9.1	7,257	8.3	7,360	7.4	7,396	7.5	8,089	9.2	8,463	9.4	7,110	7.9	8,695	15.9	7,746	8.1
October	90,822	100.0	88,995	100.0	87,576	100.0	99,612	100.0	98,826	100.0	88,092	100.0	99,596	100.0	90,473	100.0	84,683	100.0	95,444	100.0
November	513,525	-----	531,619	-----	590,098	-----	651,402	-----	678,212	-----	553,952	-----	658,265	-----	608,395	-----	476,951	-----	640,844	-----
December	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Total, bituminous	422,704	100.0	442,636	100.0	502,520	100.0	551,791	100.0	579,386	100.0	465,860	100.0	586,667	100.0	415,922	100.0	422,268	100.0	545,400	100.0
Total, anthracite	90,822	100.0	88,995	100.0	87,576	100.0	99,612	100.0	98,826	100.0	88,092	100.0	99,596	100.0	90,473	100.0	84,683	100.0	95,444	100.0
Grand total	513,525	-----	531,619	-----	590,098	-----	651,402	-----	678,212	-----	553,952	-----	686,265	-----	508,395	-----	476,951	-----	640,844	-----

^a Monthly production estimated for bituminous coal on basis of rail shipments; for anthracite, on basis of monthly reports of Anthracite Bureau of Information. The above monthly production figures were compiled by the U. S. Geological Survey, and the percentages were calculated by the U. S. Bureau of Mines.

^b Subject to revision.

^c Less than one-tenth of 1 per cent.

TABLE 23.—Coal-mine fatalities, by months and years, 1914 to 1923.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Bituminous:													
1914	167	130	165	298	101	143	125	141	148	192	113	136	1,859
1915	113	133	235	114	99	104	165	129	135	133	181	142	1,683
1916	135	178	128	115	116	108	139	155	116	145	179	157	1,671
1917	170	180	182	260	136	188	189	217	140	142	173	187	2,114
1918	160	171	148	169	168	183	214	194	198	172	125	127	2,029
1919	139	129	138	141	141	151	154	180	138	195	59	117	1,682
1920	161	121	133	127	111	169	150	161	178	159	167	143	1,780
1921	146	124	88	109	129	125	115	117	122	140	113	112	1,440
1922	111	191	145	78	86	107	86	101	148	176	332	118	1,679
1923	162	253	135	148	133	150	160	267	129	138	147	121	1,943
Total.	1,464	1,560	1,497	1,559	1,220	1,428	1,497	1,662	1,452	1,592	1,589	1,360	17,880
Anthracite:													
1914	36	42	48	56	63	47	43	39	61	61	46	53	595
1915	53	46	47	55	54	45	32	50	43	56	59	46	586
1916	64	47	70	39	28	39	40	52	45	52	32	46	555
1917	57	38	48	49	45	44	58	52	41	55	57	38	582
1918	55	51	48	46	43	47	62	55	32	43	32	37	551
1919	44	31	33	46	44	144	68	43	41	49	36	54	635
1920	47	39	48	35	52	50	44	42	20	35	31	48	481
1921	51	36	49	55	44	45	47	38	45	42	51	44	547
1922	50	46	49	1	1	3	6	2	24	31	38	48	300
1923	44	50	48	40	53	52	50	48	20	40	28	36	509
Total.	501	426	490	423	427	516	450	422	372	464	410	450	5,351

TABLE 24.—United States: Fatality rates per million tons mined, by months and years, 1914 to 1923.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Bituminous:													
1914.	4.16	3.66	3.63	12.62	3.54	4.55	3.64	3.74	3.79	5.09	3.38	3.79	4.40
1915.	3.04	4.84	7.39	3.86	3.20	3.06	4.64	3.38	3.30	3.01	4.05	3.10	3.90
1916.	2.90	3.94	2.92	3.42	2.99	2.86	3.65	3.63	3.76	3.24	3.98	3.56	3.33
1917.	3.54	3.14	3.80	3.21	2.89	4.02	4.08	4.58	3.10	2.94	3.63	4.25	3.83
1918.	3.79	3.91	3.08	3.47	3.33	3.58	3.89	3.52	3.87	3.29	2.85	3.16	3.50
1919.	3.29	4.02	3.79	3.31	3.69	4.01	3.55	4.13	2.86	3.41	3.18	3.14	3.61
1920.	3.24	2.95	2.92	3.28	2.79	3.67	3.26	3.18	3.54	2.98	3.18	2.69	3.13
1921.	3.35	3.93	2.83	3.87	3.79	3.61	3.70	3.32	3.40	3.13	3.07	3.54	3.46
1922.	2.85	4.30	2.79	3.78	3.10	4.63	4.89	3.57	3.62	3.77	7.08	2.45	3.98
1923.	3.23	6.00	2.88	3.48	2.89	3.30	3.55	5.46	2.79	2.81	3.43	3.04	3.56
Anthracite:													
1914.	5.23	7.67	6.99	6.94	7.55	5.77	6.00	5.35	7.35	6.91	5.84	6.99	6.55
1915.	8.36	8.07	7.06	6.30	6.92	6.29	4.78	6.98	5.79	6.39	6.93	5.71	6.58
1916.	8.37	6.33	5.79	6.62	3.88	5.32	5.66	7.37	6.24	6.82	4.11	6.34	6.34
1917.	7.43	5.08	5.32	6.76	5.04	4.83	6.08	5.74	4.98	5.99	6.74	5.16	5.94
1918.	7.57	6.81	3.12	5.60	4.84	5.31	6.79	5.94	3.98	5.31	4.70	5.00	5.58
1919.	5.63	6.08	6.30	6.97	5.85	19.45	8.53	5.31	5.47	5.67	4.57	6.68	7.21
1920.	6.30	6.06	6.05	5.57	6.47	6.06	5.27	5.18	4.26	4.30	4.12	5.71	5.48
1921.	6.64	4.31	6.38	6.89	5.68	5.58	6.43	5.09	6.09	5.34	7.17	7.09	6.05
1922.	7.61	6.48	6.55	6.89	27.78	34.88	50.85	12.20	4.73	3.48	4.37	5.49	5.49
1923.	5.05	6.43	3.12	4.96	6.18	6.00	6.00	5.41	6.86	4.59	3.61	4.68	5.33
Bituminous and anthracite:													
1914.	4.31	4.20	4.07	11.17	4.44	4.80	4.66	4.00	4.42	5.44	3.85	4.35	4.78
1915.	3.81	3.11	3.33	4.37	3.95	3.62	4.05	3.95	3.68	3.57	4.51	3.49	4.27
1916.	3.67	3.28	3.90	3.30	3.13	3.26	3.96	4.17	3.27	3.76	4.00	3.95	3.77
1917.	4.08	4.28	3.04	6.30	3.23	4.15	4.49	4.77	3.39	3.42	4.10	4.38	4.14
1918.	4.34	4.36	3.41	3.90	3.56	3.83	4.31	3.87	3.88	3.56	3.10	3.45	3.90
1919.	3.66	4.37	3.33	4.77	4.05	6.54	4.32	4.31	3.21	3.71	3.53	3.77	4.18
1920.	3.64	3.30	3.24	4.60	3.40	4.03	3.57	3.50	3.86	3.16	3.29	3.10	3.45
1921.	4.03	3.62	3.54	4.54	4.14	3.98	4.22	3.63	3.66	3.46	3.73	4.12	3.92
1922.	3.24	4.79	3.21	4.77	4.14	4.74	5.19	3.62	3.74	3.72	6.66	2.92	4.15
1923.	3.30	6.07	3.26	3.71	3.40	3.73	3.93	5.46	3.03	3.07	3.45	3.30	3.93

TABLE 25.—United States: Coal-mine fatalities during the years 1919 to 1923, by causes and States.

State.	Underground.												Shaft.						Surface.						Grand total.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and loco-motives.	Gas explosions and burning gas.	Coal-dust explosions (including gas and dust combined).	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip, or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or pipes bursting steam.	Railway cars and locomotives.	Other causes.		Total.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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^a Includes Oregon.

TABLE 26.—Percentage of bituminous coal mined by various methods, by States and years.^a

1919 to 1922.

State and year.	Percentage coal mined by—				State and year.	Percentage coal mined by—			
	Hand.	Machine.	Shot off solid.	Not reported. ^b		Hand.	Machine.	Shot off solid.	Not reported. ^b
Alabama:					Michigan:				
1919	17.8	33.1	46.9	2.2	1919	1.3	94.7	4.0	.....
1920	15.8	34.7	46.9	2.6	1920	1.4	93.5	5.0	.....
1921	17.5	39.9	39.6	3.0	1921	.9	95.6	3.5	.....
1922	19.9	39.7	37.7	2.7	1922	.1	96.1	3.8	.....
Alaska:					Missouri:				
1919					1919	15.4	22.3	34.4	27.9
1920					1920	11.5	26.0	37.5	25.0
1921					1921	12.8	29.9	34.2	23.1
1922					1922	12.1	29.8	25.9	32.2
Arkansas:					Montana:				
1919	3.8	7.9	86.6	1.7	1919	11.7	44.2	42.4	1.7
1920	3.5	3.2	89.2	4.1	1920	10.3	47.5	41.4	.8
1921	1.8	13.0	84.4	.8	1921	24.4	40.5	34.7	.4
1922	3.8	15.5	71.9	8.8	1922	21.9	55.8	20.7	1.6
California, Idaho, and Nevada:					New Mexico:				
1919					1919	65.0	30.5	4.1	.4
1920					1920	60.3	34.1	5.3	.3
1921					1921	65.7	30.3	3.4	.6
1922					1922	50.5	31.3	16.8	1.4
Colorado:					North Dakota:				
1919	49.0	40.3	9.9	.8	1919	6.1	38.6	38.8	16.5
1920	48.3	43.8	7.5	.4	1920	1.3	37.7	39.1	21.9
1921	48.2	45.8	5.2	.8	1921	4.3	39.0	38.0	18.7
1922	42.1	50.4	6.2	1.3	1922	1.0	33.3	30.2	35.5
Georgia and North Carolina:					Ohio:				
1919			100.0	.....	1919	3.8	87.1	2.6	6.5
1920			100.0	.....	1920	3.2	83.3	4.0	9.5
1921			68.8	31.2	1921	2.7	91.6	1.2	4.5
1922			34.0	66.0	1922	2.8	80.5	2.5	14.2
Illinois:					Oklahoma:				
1919	7.4	59.0	32.5	1.1	1919	.8	47.3	47.3	4.6
1920	5.9	61.9	31.2	1.0	1920	.5	48.4	45.4	5.7
1921	5.5	65.5	28.0	1.0	1921	.6	56.8	35.4	7.2
1922	5.4	66.6	26.1	1.9	1922	.5	49.9	36.0	13.6
Indiana:					Oregon:				
1919	7.9	51.7	35.3	5.1	1919				
1920	8.3	48.7	37.1	5.9	1920				
1921	7.3	52.8	35.7	4.2	1921				
1922	6.6	49.8	35.0	8.6	1922				
Iowa:					Pennsylvania, bituminous:				
1919	20.4	11.7	65.9	2.0	1919	38.0	57.3	3.6	1.1
1920	15.2	20.7	62.7	1.4	1920	35.7	57.9	3.6	2.8
1921	12.7	15.4	71.2	.7	1921	33.1	63.6	1.9	1.4
1922	18.0	13.6	66.4	2.0	1922	33.5	58.0	3.7	4.8
Kansas:					South Dakota:				
1919	2.8	1.0	84.7	11.5	1919				
1920	6.6	1.1	77.2	15.1	1920				
1921	7.5	1.0	80.0	11.5	1921				
1922	3.9	3.2	72.3	20.6	1922				
Kentucky:					Tennessee:				
1919	4.1	79.8	15.1	1.0	1919	24.8	30.6	44.2	.4
1920	4.2	77.6	17.0	1.2	1920	23.6	25.6	49.1	1.7
1921	5.0	83.9	10.8	.3	1921	31.6	27.8	40.1	.5
1922	4.2	79.1	12.7	4.0	1922	13.6	29.5	54.6	2.3
Maryland:					Texas:				
1919	75.7	10.3	13.3	.7	1919	77.0	.6	22.4	.....
1920	69.9	11.2	17.8	1.1	1920	69.5	2.0	27.4	1.1
1921	83.5	10.2	6.2	.1	1921	67.5	4.6	27.9	.....
1922	56.5	24.8	14.3	4.4	1922	68.3	4.3	25.7	1.7

^a Compiled from Mineral Resources, U. S. Geol. Survey. ^b Includes coal mined from steam-shovel pits.

TABLE 26.—Percentage of bituminous coal mined by various methods, by States and years—Continued.

1919 to 1922—Continued.

State and year.	Percentage coal mined by—				State and year.	Percentage coal mined by—			
	Hand.	Machine.	Shot off solid.	Not reported. ^b		Hand.	Machine.	Shot off solid.	Not reported. ^b
Utah:					West Virginia:				
1919.....	24.3	68.8	6.8	.1	1919.....	26.5	70.3	3.0	.2
1920.....	35.8	58.7	5.4	.1	1920.....	23.4	72.2	3.7	.7
1921.....	21.3	75.1	3.4	.2	1921.....	20.4	77.2	2.1	.3
1922.....	19.5	76.5	4.0	..	1922.....	19.1	76.7	3.3	.9
Virginia:					Wyoming:				
1919.....	13.8	67.7	18.4	.1	1919.....	17.4	55.2	27.3	.1
1920.....	3.0	69.9	25.9	1.2	1920.....	13.9	54.4	31.2	.5
1921.....	3.1	77.9	19.0	..	1921.....	13.4	51.8	33.8	1.0
1922.....	4.9	71.9	22.6	.6	1922.....	15.1	57.8	25.6	1.5
Washington:					Total (bituminous):				
1919.....	64.8	9.1	26.1	..	1919.....	23.6	39.2	15.3	1.9
1920.....	55.9	10.5	32.1	1.5	1920.....	20.7	59.8	16.6	2.9
1921.....	48.2	5.4	42.9	3.5	1921.....	18.8	65.6	13.9	1.7
1922.....	45.7	12.8	40.0	1.5	1922.....	18.3	63.2	14.2	4.3

^b Includes coal mined from steam-shovel pits.

FATALITY RATES ON A 2,000-HOUR BASIS.

Tables 27 to 30, showing the number of men killed per thousand 2,000-hour workers, is based upon reports of the United States Geological Survey showing the number of coal-mine employees who worked 8, 9, or 10 hours a day. The figures published by the survey were used to calculate the total number of hours of work performed by all mine employees. The hours of actual work are not indicated with complete exactness by these figures, because all men, even at a single mine, do not necessarily work the same number of hours per shift; moreover, an established 8, 9, or 10 hour shift does not necessarily mean that all employees were actually at work, or even in the mine, that many hours each day. The figures are, however, the best approximation possible for the industry as a whole, and have therefore been used to calculate fatality rates for different States and for different years on a uniform number of hours of exposure to hazard.

In connection with these tables attention is called to Table 51, wherein the accident rates are given on a basis of 300 days to the working year, regardless of the number of hours constituting a day's work. Accident rates on a 300-day basis make it possible to compare fatal accidents at coal mines with similar accidents at metal mines, quarries, and in other branches of the mineral industry. (See Tables 62 and 63.) Allowance must be made, however, for variations in the length of the working-day in different States or in different years.

NUMBER OF 8, 9, OR 10 HOUR EMPLOYEES IN COAL MINES.

Table 31 shows the number of 8, 9, or 10 hour employees in the coal mines of the United States during the years 1919 to 1922. Figures for 1923 are not available. The figures in this table form the basis of the fatality rates presented in Tables 27 to 30.

TABLE 27.—Men employed, hours worked, and fatality rates at coal mines during the year ended December 31, 1919.^a

State.	Men employed.	Average days worked.	Total hours worked (all employees).			Fatalities.	
			Per day.	Per year.	Number of 2,000-hour workers.	Total.	Per 1,000-2,000-hour workers.
Alabama.....	26, 874	239	218, 374	52, 191, 386	26, 096	93	3. 56
Alaska.....	166	280	1, 356	379, 680	190		
Arkansas.....	3, 814	136	30, 544	4, 153, 984	2, 077	10	4. 81
California, Idaho, and Nevada.....	77	59	624	36, 816	18		
Colorado.....	11, 829	225	96, 252	21, 656, 700	10, 828	91	8. 40
Georgia and North Carolina.....	217	242	1, 736	420, 112	210		
Illinois.....	85, 020	160	681, 298	109, 007, 680	54, 504	169	3. 10
Indiana.....	29, 987	148	240, 162	35, 543, 976	17, 772	83	4. 67
Iowa.....	12, 366	176	99, 594	17, 528, 544	8, 764	17	1. 94
Kansas.....	9, 926	182	79, 531	14, 474, 642	7, 237	25	3. 45
Kentucky.....	45, 598	189	374, 637	70, 806, 393	35, 403	84	2. 37
Maryland.....	5, 394	179	43, 419	7, 772, 001	3, 886	5	1. 29
Michigan.....	2, 104	179	16, 832	3, 012, 928	1, 506	3	1. 99
Missouri.....	9, 314	175	75, 039	13, 131, 825	6, 566	10	1. 52
Montana.....	4, 123	194	33, 068	6, 415, 192	3, 208	11	3. 43
New Mexico.....	3, 745	273	30, 145	8, 229, 585	4, 115	25	6. 08
North Dakota.....	1, 072	216	8, 773	1, 894, 968	947	4	4. 22
Ohio.....	49, 624	164	398, 752	65, 395, 328	32, 698	142	4. 34
Oklahoma.....	8, 448	184	67, 972	12, 506, 848	6, 253	36	5. 76
Oregon.....	67	259	546	141, 414	71		
Pennsylvania (bituminous).....	174, 550	218	1, 412, 860	308, 003, 480	154, 002	399	2. 59
South Dakota.....	46	164	415	68, 060	34		
Tennessee.....	11, 523	201	94, 370	18, 968, 370	9, 484	27	2. 85
Texas.....	3, 644	227	30, 671	6, 962, 317	3, 481	3	. 86
Utah.....	3, 857	239	30, 904	7, 386, 056	3, 693	27	7. 31
Virginia.....	11, 586	247	93, 540	23, 104, 380	11, 552	34	2. 94
Washington.....	5, 036	217	40, 302	8, 745, 534	4, 373	19	4. 34
West Virginia.....	94, 705	200	767, 317	153, 463, 400	76, 732	332	4. 33
Wyoming.....	7, 286	221	58, 298	12, 883, 858	6, 442	33	5. 12
Total (bituminous) ^b.....	621, 998	195	5, 027, 331	980, 329, 545	490, 165	1, 692	3. 43
Pennsylvania (anthracite).....	154, 571	266	1, 236, 568	328, 927, 088	164, 464	635	3. 86
Total ^b.....	776, 569	209	6, 263, 899	1, 309, 154, 891	654, 577	2, 317	3. 54

^a Compiled (except for fatalities) from Mineral Resources, U. S. Geological Survey.^b Totals in columns 4 and 5 obtained by calculating averages for United States, and not by adding corresponding figures for each State.

TABLE 28.—Men employed, hours worked, and fatality rates at coal mines during the year ended December 31, 1920.^a

State.	Men employed.	Average days worked.	Total hours worked (all employees).		Number of 2,000-hour workers.	Fatalities.	
			Per day.	Per year.		Total.	Per 1,000-2,000-hour workers.
			1	2		3	4	5	6	7
Alabama.....	25,540	247	205,428	50,740,716	25,370	76	3.00
Alaska.....	207	240	1,689	405,360	203		
Arkansas.....	3,966	176	31,760	5,589,760	2,795	9	3.22
California, Idaho, and Nevada.....	10	181	80	14,480	7		
Colorado.....	13,711	255	110,079	28,070,145	14,035	70	4.99
Georgia and North Carolina.....	198	292	1,584	462,528	231		
Illinois.....	87,084	213	696,891	148,437,783	74,219	207	2.79
Indiana.....	31,155	192	249,556	47,914,752	23,957	88	3.67
Iowa.....	11,905	250	95,607	23,901,750	11,951	25	2.09
Kansas.....	8,984	204	71,910	14,669,640	7,335	26	3.54
Kentucky.....	49,452	182	401,989	73,161,998	36,581	123	3.36
Maryland.....	5,548	207	44,446	9,200,322	4,600	7	1.52
Michigan.....	2,154	261	17,232	4,497,552	2,249	6	2.67
Missouri.....	8,838	233	70,957	16,532,981	8,266	11	1.33
Montana.....	4,204	250	33,727	8,431,750	4,216	14	3.32
New Mexico.....	3,738	302	30,460	9,198,920	4,599	33	7.18
North Dakota.....	1,110	218	9,159	1,996,662	998	3	3.01
Ohio.....	50,857	188	408,039	76,711,332	38,356	136	3.55
Oklahoma.....	8,244	217	66,310	14,389,270	7,195	41	5.70
Oregon.....	85	307	680	208,760	104		
Pennsylvania (bituminous).....	173,970	244	1,403,488	342,451,072	171,226	427	2.49
South Dakota.....	47	133	423	56,259	28		
Tennessee.....	11,353	234	92,139	21,560,526	10,780	21	1.95
Texas.....	2,950	242	25,726	6,225,692	3,113	5	1.61
Utah.....	4,504	252	36,042	9,082,584	4,541	35	7.71
Virginia.....	14,010	264	113,058	29,847,312	14,924	26	1.74
Washington.....	4,994	260	39,961	10,389,860	5,195	18	3.47
West Virginia.....	102,950	198	828,152	163,974,096	81,987	324	3.95
Wyoming.....	7,779	264	62,236	16,430,304	8,215	49	5.96
Total (bituminous)^b.....	639,547	220	5,148,808	1,132,737,760	566,369	1,780	3.14
Pennsylvania (anthracite).....	145,074	271	1,160,592	314,520,432	157,260	491	3.12
Total^b.....	784,621	230	6,309,400	1,451,162,000	725,581	2,271	3.13

^a Compiled (except for fatalities) from Mineral Resources, U. S. Geological Survey.^b Totals in columns 4 and 5 obtained by calculating averages for United States, and not by adding corresponding figures for each State.

TABLE 29.—Men employed, hours worked, and fatality rates at coal mines during the year ended December 31, 1921.^a

State.	Men employed.	Average days worked.	Total hours worked (all employees).		Number of 2,000-hour workers.	Fatalities.	
			Per day.	Per year.		Total.	Per 1,000-2,000-hour workers.
Alabama	25,809	166	210,356	34,919,096	17,460	80	4.59
Alaska	401	244	3,459	843,996	422		
Arkansas	3,616	112	28,931	3,240,272	1,620	17	10.49
California, Idaho, and Nevada	^b 141	149	1,131	168,519	84	^b 1	11.90
Colorado	14,529	164	122,778	20,135,592	10,068	52	5.16
Georgia and North Carolina	196	219	1,568	343,392	172		
Illinois	95,431	152	764,289	116,171,928	58,086	193	3.32
Indiana	32,687	128	261,605	33,485,440	16,743	64	3.82
Iowa	11,386	148	91,171	13,493,308	6,747	22	3.26
Kansas	8,207	137	65,754	9,008,298	4,504	14	3.11
Kentucky	50,521	152	409,754	62,282,608	31,141	128	4.11
Maryland	4,668	120	37,374	4,484,880	2,242	7	3.12
Michigan	2,212	196	17,696	3,468,416	1,734	3	1.73
Missouri	8,555	166	68,750	11,412,500	5,706	12	2.10
Montana	4,178	143	33,451	4,783,493	2,392	13	5.43
New Mexico	4,577	150	36,645	5,496,750	2,748	13	4.73
North Dakota	1,064	194	8,686	1,685,084	843	4	4.74
Ohio	51,785	134	415,415	55,665,610	27,833	109	3.92
Oklahoma	8,854	141	71,069	10,020,729	5,010	20	3.99
Oregon ^c							
Pennsylvania (bituminous)	190,643	151	1,534,614	231,726,714	115,863	286	2.47
South Dakota	43	129	387	49,923	25		
Tennessee	10,347	154	83,146	12,804,484	6,402	12	1.87
Texas	2,892	139	25,002	3,475,278	1,738	2	1.15
Utah	4,422	151	35,386	5,343,286	2,672	15	5.61
Virginia	11,922	166	96,123	15,956,418	7,978	17	2.13
Washington	4,334	159	34,672	5,512,848	2,756	7	2.54
West Virginia	101,850	149	819,689	122,133,661	61,067	320	5.24
Wyoming	8,484	167	67,872	11,334,624	5,667	29	5.12
Total (bituminous) ^d	663,754	149	5,346,773	796,669,177	398,335	1,440	3.62
Pennsylvania (anthracite)	159,499	271	1,275,992	345,793,832	172,897	547	3.16
Total ^d	823,253	173	6,622,765	1,145,738,345	572,989	1,987	3.47

^a Compiled (except for fatalities) from Mineral Resources, U. S. Geological Survey.^b Includes Oregon.^c Included with California, Idaho, and Nevada.^d Totals in columns 4 and 5 obtained by calculating averages for United States, and not by adding corresponding figures for each State.

TABLE 30.—Men employed, hours worked, and fatality rates at coal mines during the year ended December 31, 1922.^a

State.	Men employed.	Average days worked.	Total hours worked (all employees).		Number of 2,000-hour workers.	Fatalities.	
			Per day.	Per year.		Total.	Per 1,000-2,000-hour workers.
			1	2		3	4	5	6	7
Alabama	28,169	215	243,053	52,256,395	26,128	183	7.00
Alaska	430	147	3,458	508,326	254		
Arkansas	4,035	81	32,440	2,627,640	1,314	6	4.57
California, Idaho, and Nevada	60	250	480	120,000	60		
Colorado	13,506	191	108,367	20,698,097	10,349	75	7.25
Georgia and North Carolina	277	208	2,216	460,928	230	1	4.35
Illinois	96,336	120	771,686	92,602,320	46,301	125	2.70
Indiana	33,208	110	266,227	29,284,970	14,642	49	3.35
Iowa	12,857	131	102,969	13,488,939	6,744	19	2.82
Kansas	7,359	125	58,923	7,365,375	3,683	9	2.44
Kentucky	60,924	140	494,187	69,186,180	34,593	125	3.61
Maryland	3,755	101	30,152	3,045,352	1,523	3	1.97
Michigan	2,166	162	17,352	2,811,024	1,406	3	2.13
Missouri	8,750	113	70,272	7,940,736	3,970	6	1.51
Montana	3,635	140	29,143	4,080,020	2,040	10	4.90
New Mexico	4,001	216	32,040	6,920,640	3,460	21	6.07
North Dakota	1,648	175	13,913	2,434,775	1,217	4	3.29
Ohio	54,194	100	435,686	43,568,600	21,784	96	4.41
Oklahoma	7,828	114	62,951	7,176,414	3,588	20	5.57
Oregon							
Pennsylvania (bituminous)	188,838	154	1,517,719	233,728,726	116,864	436	3.73
South Dakota	32	138	288	39,744	20		
Tennessee	11,449	163	92,122	15,015,886	7,508	28	3.73
Texas	2,841	185	24,767	4,581,895	2,291	4	1.75
Utah	4,721	204	37,779	7,706,916	3,853	22	5.71
Virginia	13,399	198	107,630	21,310,740	10,655	25	2.35
Washington	4,481	194	35,848	6,954,512	3,477	22	6.33
West Virginia	110,014	143	886,698	126,797,814	63,399	364	5.74
Wyoming	9,045	128	72,362	9,262,336	4,631	23	4.97
Total (bituminous) ^b	687,958	142	5,550,728	788,203,376	394,102	1,679	4.26
Pennsylvania (anthracite)	156,849	151	1,254,792	189,473,592	94,737	300	3.17
Total ^b	844,807	144	6,805,520	979,994,880	489,997	1,979	4.04

^a Compiled (except for fatalities) from Mineral Resources, U. S. Geological Survey.^b Totals in columns 4 and 5 obtained by calculating averages for United States, and not by adding corresponding figures for each State.

TABLE 31.—Number of hours to the working day, in and about the coal mines in the United States, by States, for the years 1919 to 1922.

[Compiled from Mineral Resources, U. S. Geological Survey.]

Year.	8-hour day.		9-hour day.		10-hour day.		Men employed other than 8, 9, or 10 hours per day.	Total number of men employed.
	Number of mines.	Men employed.	Number of mines.	Men employed.	Number of mines.	Men employed.		
Alabama:								
1919	268	24,054	1	5	3	562	2,253	26,874
1920	251	24,851	1	260	2	419	10	25,540
1921	215	22,479	21	1,431	7	554	1,345	25,809
1922	140	13,192	70	10,646	23	2,724	1,607	28,169
Alaska:								
1919	4	138					28	166
1920	5	174					33	207
1921	2	150					251	401
1922	11	412					18	430
Arkansas:								
1919	91	3,782	1	30			2	3,814
1920	93	3,934	1	2			30	3,966
1921	76	3,613	1	3				3,616
1922	97	3,930	1	40	1	55	10	4,035
California, Idaho, and Nevada:								
1919	2	69					8	77
1920	2	10						10
1921	2	69						69
1922 ^a	3	60						60
Colorado:								
1919	157	10,224	6	^b 1,187	2	15	403	11,829
1920	156	13,320	2	204			187	13,711
1921	144	7,983	37	6,438			108	14,529
1922	180	^b 13,187					319	13,506
Georgia and North Carolina:								
1919	2	217						217
1920	2	198						198
1921	2	196						196
1922 ^c	3	277						277
Illinois:								
1919	486	83,882	7	48			1,090	85,020
1920	472	86,865	2	9			210	87,084
1921	497	94,590	2	7			834	95,431
1922	477	95,338	3	22			976	96,336
Indiana:								
1919	303	29,721	3	9			257	29,987
1920	279	30,839	3	179			137	31,155
1921	256	32,578	2	27			82	32,687
1922	253	32,645	1	5			558	33,208
Iowa:								
1919	175	11,700	1	6			660	12,366
1920	150	11,538					367	11,905
1921	134	11,307			1	4	75	11,386
1922	132	12,744					113	12,857
Kansas:								
1919	174	9,803	1	7			116	9,926
1920	154	8,946					38	8,984
1921	130	8,109					98	8,207
1922	122	7,308					51	7,359
Kentucky:								
1919	585	36,807	75	5,849	34	1,062	1,880	45,598
1920	661	43,602	63	4,824	23	523	503	49,452
1921	602	45,449	43	4,481	17	514	77	50,521
1922	760	54,782	59	4,755	24	653	734	60,924
Maryland:								
1919	85	5,127					267	5,394
1920	98	5,486					62	5,548
1921	82	4,644			1	6	18	4,668
1922	76	3,671			1	28	56	3,755
Michigan:								
1919	14	2,104						2,104
1920	14	2,154						2,154
1921	14	2,212						2,212
1922	12	2,142					24	2,166

^a Includes Oregon.^b Includes outside employees working 9 hours or 10 hours a day at certain mines where the established time for underground work is 8 hours.^c Includes North Carolina.

TABLE 31.—Number of hours to the working day, in and about the coal mines in the United States, by States, for the years 1919 to 1922—Continued.

Year.	8-hour day.		9-hour day.		10-hour day.		Men employed other than 8, 9, or 10 hours per day.	Total number of men employed.
	Number of mines.	Men employed.	Number of mines.	Men employed.	Number of mines.	Men employed.		
Missouri:								
1919.....	193	8,831	8	176	2	44	263	9,314
1920.....	168	8,621	5	63	2	36	118	8,838
1921.....	148	8,272	6	201	1	27	55	8,555
1922.....	138	8,478	4	64			208	8,750
Montana:								
1919.....	61	4,050			3	11	62	4,123
1920.....	49	4,116			2	7	81	4,204
1921.....	47	4,154			1	3	21	4,178
1922.....	35	3,572					63	3,635
New Mexico:								
1919.....	38	3,560	1	165			20	3,745
1920.....	33	3,182	1	21			535	3,738
1921.....	37	4,548	1	20			9	4,577
1922.....	34	b 3,969	1	16			16	4,001
North Dakota:								
1919.....	62	927	2	14	10	52	79	1,072
1920.....	43	910	2	12	4	79	109	1,110
1921.....	41	939	1	9	4	49	67	1,064
1922.....	44	1,071			4	152	425	1,648
Ohio:								
1919.....	816	47,980	12	382	9	116	1,146	49,624
1920.....	887	50,033	2	32	8	359	413	50,857
1921.....	692	50,854	6	174	4	204	553	51,785
1922.....	796	52,777	11	179	10	717	521	54,194
Oklahoma:								
1919.....	118	8,087	3	22	1	27	312	8,448
1920.....	129	7,954	3	84	2	68	138	8,244
1921.....	124	8,697	2	67	2	80	10	8,854
1922.....	118	7,597	3	116	3	96	19	7,828
Oregon:								
1919.....	2	57					10	67
1920.....	3	85						85
1921.....	1	69					3	72
1922.....	d							
Pennsylvania, bituminous:								
1919.....	2,325	160,490	136	6,138	37	2,400	5,522	174,550
1920.....	2,288	163,063	90	5,404	17	821	4,682	173,970
1921.....	2,115	181,572	92	8,244	9	399	428	190,643
1922.....	2,551	b 182,403	83	4,218	15	580	1,637	188,838
South Dakota:								
1919.....	2	5	1	4	2	6	31	46
1920.....							47	47
1921.....							43	43
1922.....							32	32
Tennessee:								
1919.....	142	10,002	3	316	2	665	540	11,523
1920.....	162	10,638	1	25	1	600	90	11,353
1921.....	139	9,977	3	354			16	10,347
1922.....	172	10,919	2	530				11,449
Texas:								
1919.....	17	2,273	22	1,115	6	148	108	3,644
1920.....	13	1,395	21	892	7	571	92	2,950
1921.....	14	1,571	16	723	5	545	53	2,892
1922.....	15	1,267	12	833	4	465	276	2,841
Utah:								
1919.....	30	3,809	2	9			39	3,857
1920.....	34	4,496	1	6	1	2		4,504
1921.....	33	4,412	1	6			4	4,422
1922.....	37	4,710	1	10			1	4,721
Virginia:								
1919.....	104	10,966	11	288	9	232	100	11,586
1920.....	130	13,387	4	226	5	355	42	14,010
1921.....	96	11,428	5	241	4	253		11,922
1922.....	153	b 13,028	6	253	3	67	51	13,399
Washington:								
1919.....	45	5,022					14	5,036
1920.....	45	4,985					9	4,994
1921.....	51	4,334						4,334
1922.....	47	4,481						4,481

^a Includes outside employees working 9 hours or 10 hours a day at certain mines where the established time for underground work is 8 hours.

^b Included with California, Idaho, and Nevada

TABLE 31.—Number of hours to the working day, in and about the coal mines in the United States, by States, for the years 1919 to 1922—Continued.

Year.	8-hour day.		9-hour day.		10-hour day.		Men employed other than 8, 9, or 10 hours per day.	Total number of men employed.
	Number of mines.	Men employed.	Number of mines.	Men employed.	Number of mines.	Men employed.		
West Virginia:								
1919.....	1, 232	85, 815	46	5, 353	10	787	2, 750	94, 705
1920.....	1, 396	100, 320	13	465	10	1, 922	243	102, 950
1921.....	1, 253	97, 750	26	2, 731	12	789	580	101, 850
1922.....	1, 528	104, 047	46	5, 147	12	619	201	110, 014
Wyoming:								
1919.....	69	7, 276					10	7, 286
1920.....	68	7, 775					4	7, 779
1921.....	63	8, 484						8, 484
1922.....	61	9, 043					2	9, 045
Total bituminous:								
1919.....	7, 602	576, 778	342	21, 123	130	6, 127	17, 970	621, 998
1920.....	7, 785	612, 877	215	12, 728	84	5, 762	8, 180	630, 547
1921.....	7, 010	630, 440	265	25, 157	68	3, 427	4, 730	663, 754
1922.....	7, 995	647, 050	303	26, 834	100	6, 156	7, 918	687, 958
Pennsylvania, anthracite: ^f								
1919.....		154, 571						154, 571
1920.....		145, 074						145, 074
1921.....		159, 499						159, 499
1922.....		156, 849						156, 849
Total, United States:								
1919.....		731, 349		21, 123		6, 127	17, 970	776, 569
1920.....		757, 951		12, 728		5, 762	8, 180	784, 621
1921.....		789, 939		25, 157		3, 427	4, 730	823, 253
1922.....		803, 899		26, 834		6, 156	7, 918	844, 807

^e Includes 816 men working 8 hours prior to September.

^f Employees not segregated. Prior to May, 1916, operations were conducted on basis of a 9-hour day. Since then the 8-hour day is standard. Number of mines not given.

INDEX NUMBERS OF MINE FATALITIES.

Table 32, based on all fatal accidents at bituminous coal mines, has been prepared to facilitate a comparison of the annual fatality rates for bituminous coal mines since 1918. The table shows the main causes of fatal accidents. The average fatality rate during the 5-year period 1918-1922 from each cause has been weighted as 100, and the rate for any given year has been indicated as a certain percentage of the 5-year average rate. For example, the 5-year average fatality rate from mine cars and locomotives underground was 0.671 deaths per million tons of coal; the corresponding rate for 1918 was 13.3 per cent above the 5-year average, and the rate for 1923 was 7.2 per cent below the average. It will be noted that when compared with the 5-year average fatality rates, the figures for 1923 indicate reduced rates for nearly all of the main causes of fatal accidents, the conspicuous exception being for explosions of gas and coal dust.

TABLE 32.—Index numbers based on fatality rates per million tons (bituminous mines only) 1918 to 1923.

[Average rate 1918 to 1922=100.]

Cause.	5-year rate (weighted) 100	Comparative figures (100=average rate for 5 years 1918-1922).					
		1918	1919	1920	1921	1922	1923
1. Falls of roof (coal, rock, etc).....	1. 627	102.7	102.1	91.0	173.9	100.0	98.0
2. Falls of face or pillar coal.....	.174	83.3	119.5	94.2	85.6	122.4	72.4
3. Mine cars and locomotives.....	.671	113.3	98.5	89.6	97.0	99.9	92.8
4. Gas explosions and burning gas.....	.172	69.1	127.3	95.9	47.7	168.0	195.9
5. Coal-dust explosions (including gas and dust combined).....	.126	46.8	80.2	47.6	34.1	330.2	212.7
6. Explosives.....	.146	100.7	83.6	95.2	138.4	87.7	81.5
7. Suffocation from mine gases.....	.015	113.3	73.3	93.3	93.3	126.6	86.7
8. Electricity.....	.146	91.1	95.9	84.2	125.3	115.1	87.7
9. Animals.....	.006	166.7	33.3	.....	166.7	116.7	216.7
10. Mining machines.....	.047	61.7	119.1	134.0	87.2	102.1	85.1
11. Mine fires (burned, suffocated, etc.).....	.026	165.4	180.8	53.9	84.6	.....	.....
12. Other causes.....	.053	77.4	109.4	66.0	145.3	120.8	124.5
Total, underground.....	3.209	98.9	102.4	89.1	99.8	113.7	103.7
13. Falling down shafts or slopes.....	.026	88.9	103.7	103.7	100.0	96.3	84.6
14. Objects falling down shafts or slopes.....	.012	116.7	66.7	116.7	116.7	58.3	33.3
15. Cage, skip, or bucket.....	.028	100.0	139.3	50.0	67.9	160.7	103.6
16. Other causes.....	.005	100.0	220.0	80.0	.....	60.0	40.0
Total, shaft.....	.072	98.6	119.4	83.3	83.3	118.1	79.2
17. Mine cars and mine locomotives.....	.069	144.9	130.4	81.1	59.4	72.5	55.1
18. Electricity.....	.022	77.3	77.3	118.2	140.9	86.4	40.9
19. Machinery.....	.016	106.3	150.0	56.3	62.5	150.0	137.5
20. Boiler explosions or bursting steam pipes.....	.005	180.0	80.0	100.0	40.0	40.0	.....
21. Railway cars and locomotives.....	.038	94.7	84.2	97.4	100.0	126.3	71.1
22. Other causes.....	.080	97.5	88.8	88.8	96.3	123.8	98.8
Total, surface.....	.230	111.7	103.5	91.7	88.5	105.2	78.5
Grand total.....	3.511	99.7	102.8	89.1	98.6	113.2	101.4

NORMAL FATALITY RATES FOR BITUMINOUS COAL MINES.

Mine explosions or other abnormal disasters in coal mines sometimes obscure the trend of what may be called the normal fatality rates from year to year. Explosions are sporadic and the number of deaths caused by them depends largely on the number of men in the mine when the explosion occurs, or, rather, the number of men in the pathway of the explosion. An explosion that causes the death of 100 men would have been none the less significant as a mine hazard if no lives had been lost because no one happened to be in the mine at the time of the explosion. Hence the number of lives lost in explosions each year, though properly included in any general survey of mine fatalities, might with propriety be omitted when the direct purpose is to reveal the day-to-day hazards of coal mining. Therefore, in preparing Tables 33 and 34, all accidents causing 5 or more deaths have been eliminated, and the comparisons shown are on the basis of the ordinary or normal accidents in the mines. .

Table 33 shows the number of fatalities at bituminous coal mines from ordinary accidents calculated on a basis of one million hours of exposure; table 34 shows the number of ordinary fatalities for every million tons of coal produced. It will be noted that for every million hours the men were in the mines, during the 10-year period 1911-1920, the normal fatality rate was 1.529, and that for every million tons of coal produced the normal rate was 3.416. During the same 10-year period, the abnormal or major disaster rate based upon accidents in each of which 5 or more men were killed, was 0.196 per million hours and 0.438 per million tons.

DATA ESSENTIAL TO DETERMINE TRUE ACCIDENT RATES.

Tables 35 to 61, covering the period 1913 to 1922, present in compact and convenient form basic and pertinent data needed in the study of mine-accident rates. The figures showing the production of coal, number of employees, etc., were obtained from reports of the United States Geological Survey. All of the data bear directly on mine accidents. It would be an additional aid in the study of the accident problem if such facts as the thickness and inclination of the coal, character of coal, kinds of haulage, number of employees by occupations, etc., could be given due weight in considering the fatality rates, but reports covering these items are difficult to obtain. The causal factors concerning accidents are so numerous that only the more immediate and obvious circumstances are usually reported by the operating companies to the State authorities. The duration of exposure to accidents in different classes of work is seldom shown. Tables 35 to 61 are intended to furnish such collateral information concerning accidents as is already available. Additional data for the industry as a whole must await a fuller and more widespread realization of the inadequacy of present accident records as a basis for the most effective mine-safety work.

TABLE 33.—*Bituminous mines: Normal fatality rates, by causes, per million hours of labor performed.*

Cause.	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	10 year to a.l.	1921	1922
1. Falls of roof (coal, rock, etc.)	0.846	0.762	0.700	0.820	0.742	0.700	0.700	0.774	0.790	0.743	0.762	0.903	0.872
2. Falls of face or pillar coal	.148	.126	.122	.086	.095	.061	.087	.067	.069	.082	.086	.078	.114
3. Mine cars and locomotives	.289	.275	.287	.304	.292	.292	.346	.352	.314	.302	.305	.340	.359
4. Gas explosions and burning gas	.008	.025	.018	.027	.028	.007	.044	.032	.044	.046	.038	.029	.020
5. Coal dust explosions (including gas and dust combined)	.006	.012	.025	.017	.008	.036	.011	.018	.025	.026	.018	.016	.022
6. Volcanoes	.072	.061	.055	.057	.073	.054	.041	.068	.058	.070	.081	.106	.061
7. Suffocation from mine gases	.006	.001	.013	.006	.005	.002	.002	.008	.005	.007	.005	.007	.004
8. Electricity	.092	.071	.069	.088	.087	.072	.062	.061	.066	.062	.072	.095	.090
9. Minerals	.004	.004	.004	.005	.002	.003	.007	.005	.001	.004	.004	.005	.004
10. Mining machines	.009	.007	.018	.019	.011	.018	.015	.014	.027	.032	.017	.022	.026
11. Mine fires (burned, suffocated, etc.)	.003	.002	.003	.002	.001	.003	.002	.009	.002	.002	.002	.003	.004
12. Other causes	.026	.024	.032	.024	.018	.021	.026	.019	.028	.010	.023	.040	.034
Total, underground	1.509	1.370	1.416	1.455	1.334	1.269	1.343	1.427	1.459	1.382	1.394	1.645	1.606
13. Falling down shafts or slopes	.017	.014	.017	.024	.022	.017	.009	.011	.013	.014	.016	.014	.014
14. Objects falling down shafts or slopes	.....	.003	.001	.005	.002	.002	.007	.007	.004	.007	.004	.007	.004
15. Cage, skip, or bucket	.002	.017	.008	.006	.007	.009	.017	.013	.019	.007	.011	.010	.017
16. Other causes	.....	.003	.002	.001	.....	.002	.003	.002	.005	.002	.002	.....	.004
Total, shaft	.031	.037	.028	.036	.031	.030	.036	.033	.041	.030	.033	.031	.039
17. Mine cars and mine locomotives	.034	.035	.038	.039	.035	.034	.042	.046	.043	.028	.038	.022	.027
18. Electricity	.004	.005	.006	.010	.009	.005	.010	.008	.008	.013	.008	.016	.010
19. Machinery	.009	.010	.009	.013	.015	.005	.017	.008	.011	.004	.010	.005	.013
20. Boiler explosions or bursting steam pipes	.006	.003	.001	.005	.004	.003	.006	.004	.002	.003	.004	.001	.001
21. Railway cars and locomotives	.012	.013	.013	.014	.014	.009	.021	.017	.015	.019	.014	.020	.026
22. Other causes	.020	.024	.023	.025	.025	.019	.036	.036	.034	.039	.038	.040	.053
Total surface	.085	.090	.084	.106	.102	.075	.132	.119	.113	.108	.102	.104	.130
Grand total	1.625	1.497	1.523	1.597	1.467	1.374	1.511	1.579	1.613	1.518	1.539	1.780	1.775

TABLE 34.—*Bituminous mines: Normal fatality rates, by causes, per million tons of coal produced.*

Cause.	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	10 year total.	1921	1922
1. Falls of roof (coal, rock, etc.)	2.062	1.797	1.814	1.907	1.638	1.556	1.555	1.671	1.662	1.481	1.701	1.729	1.627
2. Falls of face or pillar coal	.367	.208	.200	.190	.210	.135	.194	.145	.208	.164	.215	.149	.213
3. Mine cars and locomotives	.714	.709	.709	.707	.583	.649	.768	.760	.661	.601	.681	.651	.670
4. Gas explosions and burning gas	.020	.058	.044	.064	.061	.016	.088	.069	.062	.091	.083	.055	.038
5. Coal-dust explosions (including gas and dust combined)	.015	.020	.061	.040	.018	.080	.025	.038	.054	.051	.042	.031	.043
6. Explosives	.177	.144	.132	.132	.160	.119	.091	.147	.122	.139	.135	.202	.114
7. Suffocation from mine gases	.015	.002	.031	.014	.011	.004	.003	.017	.011	.011	.014	.012	.015
8. Electricity	.227	.167	.165	.203	.192	.161	.138	.133	.140	.123	.181	.183	.168
9. Animals	.010	.000	.010	.012	.005	.008	.016	.010	.002	.002	.008	.010	.007
10. Mining machines	.022	.015	.042	.045	.025	.040	.033	.029	.056	.063	.038	.041	.047
11. Mine fires (burned, suffocated, etc.)	.007	.004	.008	.005	.002	.006	.004	.021	.004	.004	.007	.007	.007
12. Other causes	.064	.056	.075	.055	.041	.048	.058	.041	.058	.021	.051	.077	.064
Total, underground	3.730	3.228	3.381	3.383	2.946	2.822	2.983	3.081	3.070	2.752	3.114	3.150	2.998
13. Falling down shafts or slopes	.041	.033	.042	.055	.047	.040	.020	.024	.028	.028	.035	.026	.026
14. Objects falling down shafts or slopes	.030	.007	.002	.012	.005	.004	.015	.014	.008	.014	.008	.015	.007
15. Cage, skip, or bucket	.005	.040	.019	.014	.016	.020	.038	.028	.039	.014	.028	.019	.033
16. Other causes	.005	.007	.004	.002	.016	.004	.007	.005	.011	.004	.005	.007	.007
Total, shaft	.076	.087	.087	.083	.068	.068	.080	.071	.086	.060	.074	.060	.073
17. Mine cars and mine locomotives	.086	.082	.090	.060	.077	.075	.092	.100	.090	.056	.084	.041	.050
18. Electricity	.010	.013	.024	.023	.020	.012	.023	.017	.017	.026	.018	.031	.019
19. Machinery	.022	.024	.023	.031	.034	.012	.038	.017	.024	.009	.023	.010	.024
20. Boiler explosions or bursting steam pipes	.015	.007	.002	.012	.009	.006	.013	.009	.004	.005	.008	.002	.002
21. Railway cars and locomotives	.030	.031	.017	.031	.032	.020	.047	.036	.032	.037	.032	.032	.047
22. Other causes	.049	.056	.054	.059	.054	.042	.080	.078	.071	.078	.063	.077	.100
Total, surface	.212	.213	.201	.246	.226	.167	.293	.257	.238	.211	.228	.199	.242
Grand total	4.018	3.528	3.649	3.712	3.240	3.087	3.356	3.409	3.394	3.023	3.416	3.409	3.313

TABLE 35.—United States: Production of coal during the years ended December 31, 1913 to 1922.^a

[Net tons.]

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Total 10 years.
Alabama.....	17, 078, 522	15, 593, 422	14, 927, 937	18, 086, 197	20, 068, 074	19, 184, 862	15, 536, 721	16, 294, 099	12, 568, 899	18, 324, 740	168, 263, 573
Alaska.....	2, 300	(b)	1, 406	13, 073	20, 068, 074	75, 006	60, 674	1, 111	76, 817	79, 275	424, 211
Arkansas.....	2, 234, 107	1, 836, 540	1, 652, 100	1, 984, 915	2, 143, 579	2, 227, 369	1, 429, 020	2, 103, 566	1, 227, 777	1, 110, 046	17, 959, 055
California, Idaho, and Nevada.....	26, 788	13, 974	12, 583	7, 240	6, 423	6, 400	6, 554	2, 753	38, 845	26, 893	148, 373
Colorado.....	9, 232, 510	8, 170, 559	8, 624, 980	10, 484, 297	12, 483, 336	12, 407, 571	10, 323, 420	12, 278, 225	9, 122, 760	10, 019, 597	103, 147, 195
Georgia and North Carolina.....	255, 626	166, 498	134, 498	173, 556	119, 028	68, 136	60, 326	61, 696	57, 253	130, 206	1, 235, 819
Illinois.....	61, 618, 744	57, 589, 197	58, 829, 576	66, 195, 356	86, 199, 387	89, 291, 105	60, 862, 763	88, 724, 893	69, 602, 763	58, 467, 736	697, 381, 345
Indiana.....	17, 165, 671	16, 641, 132	17, 006, 152	20, 093, 528	26, 539, 329	30, 078, 634	20, 912, 288	29, 350, 585	20, 319, 509	19, 132, 889	217, 839, 717
Iowa.....	7, 525, 936	7, 451, 022	7, 614, 143	7, 260, 800	8, 965, 830	8, 192, 193	5, 224, 724	7, 826, 408	4, 531, 392	4, 335, 161	60, 088, 992
Kansas.....	19, 616, 600	20, 382, 763	21, 361, 674	25, 303, 997	27, 807, 971	31, 612, 617	30, 036, 061	35, 690, 762	31, 588, 270	42, 134, 175	285, 924, 800
Kentucky.....	4, 779, 839	4, 135, 547	4, 180, 477	4, 460, 046	4, 745, 924	4, 497, 297	3, 021, 686	4, 065, 239	1, 827, 740	1, 222, 707	36, 934, 502
Maryland.....	1, 231, 786	1, 283, 030	1, 156, 138	1, 180, 360	1, 374, 805	1, 464, 818	996, 545	1, 489, 565	1, 141, 715	929, 390	12, 248, 352
Michigan.....	4, 318, 125	3, 935, 980	3, 811, 593	4, 742, 146	5, 670, 549	5, 667, 730	3, 979, 798	5, 369, 565	3, 551, 621	2, 924, 750	43, 971, 857
Missouri.....	3, 240, 973	2, 805, 173	2, 789, 755	3, 632, 527	4, 226, 689	4, 632, 505	3, 236, 369	4, 413, 866	2, 738, 958	2, 572, 221	34, 184, 036
Montana.....	3, 708, 806	3, 877, 689	3, 817, 940	3, 793, 011	4, 000, 527	4, 023, 239	3, 138, 756	3, 683, 440	2, 453, 482	3, 147, 773	35, 644, 063
New Mexico.....	495, 320	506, 985	528, 078	634, 912	700, 548	719, 733	840, 959	948, 625	864, 903	1, 327, 564	7, 637, 327
Ohio.....	36, 200, 527	18, 845, 115	22, 434, 691	34, 728, 219	40, 748, 734	45, 812, 943	35, 876, 682	45, 878, 191	31, 942, 776	26, 953, 791	339, 419, 669
Oklahoma.....	4, 165, 770	3, 988, 613	3, 683, 580	3, 608, 011	4, 386, 844	4, 813, 447	3, 802, 113	4, 849, 288	3, 362, 623	2, 802, 511	39, 472, 800
Oregon.....	173, 781, 217	147, 983, 294	137, 955, 137	170, 295, 424	172, 448, 142	178, 550, 741	150, 758, 154	170, 607, 847	116, 013, 942	113, 448, 308	1, 551, 542, 206
Pennsylvania (bituminous).....	6, 903, 784	5, 945, 258	10, 583	8, 886	8, 042	7, 942	14, 417	6, 662, 428	4, 460, 326	4, 876, 774	89, 812
South Dakota.....	2, 429, 144	2, 325, 773	2, 088, 908	6, 137, 449	6, 194, 221	6, 831, 048	5, 213, 205	6, 662, 428	4, 460, 326	4, 876, 774	38, 952, 854
Tennessee.....	3, 254, 828	3, 103, 036	3, 108, 715	1, 987, 503	2, 355, 815	2, 261, 135	1, 680, 656	1, 615, 015	972, 839	1, 106, 007	18, 820, 795
Texas.....	8, 828, 068	7, 959, 535	8, 122, 596	9, 567, 428	4, 125, 230	5, 136, 825	4, 631, 323	6, 005, 199	4, 078, 794	4, 992, 008	42, 003, 376
Utah.....	3, 877, 891	3, 064, 820	2, 429, 095	9, 707, 474	10, 087, 091	10, 289, 808	9, 326, 830	11, 378, 606	7, 492, 378	10, 491, 174	93, 683, 560
Virginia.....	71, 303, 066	71, 707, 626	77, 184, 028	86, 440, 127	86, 441, 619	89, 935, 839	79, 036, 533	89, 970, 271	72, 786, 996	80, 488, 192	805, 320, 758
West Virginia.....	7, 393, 066	6, 475, 293	6, 575, 619	7, 910, 647	8, 575, 619	9, 438, 088	7, 219, 378	9, 630, 277	7, 200, 666	5, 971, 724	76, 369, 740
Wyoming.....	478, 523, 203	422, 703, 970	442, 624, 426	502, 519, 662	551, 790, 563	579, 385, 920	485, 860, 058	588, 668, 663	415, 921, 950	423, 268, 099	4, 850, 264, 454
Pennsylvania (anthracite).....	91, 524, 922	90, 821, 507	88, 995, 061	87, 578, 493	99, 611, 811	98, 826, 084	88, 092, 201	89, 598, 249	90, 473, 451	54, 083, 022	880, 204, 801
Total.....	570, 048, 125	513, 925, 477	531, 619, 487	590, 096, 175	651, 402, 374	678, 211, 904	553, 932, 259	638, 264, 932	508, 395, 401	476, 951, 121	5, 730, 469, 255

^a Compiled from Mineral Resources, U. S. Geological Survey.
^b Not available.
^c Includes Oregon.
^d Included with California, Idaho, and Nevada.

TABLE 36.—United States: Average number of days the coal mines were operated during the years ended December 31, 1913 to 1922.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Average, 10 years.
Alabama	255	226	223	262	273	278	239	247	166	215	239
Alaska	(^b)	(^a)	(^c)	179	(^a)	254	280	240	244	147	218
Arkansas	174	143	149	184	187	204	136	176	112	81	155
California, Idaho, and Nevada	294	291	285	188	173	240	59	181	149	250	193
Colorado	229	244	194	233	263	255	225	255	164	191	225
Georgia and North Carolina	261	207	197	280	269	212	292	219	208	240	240
Illinois	189	173	179	198	243	238	160	213	152	120	185
Indiana	190	168	179	187	221	227	148	192	128	110	173
Iowa	195	204	220	202	251	245	176	203	148	131	203
Kansas	197	192	184	204	216	234	182	204	137	125	191
Kentucky	212	187	187	208	214	230	189	182	152	140	185
Maryland	248	241	242	256	254	261	179	207	120	101	217
Michigan	188	201	188	216	254	237	179	261	196	162	209
Missouri	187	179	186	207	240	235	175	233	166	113	193
Montana	228	209	244	207	268	264	194	250	143	140	216
New Mexico	289	283	262	292	321	361	273	302	150	216	208
North Dakota	221	216	219	244	255	229	216	218	194	175	214
Ohio	206	108	142	197	210	223	164	188	184	100	166
Oklahoma	197	205	167	178	211	228	184	217	141	114	185
Oregon	283	266	296	296	351	292	259	307	(^b)	185	259
Pennsylvania (bituminous)	267	214	226	259	261	269	218	244	151	154	225
South Dakota	152	152	155	145	154	145	164	133	129	138	146
Tennessee	241	220	220	239	241	265	201	234	154	163	217
Texas	253	237	233	218	263	262	227	242	189	185	230
Utah	273	210	208	228	319	259	239	252	151	204	224
Virginia	280	235	235	272	273	277	247	264	166	198	243
Washington	260	191	169	217	271	275	217	260	159	194	223
West Virginia	234	201	225	237	225	238	200	198	149	143	200
Wyoming	232	192	201	248	246	268	221	264	167	128	214
Total (bituminous)	232	195	203	230	243	249	195	220	149	142	204
Pennsylvania (anthracite)	257	245	230	253	285	253	266	271	151	151	251
Total	238	207	209	235	251	258	209	230	173	144	214

^a Not available.^b Included with California, Idaho, and Nevada.^c Includes Alaska.^d Includes Oregon.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 37.—United States: Number of men employed underground during the years ended December 31, 1913 to 1923.^a

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Total, 10 years.	1923
Alabama	20,746 (6)	20,320 (3)	18,984 (c)	21,453 (c)	22,925 (c)	20,584 (c)	20,960 (c)	20,555 (c)	21,173 (c)	23,143 (c)	210,343 (c)	22,500 (c)
Alaska	3,920 d	3,674 d	3,097 e	3,055 e	3,135 e	3,107 e	3,096 e	3,354 e	3,163 e	3,359 e	32,960 e	3,299 e
California, Idaho, and Nevada	10,211	7,891	9,860	10,456	11,285	11,320	8,931	11,005	11,906	11,069	105,934	8,043
Colorado	4,112	2,75	291	1,322	205	170	145	137	186	2,273	2,273	157
Georgia and North Carolina	71,516	72,308	68,493	68,127	75,085	75,270	75,013	76,993	85,509	86,296	754,610	88,188
Illinois	19,440	20,427	20,308	20,992	22,664	23,979	25,216	26,922	28,932	28,863	237,873	20,891
Indiana	13,826	14,242	13,990	12,960	12,672	11,774	10,573	10,757	10,412	11,846	123,352	21,317
Iowa	11,180	10,778	11,412	10,325	8,816	8,652	8,173	7,589	6,991	6,412	96,328	6,000
Kansas	21,385	24,292	23,523	26,501	28,162	30,323	35,530	40,036	41,733	50,396	321,851	41,733
Kentucky	4,881	4,730	4,977	4,719	4,696	4,377	4,422	4,630	3,942	3,225	44,000	2,900
Michigan	2,669	2,294	2,237	2,124	2,154	2,207	1,851	1,927	1,968	2,135	21,345	2,050
Minnesota	9,350	8,405	7,614	7,877	7,080	7,644	7,235	6,865	6,971	7,218	76,989	9,000
Missouri	2,958	2,626	3,338	3,065	3,338	3,347	3,318	3,424	3,460	3,098	31,420	3,388
Montana	3,578	3,386	3,437	3,304	3,191	2,971	2,918	2,940	3,855	3,222	32,902	3,653
New Mexico	40,679	40,438	35,813	36,680	38,569	39,883	41,336	42,062	44,698	45,906	406,064	48,600
North Dakota	7,687	6,950	7,270	6,620	7,017	7,057	6,996	6,878	7,425	6,624	70,524	3,253
Ohio	151,066	162,081	152,086	139,186	143,687	140,502	143,838	143,876	164,222	159,451	1,499,995	164,222
Oregon	9,260	8,267	7,510	7,061	8,053	8,198	8,976	9,227	8,561	9,533	85,246	43
Pennsylvania (bituminous)	4,462	4,039	4,476	3,901	3,683	3,391	3,018	2,573	2,598	2,535	34,696	11,500
South Dakota	3,177	2,964	2,763	2,397	2,569	3,065	2,709	3,559	3,491	3,629	30,323	2,530
Tennessee	7,562	7,587	7,261	7,359	8,607	8,788	9,471	10,553	9,807	10,857	87,852	3,742
Texas	4,475	4,439	3,785	3,764	4,072	3,836	3,801	3,966	3,486	3,604	39,228	10,844
Virginia	62,133	66,073	63,842	64,618	69,155	69,047	71,350	82,893	81,752	90,814	727,677	84,752
Washington	7,017	6,862	6,170	6,041	6,024	5,932	5,815	6,332	7,020	7,643	64,856	6,204
West Virginia	494,255	508,025	492,433	474,244	498,185	496,252	508,301	529,812	597,289	582,409	5,139,705	577,519
Wyoming	127,854	133,309	130,963	116,705	109,989	101,671	107,829	101,023	116,817	114,279	1,160,439	116,817
Total (bituminous)	692,109	699,334	613,396	590,949	608,174	597,923	616,630	630,635	694,166	696,668	6,300,154	694,333
Total (anthracite)												

^a Compiled from Mineral Resources, U. S. Geological Survey. Figures for 1923 estimated by Bureau of Mines.

^b Included with California, Idaho, and Nevada.

^c Not available.

^d Includes Alaska.

^e Includes Oregon.

TABLE 38.—United States: Number of men employed on the surface during the years ended December 31, 1913 to 1923.^a

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Total, 10 years.	1923
Alabama	3,806	3,722	3,607	3,855	5,461	5,637	6,214	5,185	4,636	5,026	47,149	4,550
Alaska	(b)	(c)	(c)	114	(c)	60	63	102	218	198	634	(c)
Arkansas	732	665	654	717	863	871	718	612	453	676	6,961	900
California, Idaho, and Nevada	425	26	26	26	26	25	23	2	7	58	6,188	c 30
Colorado	1,770	2,207	2,512	2,648	2,946	3,163	2,868	2,706	2,623	2,437	25,919	5,137
Georgia and North Carolina	8,488	80	77	80	76	70	72	61	66	91	25,770	137
Illinois	8,013	7,191	7,117	7,411	9,093	10,695	10,007	10,691	9,922	10,040	89,492	10,893
Iowa	2,705	2,748	2,469	2,973	3,894	6,397	4,671	4,283	3,755	4,315	38,229	10,269
Kansas	1,931	1,815	1,550	1,873	1,694	2,334	1,493	1,148	974	1,011	14,962	2,273
Kentucky	1,299	1,670	1,848	1,807	1,894	2,013	1,753	1,365	1,216	1,947	15,812	805
Kentucky (bituminous)	4,947	4,502	4,637	4,721	6,794	9,019	10,068	9,416	8,788	10,528	73,190	8,788
Michigan	4,764	6,774	6,687	4,687	1,223	1,911	972	918	726	529	8,397	8,850
Minnesota	1,038	696	332	111	232	253	227	227	244	192	3,464	150
Missouri	1,028	1,144	1,552	1,777	1,884	1,846	2,079	1,973	1,584	1,532	16,620	1,200
Montana	672	564	532	564	811	1,212	805	780	718	537	7,347	543
New Mexico	751	792	795	1,018	933	1,224	827	798	722	779	8,714	1,018
North Dakota	190	151	135	141	202	226	314	357	289	512	2,546	633
Ohio	3,136	4,963	4,240	4,714	6,940	8,367	8,288	8,795	7,087	8,288	67,018	8,400
Oklahoma	1,357	1,198	1,187	1,188	1,478	1,394	1,452	1,366	1,429	1,204	13,175	1,002
Oregon	37	56	31	38	27	15	15	29	(c)	(c)	240	(c)
Pennsylvania (bituminous)	21,130	22,120	22,407	20,026	30,281	33,804	30,712	30,094	26,421	29,387	273,482	26,421
South Dakota	16	16	12	12	12	10	10	10	10	10	98	58
Tennessee	2,003	1,840	1,438	1,540	2,368	2,496	2,547	2,126	1,786	1,916	20,079	1,800
Texas	680	576	611	580	692	545	626	377	284	306	3,246	285
Utah	981	1,148	801	801	692	1,065	1,148	945	931	1,092	9,780	2,460
Virginia	1,600	1,406	1,698	2,732	2,916	2,216	2,115	3,457	2,115	2,542	22,318	2,324
Washington	1,310	1,065	1,068	1,035	1,240	1,233	1,235	1,028	848	877	11,284	1,055
West Virginia	12,653	12,800	12,000	13,449	14,267	20,483	20,355	20,057	17,098	18,200	167,492	17,098
Wyoming	1,314	1,255	1,074	1,214	1,334	1,622	1,471	1,447	1,464	1,402	13,397	900
Total (bituminous)	77,644	77,461	75,093	86,656	104,956	119,053	113,197	109,735	96,465	105,549	965,963	109,975
Pennsylvania (anthracite)	47,891	46,370	45,589	43,164	44,185	45,450	46,742	44,051	42,682	42,570	448,694	42,682
Total	125,535	123,831	120,612	130,022	149,143	164,503	159,939	153,786	139,147	148,119	1,414,657	152,657

^a Compiled from Mineral Resources, U. S. Geological Survey. Figures for 1923 estimated by Bureau of Mines.^b Included in California.^c Not available.^d Includes Alaska.^e Includes Oregon.^f Included with California, Idaho, and Nevada.

TABLE 39.—United States: Number of men employed underground and on the surface during the years ended December 31, 1913 to 1923. ^a

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Total 10 years.	1923
Alaska.....	24,562	24,042	22,591	25,308	28,386	26,221	26,874	25,540	25,809	28,169	257,492	27,050
Alaska.....	(c)	(c)	(c)	83	(c)	239	166	3,966	401	4,035	1,526	(c)
Arkansas.....	4,652	4,339	3,751	3,772	3,998	3,978	3,814	3,966	3,616	4,035	39,921	4,199
California, Idaho, and Nevada.....	4,652	433	376	18	17	15	77	10	14,529	13,506	129,859	13,185
Georgia and North Carolina.....	11,900	10,098	12,372	13,014	14,231	14,483	11,829	13,711	14,529	13,506	3,043	294
Illinois.....	79,596	79,335	75,010	75,538	84,080	85,965	85,020	87,094	95,431	96,336	844,102	99,081
Indiana.....	24,227	23,175	22,717	23,965	26,328	30,376	29,987	31,155	31,386	33,208	276,093	31,189
Iowa.....	15,457	15,349	14,443	14,266	14,266	13,328	12,366	11,905	11,386	12,857	137,914	23,990
Kansas.....	12,476	13,260	12,132	10,680	10,680	10,665	9,926	8,984	8,207	7,359	106,140	6,805
Kentucky.....	26,332	25,764	27,900	31,222	34,926	39,342	45,898	49,452	50,521	60,924	395,041	50,521
Maine.....	3,305	3,603	5,664	5,653	5,919	3,968	5,394	5,598	4,668	3,755	33,197	3,750
Michigan.....	3,305	2,900	2,769	2,535	2,406	2,568	2,104	2,134	2,212	2,166	24,909	2,300
Minnesota.....	10,418	9,418	9,173	9,694	9,668	9,990	9,314	8,838	8,555	8,750	93,509	10,300
Montana.....	3,620	3,350	3,158	3,781	4,149	4,539	4,123	4,204	4,177	3,635	38,767	3,931
New Mexico.....	4,329	4,478	4,205	4,522	4,326	4,065	3,745	3,738	4,577	4,001	41,516	4,671
North Dakota.....	45,811	45,401	40,953	41,394	45,509	48,450	1,072	1,110	1,064	1,648	9,046	1,963
Ohio.....	9,044	8,078	8,457	7,800	8,485	8,451	49,624	50,857	51,785	54,194	473,982	57,000
Oklahoma.....	172,196	184,201	174,593	168,212	173,968	174,306	174,550	173,970	190,643	188,838	1,775,477	6,260
Pennsylvania (bituminous).....	11,263	10,119	8,948	9,211	10,321	10,694	11,523	11,353	10,347	11,449	105,325	13,300
Pennsylvania (anthracite).....	4,101	4,635	5,087	4,481	4,375	3,936	3,644	2,950	2,882	2,841	39,942	2,845
South Dakota.....	4,101	4,182	3,364	3,129	3,486	4,100	3,572	4,504	4,422	4,721	40,112	8,202
Tennessee.....	5,022	5,183	8,959	9,777	11,168	11,004	11,886	14,010	11,922	13,399	110,170	13,168
Texas.....	3,794	3,803	4,850	4,797	3,312	3,108	5,036	4,994	4,334	4,481	50,512	4,313
Virginia.....	74,886	78,963	75,882	78,067	86,422	89,530	94,700	102,950	101,880	110,014	865,169	101,880
West Virginia.....	8,331	8,117	7,244	7,285	7,358	7,554	7,286	7,779	8,484	9,045	78,453	7,104
Wyoming.....	571,999	588,506	557,456	661,102	608,143	615,305	621,996	639,547	668,764	687,938	6,105,668	687,491
Wyoming.....	175,745	178,679	176,552	159,869	154,174	147,121	154,571	145,074	159,499	156,849	1,609,153	159,499
Total (bituminous)	747,644	763,185	734,008	720,971	757,317	769,426	776,569	784,621	823,293	844,807	7,714,801	846,960
Total	747,644	763,185	734,008	720,971	757,317	769,426	776,569	784,621	823,293	844,807	7,714,801	846,960

^a Compiled from Mineral Resources, U. S. Geological Survey. Figures for 1923 estimated by Bureau of Mines.
^b Included in California.
^c Not available.
^d Includes Alaska.
^e Includes Oregon.
^f Included with California, Idaho, and Nevada.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 40.—United States: Number of 300-day workers employed underground during the years ended December 31, 1913 to 1922.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Total, 10 years.
Alabama	17,631	15,308	14,125	18,746	20,839	19,092	16,436	16,734	11,740	16,385	167,239
Alaska	(^a)	(^a)	(^a)	41	839	141	96	84	128	128	642
Arkansas	2,274	1,751	1,541	1,871	1,955	2,109	1,401	1,966	1,185	911	16,994
California, Idaho, and Nevada	7,704	6,118	6,384	8,116	9,895	9,640	6,706	9,357	6,483	7,060	77,863
Colorado	358	6,190	191	300	184	120	117	134	95	129	1,818
Georgia and North Carolina	45,055	41,698	40,908	44,869	60,761	59,610	39,916	54,704	43,234	34,451	465,206
Illinois	12,312	11,439	12,095	13,055	16,689	18,165	12,486	17,266	12,317	10,603	136,427
Indiana	8,987	9,685	10,282	8,725	10,613	9,608	6,368	8,956	5,122	5,155	83,501
Iowa	7,342	6,898	7,014	7,022	6,341	6,736	4,060	5,160	3,202	2,664	57,339
Kansas	15,112	15,124	14,635	18,391	20,086	23,220	22,337	24,291	21,145	23,542	197,903
Kentucky	4,035	3,800	4,012	4,020	3,978	3,807	2,636	3,200	1,573	1,086	32,147
Maryland	1,673	1,497	1,474	1,527	1,825	1,744	1,102	1,678	1,287	1,065	14,872
Michigan	5,847	5,015	4,720	5,437	6,138	5,977	4,227	5,330	3,848	2,724	49,263
Minnesota	2,248	1,941	1,759	2,489	2,977	2,942	2,149	2,857	1,645	1,447	22,454
Missouri	3,447	3,194	3,002	3,216	3,418	2,982	2,655	2,956	1,922	2,323	29,115
Montana	3,326	3,293	3,332	4,500	5,527	4,589	5,645	5,547	502	661	4,642
New Mexico	27,933	14,558	16,967	24,056	27,052	29,606	22,551	26,338	19,912	15,264	224,237
New York	5,048	4,749	4,042	3,938	4,943	5,369	4,207	4,978	3,479	2,519	43,607
Ohio	156	83	83	61	64	24	45	57	(^b)	(^b)	607
Oklahoma	134,448	115,618	114,556	120,256	125,154	126,144	104,308	117,194	82,724	81,657	1,122,059
Oregon	16	16	9	12	17	10	23	16	18	15	136
Pennsylvania (bituminous)	7,439	6,062	5,507	6,098	6,466	7,240	6,018	7,200	4,382	5,180	61,592
South Dakota	3,763	3,207	3,472	2,840	3,229	2,957	2,282	2,078	1,205	1,564	26,597
Tennessee	2,891	2,075	1,916	1,822	1,877	2,649	2,162	2,987	1,761	2,466	22,606
Texas	7,058	5,943	5,687	6,672	7,824	8,108	7,796	9,281	5,427	7,154	70,953
Virginia	3,878	2,826	2,131	2,721	3,680	3,510	2,753	3,437	1,847	2,335	29,118
Washington	48,464	44,269	44,331	51,036	51,850	54,700	49,605	54,818	42,193	43,256	484,522
West Virginia	5,427	4,392	4,129	4,991	4,945	5,301	4,281	5,570	3,908	3,256	46,200
Wyoming	392,294	328,916	325,741	364,163	403,363	412,258	331,539	389,431	282,638	276,211	3,486,474
Total (bituminous)	109,528	108,869	100,290	98,483	104,396	99,385	95,514	91,357	105,340	57,404	970,566
Pennsylvania (anthracite)	483,540	441,141	427,532	463,733	509,677	513,655	430,542	480,788	394,394	334,038	4,488,970
Total											

^a Not available.

^b Included with California, Idaho, and Nevada.

^c Includes Alaska.

^d Includes Oregon.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 41.—United States: Number of 300-day workers employed on the surface during the years ended December 31, 1913 to 1922.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Total, 10 years.
Alabama.....	3, 235	2, 804	2, 684	3, 369	4, 964	5, 229	4, 044	4, 263	2, 571	3, 602	37, 665
Alaska.....	(^b)	(^a)	(^a)	8	(^c)	59	59	81	82	82	466
Arkansas.....	424	317	325	439	538	591	325	359	170	183	3, 671
California, Idaho, and Nevada.....	c 25	1, 795	1, 626	4	4	4	4	1	d 29	d 12	128
Colorado.....	1, 358	1, 795	1, 626	2, 055	2, 583	2, 694	2, 176	2, 301	1, 430	1, 555	19, 573
Georgia and North Carolina.....	77	55	51	83	83	50	58	59	48	63	612
Illinois.....	5, 048	4, 146	4, 251	4, 881	7, 287	8, 470	5, 325	7, 170	5, 017	4, 008	55, 603
Indiana.....	1, 770	1, 539	1, 470	1, 849	2, 845	4, 846	2, 304	2, 714	1, 598	1, 583	22, 518
Iowa.....	1, 255	1, 234	1, 146	1, 998	1, 335	1, 268	874	948	479	440	9, 985
Kansas.....	853	1, 069	1, 136	1, 229	1, 341	1, 567	1, 064	948	557	393	10, 157
Kentucky.....	3, 496	2, 806	2, 760	3, 276	4, 824	6, 906	6, 335	5, 713	4, 453	4, 918	45, 487
Kentucky (anthracite).....	632	540	554	778	1, 036	1, 036	580	635	290	178	6, 259
Michigan.....	398	379	219	296	213	277	150	198	160	103	2, 393
Maryland.....	647	683	966	1, 227	1, 589	1, 522	1, 215	1, 532	874	578	10, 833
Missouri.....	511	393	357	582	723	1, 065	521	651	341	251	5, 395
Montana.....	723	747	671	1, 186	1, 002	1, 128	753	802	360	561	7, 933
New Mexico.....	146	109	99	131	172	172	226	260	187	298	1, 800
North Dakota.....	3, 527	1, 786	2, 009	3, 092	4, 868	6, 359	4, 521	5, 507	3, 157	2, 756	37, 582
Ohio.....	891	771	660	892	1, 041	1, 061	892	989	670	458	8, 135
Oklahoma.....	35	51	21	22	23	15	13	30	(^b)	(^b)	210
Oregon.....	18, 806	15, 779	16, 953	25, 078	26, 375	30, 349	22, 272	24, 513	13, 309	15, 049	208, 483
Pennsylvania (bituminous).....	1, 609	1, 356	1, 054	1, 234	1, 901	2, 205	1, 708	1, 659	914	1, 041	14, 681
Pennsylvania (anthracite).....	539	455	474	422	607	475	473	304	136	189	4, 074
South Dakota.....	803	803	555	557	669	947	916	793	470	742	7, 345
Texas.....	1, 493	1, 250	1, 330	2, 193	2, 328	2, 045	1, 741	3, 040	1, 171	1, 675	18, 266
Utah.....	1, 143	870	600	747	1, 121	1, 165	895	891	449	568	8, 449
Virginia.....	9, 869	8, 636	8, 370	10, 622	14, 446	16, 227	13, 581	13, 264	8, 512	9, 145	112, 662
West Virginia.....	1, 016	803	719	1, 003	1, 095	1, 449	1, 083	1, 273	8, 815	597	9, 853
Wyoming.....	60, 045	50, 363	50, 656	66, 696	84, 979	98, 902	73, 760	80, 659	48, 062	50, 057	664, 179
Total (bituminous).....	41, 027	37, 869	34, 911	36, 424	41, 938	44, 428	41, 404	39, 836	38, 489	21, 384	377, 710
Pennsylvania (anthracite).....	99, 591	85, 457	84, 066	102, 083	194, 989	141, 318	111, 875	120, 495	80, 205	71, 018	1, 020, 847

a Not available. b Included with California, Idaho, and Nevada. c Includes Alaska. d Includes Oregon.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 42.—United States: Number of 300-day workers employed underground and on the surface during the years ended December 31, 1913 to 1922.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Total, 10 years.
Alabama.....	20,869	18,112	16,809	22,115	25,803	24,321	21,380	20,997	14,311	20,187	204,904
Alaska.....	(b)	(c)	(a)	49	(c)	24,303	1,155	1,165	14,326	20,210	14,108
Arkansas.....	2,698	2,068	1,866	2,310	2,493	2,706	1,726	2,325	1,355	1,094	20,635
California, Idaho, and Nevada.....	9,153	8,213	8,010	10,171	12,478	12,332	8,882	11,658	7,923	8,610	97,436
Colorado.....	435	245	242	353	252	170	143	193	143	192	2,430
Georgia and North Carolina.....	50,103	45,844	45,159	49,750	68,048	68,080	45,241	61,874	48,251	38,459	520,804
Illinois.....	14,082	12,978	13,565	14,904	19,534	23,011	14,790	19,980	13,915	12,189	158,186
Indiana.....	10,242	10,919	11,428	9,723	11,948	10,876	7,242	6,108	5,601	5,592	67,486
Iowa.....	8,195	7,967	8,150	8,251	7,682	8,303	6,024	6,108	3,759	3,057	67,496
Kansas.....	18,698	17,930	17,395	21,697	24,910	30,126	28,692	30,004	25,598	28,460	243,300
Kentucky.....	4,667	4,340	4,566	4,798	5,014	4,843	3,216	3,825	1,863	1,168	38,406
Maryland.....	2,071	1,876	1,693	1,823	2,038	2,021	1,252	1,876	1,447	1,168	17,265
Michigan.....	6,494	5,698	5,686	6,664	7,727	7,490	4,442	5,869	4,722	3,305	60,008
Missouri.....	2,759	2,334	2,116	3,071	3,700	4,007	2,670	3,508	1,986	1,892	27,849
Montana.....	4,170	3,941	3,673	4,402	4,420	4,110	3,408	3,758	2,880	2,884	37,048
New Mexico.....	4,472	3,402	3,431	4,581	4,690	4,631	3,771	3,807	2,680	2,950	6,442
Ohio.....	31,460	16,344	18,976	27,138	31,920	35,965	27,072	31,845	23,069	18,020	261,819
Oklahoma.....	5,939	5,520	4,702	4,640	5,984	6,430	5,189	5,967	4,149	3,977	51,497
Oregon.....	153,254	131,897	131,529	145,324	151,529	156,493	126,580	141,707	96,033	96,706	1,380,542
Pennsylvania (bituminous).....	191	24	18	18	17	10	25	21	15	15	166
South Dakota.....	9,048	7,418	6,561	7,332	8,307	9,445	7,726	8,859	5,296	6,221	76,273
Tennessee.....	4,302	3,662	3,946	3,202	3,836	3,432	2,755	3,382	1,341	1,753	30,671
Texas.....	3,784	2,878	2,471	3,379	3,596	3,596	3,078	3,780	2,231	3,208	34,951
Utah.....	8,551	7,193	7,017	8,868	10,152	10,153	9,537	12,321	6,598	8,826	89,219
Virginia.....	5,021	3,696	2,731	3,468	4,801	4,675	3,648	4,328	2,298	2,903	37,567
Washington.....	58,333	52,905	52,691	61,658	66,296	70,927	63,186	68,082	50,705	52,401	597,184
West Virginia.....	6,443	5,195	4,848	5,994	6,040	6,750	5,364	6,843	4,723	5,853	56,063
Wyoming.....	442,269	379,979	376,397	430,859	488,332	511,160	405,299	470,090	330,700	328,268	4,160,653
Total (bituminous).....	150,555	146,738	135,201	134,907	146,334	143,813	136,918	131,163	143,829	78,788	1,348,276
Pennsylvania (anthracite)(e).....	568,131	528,598	511,598	565,766	634,666	654,973	542,217	601,263	474,528	405,056	5,509,817

(a) Not available.

(b) Included with California, Idaho, and Nevada.

(c) Includes Alaska.

(d) Includes Oregon.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 43.—United States: Number of days of labor performed underground during the years ended December 31, 1913 to 1922.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Total, 10 years.
Alabama.....	5,290,280	4,562,320	4,237,622	5,623,900	6,251,775	5,727,715	4,930,942	5,020,396	3,522,158	4,975,466	50,172,614
Alaska.....	7,000	12,368	12,368	12,368	(e)	43,245	28,870	25,163	44,381	38,481	192,708
Arkansas.....	662,080	525,382	462,076	561,276	586,506	632,784	420,292	589,830	355,504	273,240	5,088,970
California, Idaho, and Nevada	2,338,319	1,925,044	1,915,004	2,434,719	2,968,579	2,892,159	2,011,770	2,807,098	1,947,864	11,240	51,803
(Colorado)	56,024	56,024	57,493	90,084	55,182	36,099	35,155	40,070	28,446	2,118,028	23,358,944
Georgia and North Carolina.....	13,516,874	12,609,284	12,577,620	13,460,614	18,228,152	17,882,923	11,974,914	16,411,423	12,970,255	10,335,256	139,561,845
Illinois.....	3,463,600	3,431,598	3,628,681	3,916,372	5,006,656	5,449,389	3,745,433	5,179,683	3,695,033	3,180,526	40,927,350
Iowa.....	2,292,460	2,063,368	2,104,190	2,617,492	3,183,793	2,882,247	1,910,913	2,686,729	1,536,566	1,546,547	25,049,874
Kansas.....	2,523,628	2,039,376	4,390,400	5,517,257	6,025,626	6,965,856	4,487,916	7,287,260	9,600,546	7,999,210	17,201,444
Maryland.....	1,210,488	1,448,934	1,203,698	1,205,918	1,193,406	1,142,237	790,945	7,960,163	6,343,481	7,062,083	59,370,212
Michigan.....	1,501,772	1,448,934	1,442,377	1,438,115	1,841,422	1,523,023	330,552	1,598,932	386,122	319,488	9,644,548
Missouri.....	1,751,094	1,504,491	1,415,906	1,631,287	1,843,168	1,793,095	1,268,267	1,598,932	1,554,228	319,488	4,461,363
Montana.....	1,674,424	1,595,374	1,527,736	1,746,832	1,025,544	882,575	644,588	857,217	1,493,526	817,086	14,778,778
New Mexico.....	1,031,042	952,238	900,670	964,837	1,025,544	894,554	796,500	886,705	576,610	696,839	6,736,489
New York.....	8,370,874	4,877,504	5,060,175	7,216,912	8,115,671	8,881,614	163,604	164,180	150,606	198,322	8,734,621
North Dakota.....	1,514,329	1,424,754	1,212,664	1,181,454	1,482,779	1,610,722	2,289,207	7,901,374	5,973,523	4,579,350	67,270,972
Ohio.....	4,466,678	3,353,112	24,745	18,391	19,308	7,287	17,192	1,493,492	1,043,699	755,800	13,008,906
Oklahoma.....	40,334,622	34,684,712	34,366,760	36,076,897	37,546,106	37,842,966	31,292,434	35,158,307	24,817,222	24,496,900	336,617,548
Oregon.....	2,231,660	1,816,740	1,652,093	1,829,417	1,939,652	2,172,124	1,805,387	2,160,048	1,314,490	1,554,082	18,477,603
Pennsylvania (bituminous).....	1,128,886	965,983	1,041,521	851,845	1,968,856	887,102	684,540	623,384	361,626	469,377	7,979,020
South Dakota.....	1,867,321	622,440	574,799	546,702	583,006	794,815	648,537	895,992	528,260	739,809	6,781,681
Texas.....	2,117,360	1,782,845	1,706,077	2,002,403	2,347,262	2,432,569	2,338,905	2,784,182	1,628,196	2,146,125	21,286,024
Vermont.....	1,163,500	847,849	639,405	816,350	1,104,039	1,053,041	825,913	1,031,086	554,062	700,366	8,735,611
Virginia.....	1,539,122	13,297,873	13,299,243	15,310,854	15,555,502	16,409,989	14,881,544	16,445,547	12,657,950	12,976,680	145,356,758
West Virginia.....	1,627,944	1,317,504	1,238,843	1,497,379	1,483,494	1,590,201	1,284,242	1,670,923	1,172,448	976,680	13,859,635
Wyoming.....	1,627,944	1,317,504	1,238,843	1,497,379	1,483,494	1,590,201	1,284,242	1,670,923	1,172,448	976,680	13,859,635
Total (bituminous).....	114,667,160	98,874,875	97,722,372	109,248,814	121,005,863	123,677,384	99,461,615	116,839,366	84,791,493	82,863,166	1,048,941,979
Pennsylvania (anthracite).....	32,858,478	32,660,705	30,086,879	29,544,777	31,318,796	29,815,515	28,654,124	27,407,001	31,602,172	17,221,380	1,291,169,827
Total.....	148,061,942	132,542,138	128,258,767	139,190,033	152,903,042	154,096,435	129,162,535	144,238,367	118,297,091	100,211,422	1,346,690,771

c Includes Alaska
d Includes Oregon.

e Not available
f Included with California, Idaho, and Nevada.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 44.—United States: Number of days of labor performed on the surface during the years ended December 31, 1913 to 1922.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Total, 10 years.
Alabama.....	970,530	841,172	805,158	1,010,603	1,489,242	1,568,552	1,483,124	1,278,888	771,205	1,080,550	11,298,954
Alaska.....	(b)	(c)	(c)	2,510	(c)	17,553	17,658	24,444	53,107	24,875	138,947
Arkansas.....	127,368	95,095	97,578	131,729	161,729	177,391	97,469	107,625	50,915	54,990	1,101,613
California, Idaho, and Nevada.....	7,350	7,566	5,985	1,314	1,038	1,200	1,365	3,746	8,652	3,746	38,578
Colorado.....	407,968	598,508	487,870	616,595	774,980	808,118	652,917	690,232	429,132	466,314	5,871,920
Georgia and North Carolina.....	2,991	16,580	15,196	24,902	20,458	14,865	17,457	18,888	14,442	18,888	183,578
Illinois.....	1,514,423	1,244,043	1,273,211	1,464,273	2,186,117	2,540,957	1,597,470	2,150,944	1,504,998	1,202,448	16,680,924
Indiana.....	531,050	461,664	473,311	554,658	853,589	853,589	691,131	1,479,588	1,479,588	475,027	6,755,993
Iowa.....	376,545	370,280	343,747	299,517	400,486	400,486	282,309	286,731	143,739	131,990	2,995,740
Kansas.....	215,903	320,640	340,743	368,679	402,225	470,168	319,144	284,544	167,075	118,037	3,047,158
Kentucky.....	1,048,764	841,874	828,134	982,865	1,447,246	2,071,863	1,900,556	1,713,879	335,790	1,475,433	13,646,404
Maine.....	189,472	162,193	166,152	233,568	310,803	310,806	173,857	190,374	86,923	53,423	1,877,571
Maryland.....	119,568	113,766	65,655	88,646	64,045	83,181	45,182	59,306	47,873	31,075	718,297
Michigan.....	194,106	204,776	289,913	368,007	476,661	456,485	364,436	459,533	262,272	173,424	3,249,613
Minnesota.....	153,216	117,876	108,914	174,463	217,004	319,593	156,391	195,277	102,414	75,254	1,618,402
Missouri.....	217,039	224,136	208,256	355,680	300,497	338,431	225,758	240,677	107,993	168,479	2,379,955
New Mexico.....	43,979	32,616	23,564	39,305	51,593	51,680	67,773	77,839	56,162	89,385	539,896
New York.....	1,058,016	536,004	602,640	927,494	1,460,308	1,907,802	1,356,479	1,652,147	947,120	826,769	11,274,779
North Dakota.....	287,329	231,240	197,906	210,591	312,319	318,174	267,881	296,614	200,868	137,377	2,440,689
Oklahoma.....	210,471	15,428	6,392	6,602	6,770	4,373	3,580	8,903	(c)	(c)	62,819
Oregon.....	5,641,710	4,733,680	5,085,884	7,523,510	7,912,577	9,104,803	6,681,517	7,353,930	3,992,740	4,514,307	62,545,158
Pennsylvania (bituminous).....	2,432	2,432	2,640	1,735	1,326	1,326	492	1,326	1,326	1,326	8,625
South Dakota.....	482,723	406,780	316,323	370,134	570,359	661,355	512,302	497,698	274,230	312,346	4,404,233
Tennessee.....	161,667	136,512	142,174	126,632	182,039	162,575	91,339	91,339	40,912	56,650	1,222,519
Texas.....	287,813	241,080	166,635	166,953	200,745	283,955	237,907	140,880	140,880	222,615	2,203,415
Utah.....	448,000	375,060	398,971	657,945	698,423	613,402	522,316	912,055	351,140	502,482	5,479,794
Virginia.....	342,920	260,906	179,912	224,040	336,201	349,458	288,341	287,261	134,781	170,427	2,534,271
Washington.....	2,960,802	2,590,890	2,508,115	3,186,660	4,333,726	4,868,072	4,074,147	3,979,189	2,553,635	2,743,385	33,798,819
West Virginia.....	304,848	240,960	215,643	300,913	328,516	434,811	324,862	381,842	244,510	179,168	2,956,063
Total (bituminous)	18,013,408	15,108,795	15,198,809	20,008,956	25,483,563	29,870,746	22,128,115	24,197,773	14,418,415	15,017,150	199,253,730
Pennsylvania (anthracite).....	12,307,987	11,360,650	10,473,435	10,927,269	12,581,458	13,328,439	12,421,169	11,950,802	11,546,641	6,415,126	113,312,976
Total	29,877,330	25,637,157	25,219,728	30,609,784	37,496,638	42,395,549	33,502,488	36,148,575	24,061,800	21,305,400	306,254,249

(a) Not available.
 (b) Included with California, Idaho, and Nevada.
 (c) Includes Alaska.
 (d) Includes Oregon.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 45.—United States: Number of days of labor performed underground and on the surface during the years ended December 31, 1913 to 1922.

State.	1913	1914	1915	1916	19	1918	1919	1920	1921	1922	Total, 10 years.
Alabama	6, 280, 760	5, 433, 492	5, 042, 780	6, 694, 593	7, 741, 017	7, 296, 267	6, 414, 066	6, 299, 284	4, 293, 363	6, 055, 906	61, 471, 568
Alaska	(^c)	(^c)	(^c)	14, 878	(^c)	60, 798	46, 528	49, 607	37, 068	37, 068	37, 068
Arkansas	809, 448	620, 477	559, 654	693, 005	747, 959	810, 175	517, 761	49, 607	106, 419	328, 320	6, 190, 583
California, Idaho, and Nevada	15, 288	12, 513	3, 380	3, 380	2, 940	3, 600	4, 570	1, 810	1, 034	4, 936	1, 406
Colorado	2, 745, 710	2, 463, 912	2, 402, 883	3, 051, 314	3, 743, 539	3, 700, 277	2, 664, 561	3, 497, 380	2, 376, 996	2, 584, 342	29, 290, 864
Georgia and North Carolina	15, 030, 981	13, 733, 485	13, 547, 717	14, 924, 887	20, 414, 269	20, 423, 850	18, 572, 384	57, 912	42, 858	11, 337, 794	156, 249, 769
Illinois	3, 893, 400	3, 893, 400	4, 069, 521	4, 471, 080	5, 860, 245	6, 903, 152	4, 436, 866	5, 994, 086	4, 174, 601	3, 665, 793	20, 283, 343
Iowa	3, 072, 615	3, 275, 628	3, 428, 428	2, 917, 069	3, 584, 279	3, 262, 663	2, 172, 690	2, 973, 460	1, 680, 305	1, 675, 287	28, 083, 603
Kansas	2, 458, 363	2, 890, 016	2, 444, 942	2, 475, 273	2, 304, 598	2, 490, 982	1, 807, 067	1, 832, 503	1, 127, 621	1, 077, 247	20, 248, 602
Kentucky	5, 582, 384	5, 378, 968	5, 218, 534	6, 500, 122	7, 472, 872	9, 037, 719	8, 607, 381	9, 001, 139	7, 578, 271	8, 958, 116	73, 528, 119
Maryland	1, 369, 960	1, 302, 123	1, 369, 830	1, 439, 486	1, 504, 209	1, 433, 043	964, 802	1, 150, 587	538, 894	350, 445	1, 126, 660
Michigan	621, 340	562, 800	562, 800	546, 761	611, 474	606, 204	373, 734	562, 787	433, 985	360, 465	3, 000, 000
Missouri	1, 948, 166	1, 709, 271	1, 705, 819	1, 999, 294	2, 318, 083	2, 249, 580	1, 622, 708	2, 058, 465	1, 416, 300	940, 700	18, 028, 301
Montana	827, 640	700, 150	634, 650	921, 295	1, 110, 172	1, 202, 168	800, 979	1, 052, 494	895, 840	549, 413	8, 374, 801
New Mexico	1, 251, 681	1, 182, 374	1, 101, 928	1, 320, 546	1, 326, 041	1, 232, 985	1, 022, 318	1, 127, 382	684, 603	865, 518	11, 032, 676
North Dakota	9, 437, 890	4, 903, 308	5, 692, 815	174, 308	209, 693	189, 340	231, 377	242, 019	206, 768	267, 707	78, 343, 751
Ohio	1, 781, 668	1, 655, 990	1, 410, 660	1, 362, 045	9, 375, 979	10, 789, 416	8, 121, 654	9, 553, 521	6, 920, 643	5, 406, 119	78, 343, 751
Oklahoma	57, 449	50, 840	31, 137	24, 983	26, 078	11, 660	1, 332	1, 790, 106	1, 244, 367	868, 117	13, 248, 983
Oregon	45, 976, 352	39, 419, 014	39, 452, 644	43, 600, 407	45, 458, 683	46, 947, 769	37, 973, 951	42, 512, 237	(^c)	29, 011, 107	399, 162, 764
Pennsylvania (bituminous)	2, 714, 383	2, 225, 520	1, 968, 326	2, 199, 551	2, 510, 011	2, 833, 459	2, 317, 689	2, 657, 746	1, 588, 720	1, 866, 431	22, 831, 828
Pennsylvania (anthracite)	1, 250, 553	1, 098, 495	1, 183, 695	978, 497	1, 150, 895	1, 029, 577	826, 530	714, 723	402, 458	526, 630	4, 301, 539
Tennessee	1, 135, 134	863, 520	741, 434	713, 655	1, 078, 770	1, 078, 770	923, 369	1, 133, 989	669, 140	402, 454	8, 685, 818
Utah	2, 565, 360	2, 158, 005	2, 105, 048	2, 660, 348	3, 045, 685	3, 045, 971	2, 861, 221	3, 696, 237	1, 978, 336	2, 041, 793	96, 763, 818
Washington	1, 506, 440	1, 108, 755	819, 317	1, 040, 390	1, 440, 240	1, 402, 499	1, 064, 238	1, 298, 337	678, 843	570, 792	11, 263, 832
West Virginia	17, 499, 924	15, 871, 563	15, 807, 563	18, 497, 516	19, 888, 728	21, 276, 061	18, 955, 691	20, 424, 666	15, 211, 565	15, 720, 536	179, 155, 544
Wyoming	1, 932, 792	1, 558, 464	1, 454, 486	1, 498, 282	1, 812, 010	2, 025, 012	1, 669, 104	2, 052, 765	1, 416, 938	1, 159, 838	10, 816, 721
Total (bituminous)	132, 680, 568	113, 783, 670	112, 919, 181	129, 257, 770	146, 499, 426	153, 948, 080	121, 589, 730	141, 097, 139	99, 309, 878	97, 860, 318	1, 248, 195, 708
Pennsylvania (anthracite)	45, 166, 465	44, 021, 355	40, 560, 314	40, 472, 046	43, 900, 254	43, 143, 353	41, 075, 293	39, 357, 803	43, 148, 813	23, 650, 300	464, 482, 863
Total	177, 889, 272	157, 979, 295	153, 479, 495	169, 729, 816	190, 399, 680	196, 491, 964	162, 665, 023	180, 384, 942	142, 358, 691	121, 516, 922	1, 662, 945, 090

^c Includes Alaska.
^d Includes Oregon

^a Not available.
^b Included with California.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 46.—United States: Number of men killed by underground accidents (including shaft accidents) during the years ended December 31, 1913 to 1923.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Total, 10 years.	1923
Alabama	123	127	61	116	100	107	88	72	78	182	1,054	82
Alaska	11	10	6	7	17	13	9	8	17	6	104	4
Arkansas	105	73	60	39	184	69	88	66	49	72	805	61
California, Idaho, and Nevada	3	1	1	128	215	1	1	203	190	121	1,733	168
Colorado	167	184	131	49	88	237	167	88	64	48	1,649	68
Illinois	94	42	43	20	34	95	81	24	22	18	269	21
Indiana	27	37	32	53	29	29	23	25	13	8	262	18
Iowa	45	22	61	63	131	69	72	116	119	120	851	127
Kansas	12	17	6	31	20	17	5	7	7	3	128	5
Kentucky	13	1	6	2	2	10	3	5	3	3	39	3
Maryland	10	2	17	6	6	10	10	10	10	6	114	16
Michigan	18	19	17	16	11	13	10	10	12	10	134	11
Missouri	17	17	12	19	21	14	10	14	12	10	141	141
Montana	272	17	10	19	16	26	20	31	13	21	457	3
New Mexico	6	3	1	1	3	3	3	3	4	3	27	1
North Dakota	163	62	67	105	104	136	135	130	102	90	1,094	122
Ohio	23	31	17	26	36	30	36	40	19	19	277	8
Oklahoma	561	379	408	410	457	448	372	393	(b) 263	398	4,089	371
Pennsylvania (bituminous)	34	24	25	15	27	14	27	21	12	26	225	18
South Dakota	4	2	1	2	1	7	3	5	1	4	39	1
Tennessee	12	17	10	20	17	15	24	23	13	20	178	21
Texas	24	17	46	51	59	41	33	25	17	25	338	38
Virginia	22	16	43	19	27	31	14	16	6	20	214	19
Washington	321	628	462	348	359	386	298	292	292	331	8,467	395
West Virginia	24	43	23	29	36	39	33	36	28	22	8,313	126
Wyoming	2	43	53	29	36	39	33	36	28	22	8,313	126
Total (bituminous)	2,071	1,755	1,583	1,587	1,952	1,890	1,571	1,660	1,357	1,577	16,993	1,847
Pennsylvania (anthracite)	553	533	526	489	483	453	559	416	510	264	4,758	448
Total	2,624	2,288	2,109	2,076	2,435	2,343	2,130	2,076	1,867	1,841	21,751	2,295

^a Includes Oregon.^b Included with California, Idaho, and Nevada.

TABLE 47.—United States: Number of men killed by surface accidents during the years ended December 31, 1913 to 1923.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Total, 10 years.	1923
Alabama	1	1	2	3	8	3	5	4	2	1	30	7
Alaska												
Arizona	1	1	2				1	1			6	
California, Idaho, and Nevada	3	2	3	4	4	2	3	4	3	3	31	3
Colorado	7	9	5	1	18	1	2	4	3	4	53	2
Georgia and North Carolina	2	2	3	1	2	1	2	1		1	18	2
Illinois	2	2	2	2	2	1	2	1		1	9	2
Indiana												
Iowa	1	1	2	2	2	1	1	1	1	1	13	1
Kansas	3	6	3	12	11	8	12	7	9	5	76	2
Kentucky	1	1	1								6	1
Maryland	1	1	1	1	2	2					9	2
Michigan												
Missouri												
Montana	2	1	1			2		1	1		6	6
New Mexico		1	1			3	1		1		11	
North Dakota	2	1				2	5	2			10	1
Ohio	2	2	3	3	4	13	7	6	7	1	60	8
Oklahoma			5		1	1	1	1	1	1	10	
Oregon												
Pennsylvania (bituminous)	48	23	30	23	38	43	27	34	23	38	327	31
South Dakota												
Tennessee	1	2			1						6	
Texas												
Utah	5	5	1	3	5	4	3	5	1	2	35	2
Virginia		10	2	2	4	2	1	1	2	2	22	1
Washington		1	3	2	3	2	5	2	1	2	21	1
West Virginia	16	28	32	24	55	51	34	32	28	33	333	35
Wyoming	2	8	3	1		2		13	1	1	32	
Total (bituminous)	96	104	100	84	162	149	111	120	83	103	1,111	96
Pennsylvania (anthracite)	65	62	60	66	99	98	76	75	37	36	674	61
Total	161	166	160	150	261	247	187	195	120	138	1,785	157

TABLE 48.—United States: Number of men killed by underground and surface accidents during the years ended December 31, 1913 to 1923.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Total, 10 years.	1923
Alabama	124	128	63	119	108	110	93	76	80	183	1,084	89
Alaska	12	11	8	7	17	13	10	9	17	6	110	4
Arkansas	108	75	63	43	188	71	91	70	52	75	836	64
California, Idaho, and Nevada	3				2	2	1			1	9	
Colorado	164	193	136	128	233	238	169	207	193	125	1,786	170
Georgia and North Carolina	96	44	40	51	76	100	83	85	64	49	667	70
Illinois	38	37	34	31	36	31	17	25	22	19	278	21
Iowa	28	37	24	54	30	32	25	26	14	9	275	19
Kansas	48	61	64	75	142	77	84	123	128	125	927	129
Kentucky	13	13	10	32	21	17	5	7	7	3	133	3
Maryland	3	1	7	2	4	1	3	6	3	3	45	5
Michigan	10	12	17	6	11	13	10	11	12	6	115	16
Minnesota	10	13	17	16	23	17	11	14	13	10	145	11
Missouri	20	18	19	19	16	31	25	33	13	21	467	141
Montana	1	3	1	1	3	3	4	3	4	4	29	2
New Mexico	1	64	67	108	108	149	142	136	109	96	1,144	130
North Dakota	15	1	22	26	37	31	36	41	30	20	287	8
Ohio	23	31	22	26	3	3	3	41	(b)	20	287	4
Oklahoma	609	402	438	433	495	491	399	427	286	436	4,416	402
Oregon												
Pennsylvania (bituminous)	35	36	25	15	28	14	27	21	12	28	231	18
South Dakota	11	11	1	2	1	7	3	5	2	4	40	1
Texas	17	22	11	23	22	19	27	35	17	22	213	23
Utah	21	27	48	53	63	43	34	28	15	25	580	39
Virginia	17	46	30	21	33	33	19	18	7	22	235	20
Washington	327	550	494	372	384	437	332	324	320	364	3,920	430
West Virginia	26	31	20	30	37	41	35	49	29	23	345	126
Wyoming												
Total (bituminous)	2,167	1,869	1,993	1,671	2,114	2,029	1,692	1,790	1,440	1,679	18,104	1,943
Pennsylvania (anthracite)	618	595	586	555	582	551	635	491	547	300	5,460	509
Total	2,785	2,454	2,579	2,226	2,696	2,580	2,317	2,271	1,987	1,979	23,564	2,452

^a Includes Oregon.

^b Included with California, Idaho, and Nevada.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 49.—United States: Number of men killed by underground accidents per 1,000 300-day workers employed during the years ended December 31, 1913 to 1922.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Average, 10 years.
Alabama.....	6.98	8.29	4.32	6.19	4.80	5.61	5.35	4.30	6.64	10.97	6.30
Alaska.....	4.84	5.71	3.89	3.74	8.70	6.10	6.42	4.07	14.35	6.50	6.13
Arkansas.....	13.57	11.37	9.40	4.81	18.60	7.16	13.12	7.05	7.55	10.20	10.34
California, Idaho, and Nevada.....	8.38	5.21	3.20	2.85	3.54	3.33	4.39	3.71	4.39	7.75	3.85
Georgia and North Carolina.....	3.48	3.67	3.50	2.75	3.40	3.08	4.18	3.10	5.20	3.53	3.73
Illinois.....	5.20	3.11	3.22	3.32	4.30	3.12	2.67	2.68	4.30	3.49	4.76
Indiana.....	2.89	3.82	3.28	3.55	4.84	4.31	4.64	4.84	4.06	3.00	3.22
Iowa.....	3.68	3.64	4.71	3.43	4.52	2.97	3.22	4.78	5.63	5.10	4.57
Kansas.....	2.95	3.46	2.24	7.71	6.02	4.47	1.90	2.19	4.45	2.76	4.30
Kentucky.....	2.97	3.79	4.05	1.11	3.03	5.73	2.72	2.98	2.33	2.82	2.62
Maryland.....	1.71	3.33	3.60	1.11	1.79	2.18	2.37	1.88	3.12	2.20	2.31
Michigan.....	8.01	3.61	6.82	6.13	7.05	4.76	4.65	4.90	7.29	6.91	5.97
Missouri.....	78.91	3.22	3.33	5.91	4.68	9.73	7.53	10.49	6.76	9.04	15.70
Montana.....	18.40	10.24	3.01	2.22	5.69	4.83	5.50	5.48	5.12	5.90	4.88
New Mexico.....	5.84	4.26	3.06	4.36	3.84	4.59	5.90	4.94	7.97	5.90	5.82
North Dakota.....	4.56	6.53	4.21	6.60	7.28	5.59	8.38	8.04	5.46	7.54	6.39
Ohio.....	4.17	8.55	3.56	47.18	3.65	3.55	3.57	3.35	(^b)	4.87	6.59
Oklahoma.....	4.57	3.28	3.54	3.41	3.65	3.55	3.57	3.35	3.18	4.87	3.64
Oregon.....	4.57	3.06	4.54	2.46	4.18	1.92	4.49	2.92	2.74	5.02	3.65
Pennsylvania (bituminous).....	1.04	3.43	2.29	7.70	4.31	2.37	1.31	1.92	8.83	2.56	1.47
South Dakota.....	3.40	8.19	5.22	10.08	9.06	5.66	11.10	10.04	7.38	8.11	7.87
Texas.....	3.07	3.80	8.09	7.64	7.54	5.06	4.23	2.69	3.13	3.49	4.76
Utah.....	3.67	2.86	20.18	6.98	7.34	8.83	5.09	4.66	3.25	8.57	7.35
Virginia.....	6.02	11.03	10.42	6.82	6.35	7.06	6.92	5.33	6.92	7.45	7.40
Washington.....	4.42	9.79	3.57	5.81	7.28	7.36	7.71	6.46	7.16	6.76	6.77
West Virginia.....	5.42	5.84	4.86	4.36	4.84	4.56	4.74	4.98	4.80	5.71	4.98
Wyoming.....	5.05	4.90	5.24	4.97	4.63	4.56	5.85	4.65	4.84	4.60	4.93
Total (bituminous).....	5.93	5.19	4.93	4.48	4.76	4.54	4.95	4.32	4.73	5.51	4.85
Total (anthracite).....											
Total.....											

^b Included in California, Idaho, and Nevada.
^a Includes Oregon.

TABLE 50.—United States: Number of men killed by surface accidents per 1,000 300-day workers employed on the surface during the years ended December 31, 1913 to 1922.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Average, 10 years.
Alabama											0.80
Alaska											1.63
Arkansas	2.36	3.15	6.15				3.08	2.79			7.81
California, Idaho, and Nevada											1.58
Colorado	2.21	1.11	1.84	1.95	1.55	74	1.38	1.74	2.10	1.93	3.27
Georgia and North Carolina				12.05	2.47	20.00	.37	.56	.60	1.00	.95
Illinois	1.39	2.17	1.18	1.06	1.35	1.03	.87				1.63
Indiana	1.13	1.30	2.04	2.00	1.50	1.79	1.05	1.05			.90
Iowa		.94	1.88	.81	1.50	1.91	1.88	1.05	1.80	2.54	1.28
Kansas	1.17		1.09	3.66	2.25	1.16	1.89	1.23	2.02	1.02	1.67
Kentucky	.86	2.14	1.09	3.66	2.25	1.16	1.89	1.23	2.02	1.02	1.67
Maryland	1.58	1.85	1.81	1.23	0.30	7.22		5.05			2.51
Michigan			4.57		9.39						.09
Missouri											2.04
Montana	3.91	2.54	2.80		2.76	2.82	1.02	.65	2.93		2.04
New Mexico		1.34				1.77	6.64	2.40		3.36	1.26
North Dakota							4.45				1.11
Ohio	.57	1.12	7.58	.97	.82	2.04	1.55	1.00	2.22	2.18	1.33
Oklahoma					.96	.94		1.01	1.40	2.18	1.23
Oregon											1.57
Pennsylvania (bituminous)	2.55	1.46	1.77	.92	1.44	1.42	1.21	1.39	1.73	2.53	
South Dakota											.41
Tennessee	62	1.47			.53					1.92	25
Texas									7.35		4.77
Utah	5.60	6.23	1.80	5.30	7.47	4.22	3.28	6.31	4.26	2.70	1.20
Virginia		8.00	1.50	2.64	1.70	0.98	5.57	.33			2.49
Washington		1.14	5.90	2.64	2.68	1.72	5.59	.22	2.23	3.52	2.06
West Virginia	1.62	3.24	3.83	2.20	3.81	3.14	2.50	2.41	3.29	3.61	3.25
Wyoming	1.97	9.96	4.17	1.00	.91	1.38		10.21	1.23	1.68	
Total (bituminous)	1.60	2.07	1.97	1.26	1.91	1.51	1.50	1.49	1.73	2.04	1.87
Pennsylvania (anthracite)	1.53	1.64	1.72	1.81	2.36	2.21	1.84	1.84	.96	1.68	1.78
Total	1.62	1.94	1.90	1.47	2.09	1.75	1.67	1.62	1.90	1.94	1.75

TABLE 51.—United States: Number of men killed by *underground* and *surface* accidents per 1,000 300-day workers employed *underground* and on the surface during the years ended December 31, 1913 to 1922.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Average, 10 years.
Alabama.....	5.94	7.07	3.75	5.38	4.19	4.52	4.35	3.62	5.59	9.07	5.29
Alaska.....	4.45	5.32	4.29	3.03	6.82	4.81	5.79	3.87	12.15	5.48	5.33
California, Idaho, and Nevada.....	11.80	9.13	7.87	4.23	15.07	5.76	10.25	6.00	6.56	8.71	9.97
Colorado.....	6.90	4.08	3.01	2.60	3.17	3.50	3.74	3.55	4.00	3.25	3.70
Georgia and North Carolina.....	3.27	4.21	3.39	3.42	3.89	4.35	5.61	3.40	3.69	4.02	3.43
Illinois.....	4.69	3.39	2.98	3.19	3.01	2.85	2.35	3.72	3.92	3.40	3.20
Indiana.....	3.52	4.15	2.94	3.64	3.91	3.85	4.15	4.26	3.76	3.94	2.97
Iowa.....	2.58	3.40	3.68	3.46	5.70	2.56	2.93	4.10	5.76	4.39	4.07
Kansas.....	2.79	4.15	2.19	6.67	4.19	3.51	2.93	1.83	3.76	2.37	3.81
Kentucky.....	1.45	1.07	1.13	1.10	1.96	3.94	2.40	3.20	2.54	7.82	3.46
Maryland.....	1.64	3.33	2.99	1.90	1.42	1.73	1.84	1.60	2.64	2.57	2.61
Michigan.....	7.25	3.43	6.14	5.21	6.21	4.24	4.12	3.89	6.55	5.89	1.91
Missouri.....	65.23	4.57	5.17	4.52	3.62	7.54	4.12	3.78	5.70	7.95	5.21
New Mexico.....	12.71	7.46	2.32	1.72	4.29	7.54	7.34	3.72	5.51	4.37	12.61
North Dakota.....	5.24	3.92	3.53	3.98	3.38	4.14	5.19	4.27	4.72	5.33	4.50
Ohio.....	3.87	5.62	4.68	3.60	6.18	4.82	6.94	6.87	4.82	6.72	5.57
Oklahoma.....	3.97	3.06	3.33	3.14	3.27	3.14	3.15	3.01	(b)	4.51	4.90
Oregon.....	3.87	3.50	3.81	2.05	3.35	1.48	3.49	2.37	2.27	4.50	3.32
Pennsylvania (bituminous).....	4.93	3.00	4.25	4.61	3.55	2.04	2.37	2.37	2.27	4.50	3.03
South Dakota.....	4.49	7.64	4.45	9.67	8.64	3.28	1.09	2.10	1.49	2.98	1.30
Texas.....	2.81	3.75	6.84	5.98	6.21	4.24	8.77	9.26	6.72	6.86	7.11
Utah.....	4.38	4.60	16.84	6.06	6.25	7.06	5.21	2.11	2.58	2.83	4.04
Virginia.....	5.75	10.51	9.37	6.03	5.79	6.16	6.16	4.16	3.05	7.58	6.98
West Virginia.....	4.04	9.82	5.36	5.01	6.13	6.07	6.25	7.76	6.31	6.95	6.56
Wyoming.....	4.90	4.90	4.47	3.98	4.31	3.97	4.15	3.79	6.14	5.37	6.15
Pennsylvania (anthracite).....	4.10	4.05	4.33	4.11	3.98	3.83	4.64	3.74	3.80	3.81	4.35
Total (bituminous)	4.70	4.66	4.44	3.93	4.25	3.94	4.27	3.79	4.19	4.80	4.05
Total	4.70	4.66	4.44	3.93	4.25	3.94	4.27	3.79	4.19	4.80	4.28

^b Included in California, Idaho, and Nevada.

^c Includes Oregon.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 52.—United States: Number of men killed per million tons of coal mined, based on *underground* and *shaft* accidents only, during the years ended December 31, 1913 to 1922.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Average, 10 years.
Alabama.....	6.96	8.14	4.09	6.41	4.98	5.58	5.66	4.42	6.21	9.93	6.20
Alaska.....	4.92	5.46	3.63	3.51	7.93	5.84	6.30	3.80	13.95	5.41	5.79
Arkansas.....	11.37	8.93	6.96	3.72	14.74	4.56	8.52	5.38	23.57	7.10	7.60
California, Idaho, and Nevada.....	11.74	6.01	2.33	1.93	8.40	1.68	2.74	2.20	3.37	2.07	5.66
Colorado.....	2.59	3.20	2.53	2.44	2.83	3.06	3.02	3.07	2.75	2.51	2.88
Georgia and North Carolina.....	3.73	4.97	4.50	3.89	3.70	3.46	3.02	3.07	4.86	3.15	3.88
Illinois.....	3.45	4.97	3.27	7.70	4.04	3.83	4.40	3.52	3.75	3.71	4.08
Indiana.....	3.78	4.96	2.96	2.48	4.21	2.78	2.40	3.25	3.77	2.85	3.08
Iowa.....	2.29	2.70	2.15	0.83	4.11	3.83	7.40	1.72	3.63	2.45	2.97
Kansas.....	2.51	1.56	4.46	1.97	1.84	3.01	3.66	3.86	3.53	3.23	3.19
Kentucky.....	2.44	4.83	4.46	1.97	1.87	3.98	3.01	3.86	3.58	3.05	3.49
Maryland.....	2.32	4.30	4.30	4.40	1.87	2.69	3.09	3.87	4.30	3.89	3.82
Michigan.....	3.55	4.38	4.38	5.51	4.50	7.21	6.09	8.74	3.62	6.67	2.92
Missouri.....	73.34	4.08	4.89	1.89	4.50	2.97	3.57	3.42	4.62	3.26	12.53
Montana.....	12.11	3.29	2.89	3.02	3.15	2.07	3.76	2.83	3.10	3.34	3.22
New Mexico.....	4.30	7.77	4.60	7.02	8.21	6.23	9.47	8.25	5.65	6.78	7.02
North Dakota.....	5.32	19.40	2.58	70.44	8.21	6.23	9.47	8.25	5.65	6.78	15.35
Ohio.....	3.23	2.50	2.58	2.44	2.65	2.51	2.47	2.30	(0)	2.27	3.52
Oklahoma.....	4.92	4.04	4.36	2.44	4.36	2.05	5.18	3.15	2.60	5.33	3.92
Pennsylvania (bituminous).....	1.66	1.73	1.48	1.01	1.36	3.10	1.78	1.10	1.03	3.62	2.07
South Dakota.....	3.08	5.48	3.22	5.01	4.19	2.92	5.18	5.00	3.19	4.01	4.24
Tennessee.....	2.72	2.46	5.66	0.95	5.35	3.98	3.54	2.90	3.27	2.38	3.61
Utah.....	5.07	5.22	17.70	6.95	6.73	7.50	4.63	4.26	2.47	7.75	6.63
Virginia.....	4.67	7.30	5.09	4.62	4.51	4.20	3.77	3.25	4.01	4.11	4.45
Washington.....	3.23	6.64	3.51	3.67	4.20	4.13	4.57	3.74	3.89	3.68	4.10
West Virginia.....	4.33	4.15	3.58	3.16	3.54	3.94	3.37	2.92	3.98	3.73	3.60
Wyoming.....	6.04	5.87	5.91	5.58	4.85	4.58	6.35	4.64	5.64	4.53	5.44
Total (bituminous).....	4.90	4.46	3.97	3.92	3.74	3.44	3.85	3.16	3.60	3.86	3.80
Total (anthracite).....											

a Includes Oregon.

b Included with California, Idaho, and Nevada.

TABLE 53.—United States: Number of men killed per million tons of coal mined, based on all accidents during the years ended December 31, 1913 to 1922.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Average, 10 years.
Alabama.....	7.01	8.21	4.22	6.58	5.38	5.73	5.99	4.66	6.36	9.99	6.44
Alaska.....	5.37	5.99	4.84	3.51	7.93	5.84	7.00	4.28	13.85 a 23.74	5.41	6.13 20.22
Arkansas.....	11.70	9.18	7.30	4.10	15.06	5.72	8.81	5.70	2.77	7.49	7.20
California, Idaho, and Nevada.....	11.74	6.01	8.40	3.76	8.40	29.37	2.78	2.33	2.11	2.14	2.28
Colorado.....	2.66	3.35	2.31	1.63	2.70	3.67	3.07	3.50	3.71	2.56	3.06
Georgia and North Carolina.....	3.84	2.66	2.70	3.54	2.96	3.78	3.72	3.30	4.80	3.00	3.00
Illinois.....	3.45	4.97	4.77	2.97	4.02	4.78	4.76	4.04	4.04	3.00	4.18
Indiana.....	3.45	4.81	4.77	7.85	4.18	4.23	3.80	3.45	4.03	3.00	4.18
Iowa.....	2.45	2.90	3.00	2.95	5.11	3.74	1.86	3.72	3.83	3.47	3.26
Kansas.....	2.72	4.35	2.39	7.17	4.42	3.76	3.60	1.76	3.63	2.45	3.60
Kentucky.....	2.44	1.56	6.05	1.60	2.91	3.16	2.51	4.03	2.98	3.23	3.67
Maryland.....	2.32	4.83	4.46	1.97	7.94	3.19	2.51	5.05	2.38	2.06	2.62
Michigan.....	6.17	2.85	4.66	4.40	5.44	7.75	3.40	2.37	5.30	3.89	3.24
Minnesota.....	73.34	4.63	4.98	5.01	4.00	7.71	4.79	8.08	7.30	6.67	13.10
Montana.....	12.11	5.95	1.89	3.11	3.79	7.71	7.86	3.48	3.41	3.53	3.79
New Mexico.....	4.56	3.40	2.99	3.11	2.65	3.25	3.08	3.08	3.41	3.56	3.27
North Dakota.....	5.52	7.77	5.96	7.21	8.43	6.44	9.47	2.48	5.96	7.14	7.27
Ohio.....	3.50	19.40	2.77	70.44	2.87	6.44	9.47	8.45	(b)	7.14	15.35
Oklahoma.....	3.50	2.72	2.77	2.54	2.87	2.75	2.65	2.50	2.47	3.85	2.86
Oregon.....	5.07	4.37	4.36	2.44	4.52	2.05	2.05	3.15	2.69	5.74	3.92
Pennsylvania (bituminous).....	1.65	4.73	4.48	1.01	4.42	3.10	1.70	3.10	2.08	3.62	2.13
South Dakota.....	5.22	7.09	3.84	6.45	5.32	3.70	3.83	3.83	3.68	4.43	5.07
Tennessee.....	2.77	3.39	5.91	5.46	6.23	4.18	3.85	2.98	2.27	3.84	3.84
Utah.....	5.67	5.55	18.53	6.91	7.48	8.08	4.86	4.70	2.88	5.52	7.98
Virginia.....	3.73	7.75	6.30	6.91	4.44	4.86	4.30	3.60	4.40	4.52	4.87
Washington.....	3.52	7.88	3.97	3.79	4.31	4.34	4.57	3.09	4.03	3.85	4.52
West Virginia.....	4.58	4.40	8.80	3.83	3.88	3.50	3.81	3.13	3.46	3.98	3.73
Wyoming.....	6.73	6.55	6.58	6.34	5.84	5.58	7.21	5.48	6.03	5.49	6.20
Total.....	4.89	4.78	4.27	3.77	4.14	3.80	4.18	3.45	3.92	4.15	4.11
Total (bituminous).....	4.58	4.40	8.80	3.83	3.88	3.50	3.81	3.13	3.46	3.98	3.73
Pennsylvania (anthracite).....	6.73	6.55	6.58	6.34	5.84	5.58	7.21	5.48	6.03	5.49	6.20

^a Includes Oregon.

^b Included in California, Idaho, and Nevada.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 54.—United States: Production per death, based on underground accidents (including shaft accidents), during the years ended December 31, 1913 to 1922.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Average, 10 years.
Alabama	143, 728	122, 783	244, 720	155, 915	200, 681	179, 299	176, 554	226, 307	161, 140	100, 685	158, 642
Alaska	203, 101	183, 654	275, 351	284, 988	126, 063	171, 336	158, 780	262, 950	73, 222	185, 008	172, 683
Arkansas	87, 920	111, 925	143, 750	298, 827	67, 844	179, 820	117, 312	186, 034	186, 179	139, 161	128, 133
California, Idaho, and Nevada	85, 209	166, 498	449, 081	617, 151	119, 028	68, 136	376, 756	437, 068	366, 330	139, 206	176, 546
Colorado	392, 476	312, 985	395, 492	410, 072	400, 927	353, 858	322, 933	325, 520	317, 492	483, 204	402, 413
Georgia and North Carolina	289, 459	201, 379	237, 942	250, 372	263, 701	273, 073	330, 884	325, 580	205, 972	398, 602	335, 654
Illinois	266, 749	214, 406	296, 716	129, 839	247, 758	260, 752	227, 162	237, 056	266, 685	240, 842	257, 677
Iowa	435, 924	370, 596	350, 191	403, 079	212, 275	458, 154	417, 168	307, 679	265, 448	351, 118	335, 634
Kansas	398, 320	243, 150	464, 497	143, 872	237, 296	264, 547	604, 337	580, 748	261, 106	407, 569	288, 551
Kentucky	410, 595	641, 515	192, 690	590, 180	687, 403	146, 482	332, 182	237, 953	380, 572	309, 797	314, 060
Michigan	431, 813	207, 157	234, 211	790, 358	514, 504	435, 979	397, 980	536, 937	295, 968	489, 458	385, 718
Missouri	180, 054	400, 739	232, 480	227, 033	201, 271	323, 750	323, 637	315, 276	227, 820	257, 222	255, 105
Montana	13, 635	228, 069	200, 044	199, 632	250, 033	138, 732	156, 938	118, 821	188, 229	146, 865	77, 996
New Mexico	82, 553	168, 895	528, 078	634, 912	263, 516	280, 320	380, 320	316, 208	216, 226	442, 521	283, 605
North Dakota	222, 089	303, 921	334, 846	330, 745	391, 815	336, 860	295, 753	352, 909	313, 164	299, 487	310, 256
Ohio	181, 120	128, 665	217, 269	138, 770	121, 857	160, 448	105, 614	121, 232	178, 980	147, 501	142, 501
Oklahoma	309, 770	390, 457	387, 145	14, 197	377, 348	398, 551	405, 264	434, 117	(^a)	284, 292	65, 139
Oregon	203, 052	247, 635	225, 214	409, 163	229, 416	487, 932	193, 082	317, 258	371, 694	187, 568	262, 013
Pennsylvania (bituminous)	607, 286	211, 252	688, 908	993, 752	355, 815	323, 019	323, 019	323, 019	323, 019	276, 502	282, 584
South Dakota	271, 236	182, 532	310, 872	178, 371	242, 661	342, 455	192, 972	290, 173	313, 753	249, 600	235, 974
Tennessee	367, 836	468, 208	176, 578	190, 343	170, 968	250, 971	282, 631	455, 144	440, 728	419, 647	277, 170
Texas	176, 268	191, 551	56, 491	159, 926	148, 515	131, 684	213, 603	234, 818	404, 787	129, 058	150, 747
Virginia	222, 146	135, 810	167, 065	248, 449	262, 741	232, 994	265, 223	308, 119	249, 271	224, 511	224, 511
West Virginia	308, 044	150, 588	284, 958	272, 781	238, 212	242, 018	218, 780	267, 508	257, 167	271, 442	243, 963
Wyoming	231, 059	240, 857	279, 611	316, 648	232, 680	308, 184	298, 537	342, 570	308, 501	267, 767	265, 427
Total (bituminous)	165, 506	170, 397	169, 192	179, 097	206, 236	218, 159	157, 589	215, 380	177, 399	207, 133	183, 912
Pennsylvania (anthracite)	317, 244	924, 443	352, 072	284, 248	267, 516	390, 703	380, 071	317, 063	271, 235	259, 072	263, 119

[Net tons.]

^a Includes Oregon.^b Included with California, Idaho, and Nevada.

TABLE 55.—United States: Production per death, based on all accidents, during the years ended December 31, 1913 to 1922.

[Net tons.]

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Average, 10 years
Alabama.....	142,569	121,824	236,951	151,985	185,816	174,409	167,062	214,396	157,111	100,135	155,225
Alaska.....	186,176	166,958	206,513	284,988	126,083	171,336	142,902	283,753	73,222	185,008	163,264
Arkansas.....	85,486	108,941	136,904	243,819	66,401	174,755	113,444	175,403	38,845	133,595	49,458
California, Idaho, and Nevada.....	85,209	166,498	178,554	119,028	119,028	34,068	360,134	428,623	360,636	139,206	137,332
Colorado.....	375,724	298,390	432,570	517,151	399,954	375,173	251,955	333,529	317,492	390,467	326,596
Illinois.....	260,086	378,208	369,699	393,991	349,202	306,786	330,864	312,557	205,972	228,166	249,335
Indiana.....	289,459	201,379	223,945	234,219	249,051	264,264	208,989	297,959	247,617	328,352	218,505
Iowa.....	257,222	207,909	284,353	127,484	239,499	236,311	357,572	290,169	246,783	337,073	308,117
Kansas.....	408,679	334,144	333,776	338,587	195,831	410,553	604,337	580,748	407,569	407,569	277,708
Kentucky.....	397,680	229,642	418,048	139,376	225,996	264,547	332,182	248,294	261,106	309,797	272,186
Maryland.....	410,595	641,515	165,163	590,180	343,701	122,068	332,182	488,142	380,572	380,572	382,364
Michigan.....	162,049	207,157	224,211	790,358	514,504	435,979	294,215	315,276	210,304	487,458	352,752
Minnesota.....	13,635	215,427	214,597	227,033	183,769	266,618	210,240	111,619	188,729	149,865	76,326
Montana.....	82,553	168,895	528,078	634,912	250,033	129,782	125,560	316,208	216,226	331,891	264,046
New Mexico.....	219,397	294,424	334,846	321,558	377,303	307,469	252,653	337,340	263,053	280,769	296,696
North Dakota.....	181,120	128,665	167,890	138,770	118,563	155,272	105,614	118,275	108,131	140,126	137,536
Ohio.....	285,355	368,118	360,628	393,292	348,380	363,647	377,840	399,550	405,643	259,514	65,139
Oklahoma.....	197,251	228,587	229,214	409,163	221,222	487,932	193,082	317,258	371,694	174,171	255,207
Oregon.....	607,286	211,252	988,908	993,752	335,815	323,019	560,219	323,003	486,420	276,502	470,520
Pennsylvania (bituminous).....	191,460	141,047	282,610	155,106	187,510	270,360	171,530	171,577	271,919	226,909	197,199
South Dakota.....	397,838	294,798	169,221	183,160	160,113	239,298	274,319	437,639	440,728	260,947	260,232
Texas.....	176,298	180,294	53,980	144,695	133,663	123,703	157,392	208,727	346,960	119,326	137,276
Virginia.....	211,599	128,971	156,243	232,420	225,109	205,803	208,062	196,062	227,459	221,121	205,439
Washington.....	284,349	126,967	252,078	263,688	231,773	230,212	218,780	167,536	248,209	259,940	221,362
West Virginia.....	290,833	297,392	262,997	300,780	261,017	283,552	276,968	319,476	288,835	251,500	267,911
Wyoming.....	148,099	152,641	151,869	157,799	171,154	179,358	138,728	182,481	165,399	182,277	161,210
Total.....	204,665	209,261	234,297	265,094	241,618	262,873	239,082	289,857	254,854	241,006	243,187

^a Includes Oregon.

^b Included in California, Idaho, and Nevada.

^c Includes Oregon.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 56.—United States: Annual production of coal per man, based on underground employees only, during the years ended December 31, 1913 to 1922.

[Net tons.]

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Average, 10 years.
Alabama.....	852	767	786	843	875	932	752	800	594	792	800
Alaska.....	570	500	533	653	684	717	462	582	420	303	476
Arkansas.....	904	1,035	875	1,003	1,106	1,095	1,156	1,116	767	905	992
California, Idaho, and Nevada.....	620	605	462	539	581	401	416	450	440	748	544
Colorado.....	862	796	859	972	1,148	1,186	811	1,152	814	678	924
Georgia and North Carolina.....	883	815	837	957	1,171	1,279	826	1,090	702	662	916
Illinois.....	544	523	544	560	708	695	517	726	485	366	562
Iowa.....	644	637	598	666	815	874	639	781	496	461	685
Kansas.....	917	840	908	958	987	1,043	845	891	757	836	887
Kentucky.....	979	874	945	945	1,011	1,027	883	878	464	370	828
Maryland.....	462	574	517	556	638	664	538	773	580	471	574
Michigan.....	460	468	501	602	738	741	550	782	509	405	572
Missouri.....	1,096	1,007	1,062	1,185	1,266	1,354	975	1,289	790	830	988
Montana.....	1,037	1,145	1,111	1,148	1,254	1,354	1,076	1,253	638	977	1,087
New Mexico.....	1,121	1,245	1,161	1,148	1,277	1,196	1,109	1,280	1,116	1,169	1,178
North Dakota.....	890	466	626	947	1,057	1,149	868	991	1,187	1,587	836
Ohio.....	542	574	508	545	625	682	543	705	453	423	560
Oklahoma.....	1,150	391	327	546	368	533	360	370	706	710	369
Oregon.....	1,277	913	1,039	1,224	1,200	1,271	1,048	1,186	315	242	1,034
Pennsylvania (bituminous).....	382	382	342	342	237	378	335	345	176	512	315
South Dakota.....	746	719	763	801	769	833	581	722	521	692	692
Tennessee.....	544	572	467	509	640	667	628	628	374	432	543
Texas.....	1,024	1,047	1,125	1,488	1,606	1,676	1,710	1,687	1,168	1,376	1,385
Utah.....	1,167	1,049	1,119	1,319	1,172	1,171	985	1,078	966	916	1,066
Virginia.....	867	690	642	807	985	1,064	787	947	697	716	822
Washington.....	1,148	1,085	1,209	1,338	1,338	1,303	1,063	1,065	859	891	1,107
West Virginia.....	1,054	944	1,062	1,309	1,424	1,591	1,242	1,521	1,026	781	1,178
Wyoming.....	885	835	917	1,060	1,108	1,168	916	1,073	733	795	944
Total (bituminous).....	716	681	680	750	906	972	817	886	774	479	759
Pennsylvania (anthracite).....	916	803	867	999	1,071	1,134	898	1,043	740	685	910
Total.....	916	803	867	999	1,071	1,134	898	1,043	740	685	910

^a Includes Oregon.^b Included with California, Idaho, and Nevada.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 57.—United States: Annual production of coal per man, based on all employees, during the years ended December 31, 1913 to 1922.

[Net tons.]

State	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Average 10 years
Alabama.....	720	649	661	715	707	732	578	638	487	651	653
Alaska.....	480	423	440	528	536	560	375	285	392	184	278
Arkansas.....	770	809	697	800	877	857	873	896	340	215	430
California, Idaho, and Nevada.....	511	469	365	422	424	284	85	530	275	448	310
Colorado.....	775	724	778	876	1,025	1,039	278	312	628	603	704
Georgia and North Carolina.....	772	718	747	838	1,000	1,010	1,019	1,019	729	575	496
Illinois.....	478	464	490	503	628	615	455	656	942	622	826
Iowa.....	577	551	515	567	673	628	626	660	398	337	739
Kansas.....	745	709	794	813	796	709	659	660	422	402	593
Kentucky.....	847	765	739	792	802	804	659	722	625	692	596
Maryland.....	373	458	450	466	571	573	474	722	516	325	684
Michigan.....	414	414	416	491	587	591	427	692	415	334	474
Missouri.....	893	837	883	961	1,019	994	885	1,050	654	708	882
Montana.....	857	928	908	839	970	982	838	985	813	787	939
New Mexico.....	773	908	895	889	963	869	784	855	813	806	846
North Dakota.....	790	415	560	839	895	946	723	902	617	497	717
Ohio.....	461	494	437	463	516	570	450	588	380	358	472
Oklahoma.....	227	271	401	401	272	333	280	284	(^b)	(^b)	375
Oregon.....	1,009	803	905	1,012	991	1,024	864	981	609	529	674
Pennsylvania (bituminous).....	613	588	640	666	594	639	542	581	176	242	592
South Dakota.....	252	252	237	237	378	313	313	272	176	242	360
Tennessee.....	783	755	872	1,140	1,184	1,235	1,201	1,333	386	389	671
Texas.....	964	867	907	993	903	935	805	812	922	1,037	1,047
Utah.....	669	528	501	653	755	799	594	752	560	575	850
Virginia.....	954	908	1,017	1,108	978	1,005	835	874	715	732	900
West Virginia.....	887	798	905	1,080	1,165	1,249	991	1,238	849	660	860
Wyoming.....	837	794	794	898	915	942	749	899	627	614	794
Total (bituminous).....	521	505	504	548	646	672	570	618	567	349	547
Pennsylvania (anthracite).....	762	673	724	818	860	890	713	839	615	565	743
Total.....											

^a Includes Oregon.

^b Included with California, Idaho, and Nevada.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 58.—United States: Daily production of coal per man, based on underground employes only, during the years ended December 31, 1913 to 1922.

State.	[Net tons.]										Average, 10 years.
	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	
Alabama.....	3.3	3.4	3.5	3.2	3.2	3.3	3.2	3.2	3.6	3.7	3.4
Alaska.....									1.7	2.1	2.2
Arkansas.....	3.3	3.5	3.6	3.6	3.7	3.5	3.2	3.6	3.5	4.0	3.5
California, Idaho, and Nevada.....									a 3.1	a 2.4	2.9
Colorado.....	4.0	4.2	4.5	4.3	4.2	4.3	4.2	4.4	4.7	4.7	4.4
Georgia and North Carolina.....	2.4	2.9	2.8	1.9	2.2	2.2	2.2	1.5	2.0	3.6	2.3
Illinois.....	4.6	4.6	4.8	4.9	4.7	5.0	4.7	5.4	5.2	5.7	5.0
Indiana.....	2.8	2.6	2.5	2.8	2.8	2.8	2.8	5.7	5.5	6.0	5.3
Iowa.....	3.3	3.3	3.2	3.3	3.3	3.7	3.5	2.9	2.9	2.8	2.8
Kansas.....	4.3	4.5	4.9	4.6	4.6	4.5	3.8	3.8	3.6	3.7	3.5
Kentucky.....	4.0	3.6	3.5	3.7	4.0	3.9	4.2	4.9	5.0	6.0	4.8
Maryland.....	2.5	2.9	2.6	2.6	2.5	2.8	3.8	3.0	3.9	3.8	3.8
Michigan.....	2.5	2.6	2.7	2.9	3.1	3.2	3.1	3.0	3.1	2.9	2.7
Missouri.....	4.8	4.8	5.3	4.9	4.7	5.1	3.1	3.4	3.1	3.6	3.0
Montana.....	3.6	4.0	4.2	3.9	3.9	4.5	5.0	5.1	5.5	5.9	5.1
New Mexico.....	5.1	5.8	5.3	4.7	5.0	5.2	5.1	4.2	4.3	4.5	4.1
North Dakota.....	4.3	4.3	4.4	4.8	5.0	5.2	5.3	5.8	5.7	6.7	5.5
Ohio.....	2.8	2.8	3.0	3.1	3.0	3.0	2.9	3.2	5.3	5.9	5.0
Oklahoma.....	1.0	1.5	1.6	2.3	3.0	3.0	3.2	3.2	(b)	3.7	3.0
Oregon.....	4.3	4.3	4.6	4.7	4.6	4.7	4.8	4.9	4.7	4.6	4.6
Pennsylvania (bituminous).....											
Pennsylvania (anthracite).....											
South Dakota.....	3.1	3.3	3.5	2.4	3.2	2.6	2.0	2.6	1.4	1.8	2.2
Tennessee.....	2.2	2.4	2.0	2.3	2.4	3.1	2.9	3.1	3.4	3.1	3.2
Texas.....	3.8	5.0	5.4	6.5	7.3	6.5	7.1	6.7	2.7	2.4	2.4
Utah.....	4.2	4.5	4.8	4.8	4.3	4.2	4.0	4.1	4.6	4.9	4.4
Virginia.....	3.3	3.6	3.8	3.7	3.6	3.9	3.6	3.6	4.4	3.7	3.7
Washington.....	4.9	5.4	5.8	5.6	5.6	5.5	5.3	5.5	5.8	6.2	5.5
West Virginia.....	4.5	4.9	5.3	5.3	5.8	5.9	5.6	5.8	6.1	6.1	5.5
Wyoming.....											
Total (bituminous).....	4.2	4.3	4.5	4.6	4.6	4.7	4.7	4.9	4.9	5.1	4.6
Pennsylvania (anthracite).....	2.8	2.8	3.0	3.0	3.2	3.3	3.1	3.3	2.9	3.2	3.0
Total.....	3.9	3.9	4.1	4.2	4.3	4.4	4.3	4.6	4.3	4.8	4.3

a Includes Oregon.

b Included with California, Idaho, and Nevada.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 59.—United States: Daily production of coal per man, based on all employees, during the years ended December 31, 1913 to 1922.

[Net tons.]

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Average, 10 years.
Alabama	2.8	2.9	3.0	2.7	2.6	2.6	2.4	2.6	2.9	3.0	2.7
Alaska							1.3	1.2	2.8	1.3	1.3
Arizona	2.8	3.0	3.0	2.9	2.9	2.8	2.8	3.0	3.0	3.4	3.0
California, Idaho, and Nevada.							1.4	1.5	a 1.8	a 1.8	1.6
Colorado, Idaho, and Nevada.							1.9	1.6	3.8	3.9	3.5
Georgia and North Carolina.	3.4	3.3	3.6	3.4	3.3	3.4	1.1	1.1	1.3	2.4	1.7
Illinois	2.0	2.3	1.9	1.5	1.6	1.3	4.5	4.8	4.8	5.1	4.5
Indiana	4.1	4.2	4.4	4.4	4.5	4.4	4.7	4.9	4.9	5.2	4.6
Iowa	2.5	2.3	2.2	2.5	2.5	2.5	2.6	2.6	2.7	2.6	2.5
Kansas	2.9	2.9	2.8	2.8	3.1	3.0	2.9	3.2	3.1	3.2	3.0
Kentucky	3.5	3.8	4.1	3.9	3.7	3.5	3.5	4.0	4.1	4.9	3.9
Maryland	3.4	3.2	3.1	3.1	3.2	3.1	3.1	3.5	3.6	3.2	3.2
Michigan	2.0	2.3	2.3	2.2	2.3	2.4	2.7	2.6	2.6	2.7	2.4
Missouri	2.2	2.3	2.2	2.4	2.4	2.5	2.4	2.6	2.5	3.0	2.4
Montana	3.9	4.0	4.4	3.9	3.8	3.8	4.0	4.2	4.6	5.0	4.1
New Mexico.	3.0	3.3	3.5	3.6	3.8	3.8	3.1	3.3	3.6	3.6	3.2
North Dakota	3.5	4.2	4.1	3.6	3.8	3.8	3.6	3.9	4.2	4.6	4.0
Ohio	3.8	3.8	3.9	4.3	4.3	4.2	4.4	4.8	4.6	5.0	4.3
Oklahoma	2.3	2.4	2.6	2.6	2.5	2.5	2.4	2.7	2.7	3.1	2.6
Oregon			1.3	1.7	1.1	1.1	1.1	.8	(b)	(b)	1.1
Pennsylvania (bituminous)	3.8	3.8	4.0	3.9	3.8	3.8	4.0	4.1	4.0	3.9	3.9
South Dakota			2.0	1.6	1.5	2.6	1.9	2.1	1.4	1.8	1.8
Tennessee	2.5	2.7	2.9	2.8	2.5	2.4	2.2	2.5	2.8	2.6	2.6
Texas	1.9	2.1	1.8	2.0	2.1	2.2	2.0	2.3	2.4	2.1	2.0
Utah	2.9	3.6	4.2	5.0	5.4	4.8	5.0	5.3	6.1	5.2	4.7
Virginia	3.4	3.7	3.9	3.7	3.8	3.4	3.3	3.1	3.8	4.0	3.5
Washington	2.6	2.8	3.0	2.9	3.3	2.9	2.7	2.9	3.5	3.0	2.9
West Virginia	4.1	4.5	4.9	4.7	4.4	4.2	4.2	4.4	4.8	5.1	4.5
Wyoming	3.8	4.2	4.5	4.4	4.7	4.7	4.5	4.7	5.1	5.2	4.5
Total (bituminous)	3.6	3.7	3.9	3.9	3.8	3.8	3.8	4.0	4.2	4.3	3.9
Pennsylvania (anthracite)	2.0	2.1	2.2	2.2	2.3	2.3	2.1	2.3	2.1	2.3	2.2
Total	3.2	3.3	3.5	3.5	3.4	3.5	3.4	3.6	3.6	3.9	3.5

a Includes Oregon.

b Included with California, Idaho, and Nevada.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 60.—United States: Average value of coal per ton at mines during the years ended December 31, 1913 to 1922.

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922
Alabama.....	\$1.31	\$1.34	\$1.26	\$1.37	\$2.27	\$2.85	\$2.96	\$3.65	\$3.08	\$2.34
Alaska.....	6.00	.....	2.50	4.92	4.02	5.45	5.86	5.83	6.43	5.43
Arkansas.....	1.76	1.72	1.84	1.84	2.56	3.67	3.70	4.58	4.37	4.14
California, Idaho, and Nevada.....	3.23	2.85	2.86	2.12	2.30	2.70	3.38	4.36	a 4.66	3.87
Colorado.....	1.41	1.44	1.52	1.92	2.22	2.69	2.78	3.49	3.55	3.16
Georgia and North Carolina.....	1.14	1.10	1.12	1.25	1.53	1.61	1.73	5.38	3.95	a 4.55
Illinois.....	1.14	1.10	1.10	1.27	1.88	2.32	2.73	3.08	2.74	2.89
Indiana.....	1.11	1.09	1.09	1.27	1.99	2.29	2.92	3.16	2.57	2.85
Iowa.....	1.79	1.79	1.78	1.58	2.33	3.09	3.04	3.02	3.81	3.72
Kansas.....	1.67	1.64	1.66	1.58	2.31	3.05	3.87	3.16	3.85	3.66
Kentucky.....	1.05	1.02	1.01	1.16	2.11	2.51	2.46	4.11	2.69	3.02
Maryland.....	1.24	1.27	1.28	1.18	2.46	2.77	2.73	4.11	3.61	3.37
Michigan.....	1.99	1.99	2.05	1.95	3.22	3.83	4.93	4.93	4.87	5.05
Missouri.....	1.73	1.73	1.73	2.25	2.43	3.02	3.91	4.16	3.26	3.81
Montana.....	1.74	1.75	1.74	1.71	2.11	2.52	3.02	3.16	3.90	3.19
New Mexico.....	1.46	1.61	1.44	1.40	2.80	2.68	3.11	3.68	3.91	3.49
North Dakota.....	1.52	1.52	1.45	1.40	1.86	2.96	3.50	2.87	2.65	(b) 2.65
Ohio.....	1.10	1.13	1.05	1.33	2.48	2.58	2.50	2.87	2.65	2.23
Oklahoma.....	2.05	2.06	2.01	2.08	2.48	2.96	3.50	4.80	4.62	3.23
Oregon.....	2.53	2.78	2.84	2.68	3.38	3.84	3.83	4.80	(b)	4.11
Pennsylvania (bituminous).....	1.11	1.07	1.06	1.20	2.44	2.81	3.40	4.40	(b)	3.11
Pennsylvania (anthracite).....	1.14	1.13	1.55	1.80	2.90	3.49	3.77	3.77	2.81	2.84
South Dakota.....	1.73	1.73	1.65	1.28	2.00	2.80	3.49	3.60	3.31	2.89
Tennessee.....	1.14	1.14	1.13	1.28	2.79	2.83	3.77	4.02	2.64	2.32
Texas.....	1.77	1.69	1.65	1.63	2.07	2.61	2.69	3.75	3.36	3.14
Utah.....	1.65	1.39	1.88	1.62	2.77	2.73	2.55	3.60	3.03	2.58
Virginia.....	1.01	1.01	0.95	1.02	2.00	2.51	3.58	3.66	4.03	3.98
Washington.....	2.38	2.20	2.17	2.72	2.68	3.51	3.58	4.34	3.46	2.83
West Virginia.....	1.01	0.99	0.97	1.18	2.32	2.56	2.40	4.34	2.84	2.93
Wyoming.....	1.56	1.55	1.46	1.53	1.93	2.39	2.60	2.86	3.24	3.04
Total (bituminous).....	1.16	1.17	1.13	1.38	2.96	3.58	4.19	4.75	3.99	3.02
Pennsylvania (anthracite).....	2.13	2.07	2.07	2.30	2.85	3.40	4.14	4.85	5.00	5.01
Total.....	1.33	1.33	1.29	1.47	2.35	2.70	2.75	3.90	3.26	3.35

a Includes Oregon.

b Included with California, Idaho, and Nevada.

COAL-MINE FATALITIES IN THE UNITED STATES.

TABLE 61.—United States: Percentage of bituminous coal mined by machines during the years ended December 31, 1913 to 1922.^a

State.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922
Alabama	23.3	31.7	35.4	32.1	30.1	31.0	33.1	34.7	39.9	39.7
Alaska	11.2	19.1	23.7	11.2	7.2	10.9	7.9	3.2	13.0	15.5
Arkansas	25.0	30.6	30.5	31.9	32.7	36.9	40.3	43.8	45.8	50.4
California, Idaho, and Nevada	53.0	56.7	61.2	61.7	56.3	56.6	59.0	61.9	65.5	66.6
Colorado	56.7	56.2	58.4	56.6	54.1	49.0	51.7	48.7	52.8	49.8
Illinois	1.6	4.1	5.5	8.8	11.4	10.7	11.7	20.7	15.4	13.6
Indiana	1.3	6.6	6.6	6.6	5.5	7.7	1.0	1.1	1.0	3.2
Iowa	73.2	77.2	81.8	84.4	83.6	78.5	79.8	77.6	83.9	79.1
Kansas	1.7	2.7	5.4	5.0	6.1	6.7	10.3	11.2	10.2	24.8
Kentucky	70.0	77.8	84.2	88.5	87.3	86.8	94.7	93.5	95.6	96.1
Maryland	20.0	19.0	22.6	20.0	19.9	22.0	22.3	26.0	29.9	29.8
Michigan	33.2	43.3	55.0	55.7	49.0	50.0	44.2	47.5	40.5	55.8
Montana	13.4	16.0	16.9	13.5	26.3	30.7	30.5	34.1	30.3	31.3
New Mexico	44.9	41.1	38.6	34.4	38.0	47.9	38.6	37.7	39.0	33.3
North Dakota	90.2	85.7	89.2	91.1	87.9	84.8	87.1	83.3	91.6	80.5
Ohio	16.1	26.4	30.4	34.8	36.6	39.5	47.3	48.4	56.8	49.9
Oklahoma	53.2	53.8	55.6	55.4	55.4	55.0	57.3	57.9	63.6	58.0
Oregon	26.7	23.2	26.3	24.7	22.6	22.7	30.6	25.6	27.8	29.5
Pennsylvania	4.2	1.2	1.6	1.0	1.1	1.1	6.6	2.0	4.6	4.3
South Dakota	19.2	30.4	49.6	57.5	54.8	53.9	68.8	58.7	75.1	76.5
Texas	47.6	51.4	63.2	61.9	63.9	62.2	67.7	69.9	77.9	71.9
Utah	7.2	10.7	12.8	9.1	5.8	6.1	9.1	10.5	5.4	12.8
Virginia	55.3	58.9	60.0	62.9	64.8	67.5	70.3	73.2	77.2	76.7
Washington	41.3	42.2	44.6	44.0	41.9	47.3	55.2	54.4	51.8	57.8
West Virginia										
Wyoming										
Total	50.7	51.7	55.0	56.4	55.5	55.9	59.2	59.8	65.6	63.2

^a Compiled from Mineral resources, U. S. Geological Survey

TABLE 62.—United States: Number of men killed per 1,000 300-day workers employed in mineral industries.

	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922
Coal mines.....	4.46	4.70	4.66	4.44	3.93	4.25	3.94	4.27	3.78	4.19	4.89
All metal mines.....	4.09	3.72	3.92	3.89	3.62	4.44	3.57	3.47	3.16	3.09	3.54
Copper mines.....	4.53	4.08	3.85	3.72	3.64	5.88	3.45	3.54	3.43	3.70	3.00
Gold and miscellaneous metal mines.....	3.96	3.83	4.06	4.79	4.05	4.03	4.27	4.41	4.20	3.29	5.35
Iron mines.....	3.28	3.29	3.78	2.88	3.41	3.54	3.45	3.09	2.34	3.04	3.00
Lead and zinc mines (Mississippi Valley).....	1.66	3.90	4.32	5.37	3.14	4.09	3.58	4.13	3.27	2.58	2.64
Nonmetallic mineral mines.....	2.27	2.10	3.72	2.43	3.00	2.48	1.67	1.65	2.89	1.98	2.39
All quarries (including outside work).....	3.48	2.99	2.64	1.80	2.26	1.83	2.11	1.93	2.31	2.00	1.92
Cement-rock quarries.....	1.87	1.47	3.30	2.27	1.86	1.54	2.10	1.81	2.75	1.91	2.27
Granite quarries.....	2.19	2.13	2.38	1.70	2.36	1.79	1.79	1.97	2.06	2.57	1.42
Limestone quarries.....	2.48	1.81	2.72	1.00	1.16	.57	2.14	.51	.92	1.97	1.87
Marble quarries.....	1.16	1.32	1.45	.93	1.28	.99	2.38	.76	.56	1.25	.43
Sandstone and bluestone quarries.....	2.62	2.99	2.02	2.02	2.62	1.31	3.16	1.78	1.49	1.40	1.19
Slate quarries.....	3.08	2.40	2.49	3.46	4.45	2.61	4.47	2.56	2.61	2.88	3.36
Trap-rock quarries.....	.....	.....	.....	2.17	2.32	2.00	2.19	2.29	2.81	2.22	2.31
All quarries (excluding outside works).....	.....	.....	.....	1.65	2.15	1.53	1.98	1.34	1.59	1.68	1.38
All quarries (outside works only).....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Metallurgical plants.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ore-dressing plants.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Smelters.....	.....	.99	1.51	1.57	1.41	1.93	1.55	1.48	1.31	.50	1.09
Auxiliary works.....	.....	1.93	1.02	1.05	.73	1.05	.92	1.09	.73	.73	.77
All coke ovens.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Beehive coke ovens.....	.....	1.97	2.12	1.21	1.32	2.14	2.06	1.92	1.64	1.08	1.21
By-products coke ovens.....	.....	.....	.....	.65	1.29	1.30	1.16	.92	1.09	1.76	1.59
By-products coke ovens.....	.....	.....	.....	1.75	1.35	3.13	2.84	2.55	1.92	1.09	1.57

TABLE 63.—United States: Number of men injured per 1,000 500-day workers employed in mineral industries.

	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922
Coal mines ^a	190.11	179.50	211.87	248.56	250.64	240.97	237.09	233.60	242.02	249.69	268.48
All metal mines.....	258.42	230.80	312.19	322.01	319.58	313.35	322.12	309.60	323.20	317.53	320.78
Copper mines.....	93.04	70.37	126.90	201.49	190.79	172.51	185.18	191.29	204.82	225.46	260.20
Gold and miscellaneous metal mines.....	241.81	268.31	224.07	233.51	240.17	227.54	185.45	202.35	200.49	210.91	177.44
Iron mines.....	158.23	133.51	189.01	238.27	263.09	272.99	319.54	292.28	327.97	379.67	464.23
Lead and zinc mines (Mississippi Valley).....	66.40	84.86	96.75	107.78	144.70	123.58	147.07	136.27	161.88	215.47	247.51
Nonmetallic mineral mines.....	69.82	88.81	114.92	117.30	175.62	185.14	104.60	144.20	145.51	174.54	171.83
All quarries (including outside works).....	139.59	207.99	226.20	148.25	248.83	277.73	238.65	231.58	182.49	213.50	191.08
Cement-rock quarries.....	44.87	63.60	109.21	96.72	143.99	189.73	109.68	124.70	130.53	134.09	147.20
Granite quarries.....	79.98	89.05	114.23	127.43	176.10	175.52	141.34	134.05	143.11	178.51	177.72
Limestone quarries.....	42.35	68.67	121.31	93.80	125.20	100.20	58.02	75.26	91.98	100.87	127.76
Marble quarries.....	45.26	74.36	69.08	66.56	127.86	118.89	148.04	131.96	100.56	156.22	100.63
Sandstone and bluestone quarries.....	15.01	18.81	28.61	33.08	85.00	112.04	96.29	98.51	108.20	135.18	127.40
Slate quarries.....	68.80	87.77	152.56	127.57	237.84	222.92	205.17	186.47	208.89	229.92	258.01
Trap-rock quarries.....											
All quarries (excluding outside works).....				127.57	158.63	162.95	148.29	146.65	139.62	167.09	177.16
All quarries (outside works only).....				96.90	206.06	223.81	145.03	140.28	154.04	185.70	164.76
Metallurgical plants:											
Ore-dressing plants.....											
Smelters.....	122.38	122.38	94.19	109.65	135.66	121.12	139.54	122.21	164.24	151.05	179.51
Auxiliary works.....	174.71	174.71	175.44	157.69	195.61	152.88	148.40	141.46	142.33	111.39	143.71
All coke ovens.....											
Beehive coke ovens.....		107.73	103.06	90.78	153.49	169.33	139.63	101.29	116.19	138.54	120.26
By-product coke ovens.....				30.84	100.37	188.59	219.64	145.66	114.13	133.62	98.77
				140.00	217.09	300.06	296.06	158.33	120.04	137.50	92.15

^a Injury rates not available.

TABLE 64.—*Accident rates in different branches of mineral industries in 1922 compared on a 300-day basis (length of shift not considered).*

Branch of mineral industry.	Average days active	Men employed.		Days of labor performed.	Killed.	Injured.	Number killed or injured per 1,000 300-day workers.	
		Actual number.	Equivalent in 300-day workers (calculated).				Killed.	Injured.
Coal mines.....	144	844,807	405,056	121,516,822	1,979		4.89	
All metal mines.....	276	105,697	97,138	29,141,293	344	26,080	3.54	268.48
Copper mines.....	292	25,739	25,017	7,504,983	75	8,025	3.00	320.78
Gold and miscellaneous metal mines.....	284	27,614	26,144	7,843,280	140	6,805	5.35	260.29
Iron mines.....	257	32,241	27,621	8,286,225	83	4,901	3.00	177.44
Lead and zinc mines (Mississippi Valley).....	278	8,990	8,332	2,499,531	22	3,868	2.64	464.23
Nonmetallic mineral mines.....	271	11,113	10,024	3,007,274	24	2,481	2.39	247.51
All quarries (including outside works).....	261	79,081	68,861	20,658,338	132	11,839	1.92	171.93
Cement-rock quarries.....	312	12,260	12,759	3,827,691	29	2,438	2.27	191.08
Granite quarries.....	236	8,956	7,038	2,111,525	10	1,036	1.42	147.20
Limestone quarries.....	253	39,961	33,728	10,118,317	63	5,994	1.87	177.72
Marble quarries.....	289	4,803	4,626	1,387,908	2	591	.43	127.76
Sandstone and bluestone quarries.....	233	4,305	3,349	1,004,588	4	337	1.19	100.63
Slate quarries.....	266	3,941	3,493	1,048,031	11	445	3.15	127.40
Traprock quarries.....	239	4,855	3,868	1,160,278	13	998	3.36	258.01
All quarries (excluding outside works).....	246	48,527	39,788	11,936,454	92	7,049	2.31	177.16
All quarries (outside works only).....	285	30,554	29,073	8,721,884	40	4,790	1.38	164.76
Metallurgical plants:								
Ore-dressing plants.....	284	11,676	11,052	3,315,471	12	1,984	1.09	179.51
Smelters.....	321	19,495	20,887	6,266,169	16	3,002	.77	143.71
Auxiliary works.....	329	12,829	14,069	4,220,688	17	1,692	1.21	120.26
All coke ovens.....	284	19,278	18,236	5,470,939	29	1,710	1.59	93.77
Beehive coke ovens.....	184	7,871	4,823	1,447,119	8	474	1.66	98.28
By-product coke ovens.....	353	11,407	13,413	4,023,820	21	1,236	1.57	92.15
Total, 1922.....	174	1,092,863	635,299	190,589,710	2,529	46,307	3.98	201.12
Total, 1921.....	189	1,048,036	658,537	197,560,952	2,367	35,416	3.59	192.19

STATE MINE OFFICIALS AND COMPENSATION COMMISSIONS.

JANUARY, 1924.

ALABAMA.

Name.	Designation.	Address.
Charles H. Nesbitt.....	Superintendent of insurance, ex-officio compensation commissioner. Chief mine inspector.....	Montgomery. 421-425 Lincoln Life Bldg., Birmingham.
E. E. Echols.....	Assistant mine inspector, district No. 1.....	Tuscaloosa.
George Park.....	Assistant mine inspector, district No. 2.....	Bloosburg.
James B. Carlin.....	Assistant mine inspector, district No. 3.....	Birmingham.
S. M. Thompson.....	Assistant mine inspector, district No. 4.....	Helena.
W. W. Kieker.....	Assistant mine inspector, district No. 5.....	Ensley.
Eugene A. Smith.....	Assistant mine inspector, district No. 6..... State geologist.....	University of Alabama, Uni- versity.

ALASKA.

B. D. Stewart.....	Supervising mining engineer, U. S. Bureau of Mines.	Anchorage.
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STATE MINE OFFICIALS AND COMPENSATION COMMISSIONS—
Continued.

JANUARY, 1924—Continued.

ARIZONA.

Name.	Designation.	Address.
G. M. Butler.....	Director, State bureau of mines.....	Tucson.
Tom C. Foster.....	State mine inspector.....	Phoenix.
James Malley.....	Deputy mine inspector.....	Bisbee.
J. C. Anglin.....	do.....	Globe.
James E. O'Brien.....	do.....	Mayer.

ARKANSAS.

T. A. Wilson.....	Commissioner, bureau of labor and statistics.....	State Capitol, Little Rock.
Jesse Redyard.....	State mine inspector.....	413-414 First National Bank Bldg, Fort Smith.
George Branner.....	State geologist.....	University of Arkansas, Fayetteville.

CALIFORNIA.

John A. McGilvray.....	Chairman, industrial accident commission.....	State Bldg., Civic Center, San Francisco.
W. P. Ratliff.....	Chief statistician.....	Do.
Edward G. Sheibley.....	Chief engineer and superintendent.....	Do.
G. Chester Brown.....	Engineer, mining division.....	Do.
J. Wesley Gebb.....	Mining engineer.....	Do.
Lloyd L. Root.....	State mineralogist.....	Ferry Bldg, San Francisco.

COLORADO.

William I. Reilly.....	Chairman, industrial commission.....	State Capitol, Denver.
Metal mines.		
John T. Joyce.....	Commissioner, bureau of mines, State of Colorado.	Do.
T. R. Henahan.....	Inspector, district No. 1.....	Do.
M. J. McCarthy.....	Inspector, district No. 2.....	Canon City.
R. J. Murray.....	Inspector, district No. 3.....	Salida.
Robert Innes.....	Inspector, district No. 4.....	Montrose.
Coal mines.		
James Dalrymple.....	Chief inspector of coal mines.....	State Capitol, Denver.
Henry King.....	Deputy inspector.....	Do.
James W. Graham.....	do.....	Lafayette.
W. H. James.....	do.....	Walsenberg.
W. M. Laurie.....	do.....	Trinidad.
Hugo H. Machin.....	do.....	Aguilar.
Russell D. George.....	State geologist.....	University of Colorado, Boulder.

CONNECTICUT.

Frederic M. Williams.....	Chairman, board of compensation commissioners.	Room 4, county courthouse, Waterbury.
Henry H. Robinson.....	Superintendent, State geological and natural history survey.	Yale University, New Haven.

DELAWARE.

Volley M. Murray.....	President, industrial accident board.....	Ford Bldg., Wilmington.
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FLORIDA.

Herman Gunter.....	State geologist, Florida State Geological Survey.	Tallahassee.
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STATE MINE OFFICIALS AND COMPENSATION COMMISSIONS—
Continued.

JANUARY, 1924—Continued.

GEORGIA.

Name.	Designation.	Address.
H. M. Stanley	Chairman, industrial commission	Atlanta.
S. W. McCallie	State geologist, Geological Survey of Georgia ..	Do.

IDAHO.

Lawrence E. Worstell	Chairman, industrial accident board	Boise.
Francis A. Thomson	Secretary, bureau of mines and geology	Moscow.
Stewart Campbell	State mine inspector, mining department	Boise.

ILLINOIS.

Ernest E. Withall	Chairman, industrial commission	303-318 City Hall Square Bldg., Chicago.
Martin Bolt	Director, department of mines and minerals	Springfield.
A. D. Lewis	Assistant director	Do.
S. E. Redpath	Member, State mining board	214 North Eighteenth Street, Springfield.
F. M. Devlin	do	West Frankfort.
M. S. Coleman	do	Harrisburg.
James Needham	do	Chicago.
William Hall	President, miners' examining board	Springfield.
Robert Clem	Member, miners' examining board	Herin.
John Mulligan	Secretary, miners' examining board	Decatur.
Joseph C. Viano	Member, miners' examining board	Coal City.
Patrick Gillen	Mine inspector	1435 South Lincoln Ave., Springfield.
Walter A. Waite	Mine inspector, district No. 1	422 East Erie St., Springvalley.
William E. Kidd	Mine inspector, district No. 2	609 West Armstrong Ave., Peoria.
Thomas P. Back	Mine inspector, district No. 3	321 West Locust St., Canton.
Joseph Haskins	Mine inspector, district No. 4	Do.
John G. Milhouse	Mine inspector, district No. 5	Do.
Henry D. Thompson	Mine inspector, district No. 6	Do.
James R. Richards	Mine inspector, district No. 7	Do.
Frank Rosbottom	Mine inspector, district No. 8	Do.
E. J. Hoey	Mine inspector, district No. 9	Duquoin.
Thomas English	Mine inspector, district No. 10	Christopher.
W. L. Morgan	Mine inspector, district No. 11	Harrisburg.
M. M. Leighton	Mine inspector, district No. 12	Do.
W. L. Morgan	Special mining investigator	Greenville.
M. M. Leighton	Chief, State geological survey	Urbana.

INDIANA.

Mining board.		
William Johnson	President, mining board	Vincennes.
John Templeton	Member, mining board	Terre Haute.
John Hessler	do	Do.
William Mitch	do	Do.
Cairy Littlejohn	Secretary, mining board	Room 412, State Capitol, Indianapolis.
Inspection force.		
Cairy Littlejohn	Chief mine inspector	Room 412, State Capitol, Indianapolis.
S. J. Wilton	Deputy inspector	Carbon.
John Ellison	do	Winslow.
John Stevely	do	Clinton.
Thomas Gillespie	do	Bicknell.
A. C. Dally	do	Knightsville.
Samuel R. Artman	Chairman, Industrial Board of Indiana	431 Statehouse, Indianapolis.
W. N. Logan	State geologist, department of geology and nat- ural resources.	Do.

STATE MINE OFFICIALS AND COMPENSATION COMMISSIONS—
Continued.

JANUARY, 1924—Continued.

IOWA.

Name.	Designation.	Address.
A. B. Funk.....	Industrial commissioner, workmen's compensation service.	Statehouse, Des Moines.
E. M. Gray.....	President, Iowa State Mining Board.....	Des Moines.
W. E. Holland.....	Inspector, district No. 1.....	509 East Clark St., Centerville.
R. T. Rhys.....	Inspector, district No. 2.....	Ottumwa.
Edward Sweeney.....	Inspector, district No. 3.....	Des Moines.
George F. Kay.....	Director, Iowa Geological Survey.....	Iowa City.

KANSAS.

James Sherwood.....	State mine inspector.....	Pittsburg.
William Glennon.....	Deputy State mine inspector.....	Do.
Joe Clark.....	do.....	Girard.
Ernest Shaw.....	do.....	Coal Valley.
Matt Dunn.....	do.....	Burlingame.
Mine rescue department.		
Leon Besson.....	Ex officio superintendent rescue stations.....	Pittsburg.
Robert Morrison.....	Superintendent central rescue station.....	Do.
William Hislop.....	Superintendent Arma rescue station.....	Arma.
Judge J. H. Crawford.....	Court of industrial relations.....	Topeka.
Raymond C. Moore.....	State geologist.....	University of Kansas, Lawrence.

KENTUCKY.

Felix S. Dumas.....	Chairman, workmen's compensation board.....	Frankfort.
L. Blenkinsopp.....	Chief inspector of mines.....	Lexington.
William Roberts.....	Assistant inspector of mines, district No. 1.....	Madisonville.
M. H. Blythe.....	Assistant inspector of mines, district No. 2.....	Central City.
J. H. Sudworth.....	Assistant inspector of mines, district No. 3.....	Lexington.
R. D. Collett.....	Assistant inspector of mines, district No. 4.....	Pineville.
Charles C. Williams.....	Assistant inspector of mines, district No. 5.....	Wallins Creek.
Fred R. Mann.....	Assistant inspector of mines, district No. 6.....	Blackey.
M. L. Wells.....	Assistant inspector of mines, district No. 7.....	Paintsville.
Grant Phillips.....	Assistant inspector of mines, district No. 8.....	Pikeville.
W. R. Jillson.....	State geologist and director, Kentucky Geological Survey.	Frankfort.

MAINE.

Arthur L. Thayer.....	Chairman, industrial accident commission.....	Augusta.
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MARYLAND.

Robert H. Carr.....	Chairman, State industrial accident commission.....	Equitable Bldg., Baltimore.
John J. Rutledge.....	Chief mine engineer, Maryland Bureau of Mines.....	22 Light St., Baltimore.
Frank T. Powers.....	District mine inspector.....	Frostburg.
John B. Watkins.....	do.....	Westernport.
L. C. Hutson.....	Vocational mining instructor.....	Kitzmilller.
State mine examining board.		
G. M. Gillette.....	Representing operators.....	Frostburg.
Lawrence Dunn.....	Representing miners.....	Midland.
J. J. Rutledge.....	Representing State, chairman ex officio.....	Baltimore.

MASSACHUSETTS.

William W. Kennard...	Chairman, industrial accident board.....	Room 272, Statehouse, Boston.
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STATE MINE OFFICIALS AND COMPENSATION COMMISSIONS—
Continued.

JANUARY, 1924—Continued.

MICHIGAN.

Name.	Designation.	Address.
James A. Kennedy.....	Chairman, department of labor and industry.....	517 Cedar St., Lansing.
John Harris.....	Coal-mine inspector.....	Saginaw.
Michael Collins.....	Mine inspector for Gogebic County.....	Ironwood.
John Lion.....	Deputy mine inspector for Gogebic County.....	Do.
Nick Drogula.....	do.....	Do.
John Brinkman.....	Mine inspector for Keweenaw County.....	Ahmeek.
Gust Keikkala.....	Deputy mine inspector for Keweenaw County.....	Mohawk.
Alfred James.....	Mine inspector for Houghton County.....	Laurium.
Harry J. King.....	Deputy mine inspector for Houghton County.....	Do.
Frank Comieski.....	Mine inspector for Iron County.....	Stambaugh.
James H. Yelland.....	Mine inspector for Marquette County.....	Isbeming.
Frank L. Larson.....	Mine inspector for Dickinson County.....	Iron Mountain.
Robert Eva, sr.....	Mine inspector for Ontonagon County.....	Greenland.
John P. Christopher.....	Mine inspector for Baraga County.....	Michigamme.
Richard A. Smith.....	State geologist.....	Lansing.

MINNESOTA.

Henry McColl.....	Chairman, Minnesota industrial commission.....	612 Bremer Arcade, St. Paul.
Frank E. Hoffman.....	Chief, division of workmen's compensation.....	Do.
Ed. Smith.....	Mine inspector for St. Louis County.....	Eveleth.
W. J. Trescott.....	Mine inspector for Itasca County.....	Coleaine.
August Swanson.....	Mine inspector for Crow Wing County.....	Brainerd.
F. A. Wildes.....	Superintendent of State mines.....	1748 Hague Ave., St. Paul.

MISSISSIPPI.

E. N. Lowe.....	Director, Mississippi Geological Survey.....	Jackson.
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MISSOURI.

J. E. Roberts.....	Chief inspector.....	Kirksville.
W. H. Castle.....	Deputy inspector.....	Fulton.
F. G. Fenix.....	do.....	Joplin.
Tolbert Hensen.....	do.....	Perryville.
Evert Richardson.....	do.....	Granby.
H. A. Buehler.....	State geologist.....	Rolla.

MONTANA.

Jerome G. Looker.....	Chairman, State industrial board.....	Helena.
George N. Griffin.....	State coal-mine inspector.....	Do.
William Maxwell.....	State metal-mine inspector.....	Do.
J. P. Rowe.....	State geologist.....	University of Montana, Missoula.

NEBRASKA.

Frank A. Kennedy.....	Secretary of labor and compensation commissioner.....	State Capitol, Lincoln.
E. H. Barbour.....	State geologist.....	University of Nebraska, Lincoln.

NEVADA.

Dan J. Sullivan.....	Chairman, Nevada Industrial Commission.....	Carson City.
A. J. Stinson.....	State mine inspector.....	Do.
Charles Huber.....	Deputy mine inspector.....	Tonopah.
Alex. Baird.....	do.....	Ely.

STATE MINE OFFICIALS AND COMPENSATION COMMISSIONS—
Continued.

JANUARY, 1924—Continued.

NEW JERSEY.

Name.	Designation.	Address.
Andrew F. McBride.....	Deputy commissioner of labor, department of labor.	Statehouse, Trenton.
Augustus Munson.....	State mine inspector.....	P. O. Box 311, Dover.
H. B. Kummel.....	State geologist.....	Trenton.

NEW MEXICO.

W. W. Risdon.....	State inspector of mines.....	709 West Roma Ave., Albuquerque.
R. W. Ellis.....	State geologist.....	Do.

NEW YORK.

Bernard L. Shientag....	State industrial commissioner.....	124 East Twenty-eighth St., New York.
James L. Gernon.....	Director of inspections.....	Do.
E. B. Patton.....	Chief statistician, State industrial commission..	Albany.
W. W. Jones.....	Mine inspector, State industrial commission..	Do.
Robert W. Jones.....	Inspector of mines and tunnels, State industrial commission.	124 East Twenty-eighth St., New York.
Gustav Werner.....	Tunnel inspector, State industrial commission..	Do.
John M. Clarke.....	State geologist.....	University of the State of New York, Albany.

NORTH CAROLINA.

M. L. Shipman.....	Commissioner of labor and printing.....	Raleigh.
Joseph Hyde Pratt.....	State geologist.....	Chapel Hill.

NORTH DAKOTA.

Joseph A. Kitchen.....	Chairman, workmen's compensation bureau.....	Bismarck.
A. G. Leonard.....	State geologist.....	University.
John P. Mellon.....	State mine inspector.....	Bismarck.

OHIO.

T. J. Duffy.....	Chairman, industrial commission.....	Columbus.
H. R. Witter.....	Director, department of industrial relations.....	Do.
Jerome Watson.....	Chief, division of mines.....	Do.
Dan. C. Jones.....	Deputy inspector, district No. 1.....	Coalton.
James Dugan.....	Deputy inspector, district No. 2.....	Logan.
Andrew Ginnan.....	Deputy inspector, district No. 3.....	Jacksonville.
Elmer Sagle.....	Deputy inspector, district No. 4.....	Roseville.
E. W. Smith.....	Deputy inspector, district No. 5.....	Byesville.
Stephen Williams.....	Deputy inspector, district No. 6.....	Coshocton.
George H. Foster.....	Deputy inspector, district No. 7.....	Massillon.
Lot H. Jenkins.....	Deputy inspector, district No. 8.....	Martins Ferry.
Frank P. Corey.....	Deputy inspector, district No. 9.....	Flushing.
T. P. Williams.....	Deputy inspector, district No. 10.....	Belmont.
Andrew Mullen.....	Deputy inspector, district No. 11.....	Adena.
Thos. G. Reese.....	Deputy inspector, district No. 12.....	Salem.
Val E. Brown.....	Deputy inspector, district No. 13.....	Pomeroy.
Isaac Vaughn.....	Deputy inspector, district No. 14.....	Nelsonville.
Thos. A. Richards.....	Deputy inspector, district No. 15.....	Shawnee.
James Forgie.....	Deputy inspector, district No. 16.....	Lore City.
Edward A. Evans.....	Deputy inspector, district No. 17.....	New Philadelphia.
P. W. Moore.....	Inspector, first-aid and mine rescue.....	Columbus.
J. C. Wilson.....	Oil and gas well inspector.....	Do.
J. A. Bownocker.....	State geologist.....	Geological Survey of Ohio, Columbus.

OKLAHOMA.

Harry C. Myers.....	Chairman, industrial commission.....	State Capitol, Oklahoma City.
Ed. Boyle.....	Chief mine inspector (mines, oil, and gas).....	McAlester.
Robt. H. Brown.....	Assistant mine inspector, district No. 1.....	Coalgate.
W. G. Roberts.....	Assistant mine inspector, district No. 2.....	Daw.
John D. Almond.....	Assistant mine inspector, district No. 3.....	Henryetta.
C. E. Decker.....	Custodian, Oklahoma Geological Survey.....	Norman.

STATE MINE OFFICIALS AND COMPENSATION COMMISSIONS—
Continued.

JANUARY, 1924—Continued.

OREGON.

Name.	Designation.	Address.
J. W. Ferguson.....	Chairman, State industrial accident commission.	Salem.
Henry M. Parks.....	Oregon Agricultural College.....	Corvallis.

PENNSYLVANIA.

Royal Meeker.....	Chairman, industrial board.....	Keystone Bldg., Harrisburg.
Paul W. Houck.....	Chairman, workmen's compensation board.....	Do.
Joseph J. Walsh.....	Secretary of mines, department of mines.....	Do.
Frank Hall.....	Deputy secretary of mines, department of mines.....	Do.
Anthracite inspectors.		
.....	Mine inspector, first district.....	.....
P. J. Moore.....	Mine inspector, second district.....	Carbondale.
L. M. Evans.....	Mine inspector, third district.....	Seranton.
Jenkin T. Reese.....	Mine inspector, fourth district.....	Do.
S. J. Phillips.....	Mine inspector, fifth district.....	Do.
David T. Williams.....	Mine inspector, sixth district.....	Do.
Augustus McDade.....	Mine inspector, seventh district.....	263 North Main St., Taylor.
.....	Mine inspector, eighth district.....	.....
Edwin C. Curtis.....	Mine inspector, ninth district.....	Kingston
John B. Corgan.....	Mine inspector, tenth district.....	Do.
T. J. Williams.....	Mine inspector, eleventh district.....	Do.
D. T. Davis.....	Mine inspector, twelfth district.....	Wilkes-Barre.
Frank Kettle.....	Mine inspector, thirteenth district.....	Do.
.....	Mine inspector, fourteenth district.....	.....
David J. Roderick.....	Mine inspector, fifteenth district.....	Hazleton.
J. J. Stieckler.....	Mine inspector, sixteenth district.....	Do.
Isaac M. Davies.....	Mine inspector, seventeenth district.....	Lansford.
E. G. Evans.....	Mine inspector, eighteenth district.....	Coaldale.
M. J. Brennan.....	Mine inspector, nineteenth district.....	Pottsville.
P. C. Fenton.....	Mine inspector, twentieth district.....	Mahanoy City.
A. B. Lamb.....	Mine inspector, twenty-first district.....	Shenandoah.
William Reid.....	Mine inspector, twenty-second district.....	Centralia.
B. I. Evans.....	Mine inspector, twenty-third district.....	Mount Carmel.
P. J. Friel.....	Mine inspector, twenty-fourth district.....	Shamokin.
Charles J. Price.....	Mine inspector, twenty-fifth district.....	Lykens.
Bituminous inspectors.		
Alexander McCanch.....	Mine inspector, first district.....	Monongahela.
C. B. Ross.....	Mine inspector, second district.....	Latrobe.
James D. Walker.....	Mine inspector, third district.....	Butler.
William Langan.....	Mine inspector, fourth district.....	Dubois.
Richard Maize.....	Mine inspector, fifth district.....	Uniontown.
Thomas D. Williams.....	Mine inspector, sixth district.....	Johnstown.
Charles P. McGregor.....	Mine inspector, seventh district.....	Crafton.
Joseph Knapper.....	Mine inspector, eighth district.....	Phillipsburg.
Silas S. Hall.....	Mine inspector, ninth district.....	Connellsville.
Joseph Williams.....	Mine inspector, tenth district.....	Altoona.
J. J. McDonald.....	Mine inspector, eleventh district.....	Greensburg.
T. J. Lewis.....	Mine inspector, twelfth district.....	Punxsutawney.
J. I. Thomas.....	Mine inspector, thirteenth district.....	Johnstown.
David Young.....	Mine inspector, fourteenth district.....	Freeport.
W. B. Wardrop.....	Mine inspector, fifteenth district.....	Barnesboro.
W. H. Howarth.....	Mine inspector, sixteenth district.....	Brownsville.
John I. Pratt.....	Mine inspector, seventeenth district.....	5494 Hays St., Pittsburgh.
Thomas A. Mather.....	Mine inspector, eighteenth district.....	Tyrone.
James J. Stoker.....	Mine inspector, nineteenth district.....	Irwin.
F. W. Cunningham.....	Mine inspector, twentieth district.....	Somerset.
C. P. Byrne.....	Mine inspector, twenty-first district.....	Charleroi.
John F. Bell.....	Mine inspector, twenty-second district.....	Dravesburg.
Edward E. Girod.....	Mine inspector, twenty-third district.....	Masontown.
Nicholas Evans.....	Mine inspector, twenty-fourth district.....	Johnstown.
Thomas S. Lowther.....	Mine inspector, twenty-fifth district.....	Indiana.
P. J. Callaghan.....	Mine inspector, twenty-sixth district.....	Bridgeville.
Harry Phython.....	Mine inspector, twenty-seventh district.....	Belle Vernon.
Thomas H. Thompson.....	Mine inspector, twenty-eighth district.....	Kittanning.
Patrick S. King.....	Mine inspector, twenty-ninth district.....	612 North Canal St., Pitts- burgh.
C. H. Croker.....	Mine inspector, thirtieth district.....	Johnstown.
George H. Ashley.....	State geologist, topographic and geological survey.	Harrisburg.

STATE MINE OFFICIALS AND COMPENSATION COMMISSIONS—
Continued.

JANUARY, 1924—Continued.

RHODE ISLAND.

Name.	Designation.	Address.
Charles W. Brown.....	Superintendent, natural resources survey of Rhode Island.	Providence.

SOUTH CAROLINA.

Stephen Taber.....	Acting State geologist.....	Columbia.
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SOUTH DAKOTA.

Irwin D. Aldrich.....	Ex officio industrial commissioner.....	Sioux Falls.
Otto Ellerman.....	State mine inspector.....	Lead.
Freeman Ward.....	State geologist, State geological and natural history survey.	Vermilion.

TENNESSEE.

A. S. Caldwell.....	Insurance commissioner.....	Nashville.
Harry L. Nelson.....	Compensation commissioner.....	Do.
O. P. Pile.....	Chief mine inspector.....	Do.
W. H. Elliott.....	District mine inspector, eastern division.....	Rockwood.
A. J. Holden.....	District mine inspector, middle division.....	Dayton.
George B. Thom.....	District mine inspector, western division.....	Decherd.
Wilbur A. Nelson.....	State geologist, Tennessee State geological survey.	Nashville.

TEXAS.

J. H. Fowler.....	Chairman, industrial accident board.....	Austin.
N. M. Bullock.....	State mine inspector.....	Rockdale.
J. A. Udden.....	Director, bureau of economic geology and technology.	Austin

UTAH.

O. F. McShane.....	Chairman, industrial commission.....	State Capitol, Salt Lake City
B. W. Dyer.....	Chief mine inspector for the commission.....	Do.
John Crawford.....	Coal mine inspector for the commission.....	Do.
E. A. Hodges.....	Metal mine inspector for the commission.....	Do.
Wm. G. Peterson.....	State geologist, Agricultural College of Utah.....	Logan.

VIRGINIA.

John Hopkins Hall, jr.....	Commissioner, bureau of labor and industrial statistics.	Richmond.
A. G. Lucas.....	State inspector of mines, bureau of labor and industrial statistics.	Do.
William Boncer.....	do.....	Do.
C. G. Kizer.....	Chairman, industrial commission.....	Do.
Thomas L. Watson.....	Director and State geologist, Virginia geological survey.	Charlottesville.

VERMONT

John S. Buttles.....	Commissioner of industries.....	Montpelier.
Geo. H. Perkins.....	State geologist, University of Vermont.....	Burlington.

STATE [MINE OFFICIALS AND COMPENSATION COMMISSIONS—
Continued.

JANUARY, 1924—Continued.

WASHINGTON.

Name.	Designation.	Address.
Edward Clifford.....	Chairman, industrial welfare committee, department of labor and industries.	Olympia.
Wm. R. Reese.....	Chief mine inspector.....	421 Perkins Bldg., Tacoma.
John Parker.....	Deputy mine inspector.....	Do.
Richard Prescott.....	do.....	Roslyn.
Solon Shedd.....	Supervisor of geology.....	Pullman.

WEST VIRGINIA.

Lee Ott.....	Commissioner, State compensation commission.....	Charleston.
R. M. Lambie.....	Chief, department of mines.....	Do.
C. W. Stuart.....	Mine inspector, district No. 1.....	Thomas.
W. H. Sandridge.....	Mine inspector, district No. 2.....	Grafton.
Evan L. Griffiths.....	Mine inspector, district No. 3.....	Clarksburg.
William Moore.....	Mine inspector, district No. 4.....	Morgantown.
W. B. Riggleman.....	Mine inspector, district No. 5.....	Fairmont.
A. E. Lafferty.....	Mine inspector, district No. 6.....	Moundsville.
Thomas Jarrett.....	Mine inspector, district No. 7.....	Weston.
V. E. Sullivan.....	Mine inspector, district No. 8.....	Charleston.
Eli J. Mason.....	Mine inspector, district No. 9.....	Do.
Zach Evans.....	Mine inspector, district No. 10.....	Handley.
J. E. Hamilton.....	Mine inspector, district No. 11.....	Eskdale.
J. A. Porter.....	Mine inspector, district No. 12.....	Gauley Bridge.
Robert R. Fields.....	Mine inspector, district No. 13.....	Hinton.
Robert Lilly.....	Mine inspector, district No. 14.....	Mount Hope.
W. L. McGinnis.....	Mine inspector, district No. 15.....	Beckley.
C. C. Rumburg.....	Mine inspector, district No. 16.....	Matoaka.
Thomas Stockdale.....	Mine inspector, district No. 17.....	Freeman.
W. D. Lee.....	Mine inspector, district No. 18.....	Maitland.
W. H. Prentice.....	Mine inspector, district No. 19.....	Jaeger.
S. T. Lambert.....	Mine inspector, district No. 20.....	Matewan.
J. F. White.....	Mine inspector, district No. 21.....	Logan.
C. E. Foster.....	Mine inspector, district No. 22.....	St. Albans.
C. O. Morris.....	Director mine rescue stations.....	Charleston.
J. D. McCune.....	Inspector sand mines, clay pits, quarries, etc.....	Martinsburg.
I. C. White.....	State geologist, West Virginia geological survey.....	Morgantown.

WISCONSIN.

Fred M. Wilcox.....	Chairman, industrial commission.....	Madison.
R. McA. Keown.....	Engineer, industrial commission.....	Do.
Arthur H. Findelsen.....	Mine inspector, industrial commission.....	Do.
W. O. Hotchkiss.....	Director, geological and natural history survey.....	Do.

WYOMING

J. M. Snyder.....	State treasurer, workmen's compensation department.....	Cheyenne.
Arthur Calverley.....	Assistant deputy and department manager.....	Do.
Pete Patterson.....	Coal-mine inspector, district No. 1.....	Quealy, Rock Springs.
L. A. Norman.....	Coal-mine inspector, district No. 2.....	P. O. Box 396, Sheridan.
A. B. Bartlett.....	State geologist, geological survey of Wyoming.....	Cheyenne.