

GREENSAND

The greensand industry in the United States produced over 4,000 short tons of refined greensand in 1939 with a value of \$285,000 at points of production. Production was reported by four companies with operations in Burlington and Gloucester Counties, New Jersey. All of the output was recovered by open-pit mining methods. Greensand is used chiefly as a water softener.

PRINCIPAL EXPENSES

The industry paid \$67,000 in wages—an average of 46 cents per man-hour worked by wage earners. Salaried employees were paid \$30,000. Supplies and materials consumed during the year cost \$34,000; fuel, \$22,000; and purchased electric energy, \$1,000. These reported principal expenses amounted to \$154,000.

EMPLOYMENT AND WORKING TIME

The number of wage earners employed by the industry averaged 79. The minimum number reported employed in any one month was 68 in February; the maximum was 86 in April and August. In addition, 15 salaried employees were reported for the month of October. Wage earners worked a total of about 146,000 man-hours, averaging 8.1 hours per shift. Operations were active the equivalent of 227 full days during the year, working only one shift per day.

POWER EQUIPMENT

Power equipment in use or available for use at the end of 1939 had an aggregate rating of 709 horsepower—an average of 9 horsepower per wage earner employed. Of the total, 617 horsepower represented the rating of prime movers such as gasoline, Diesel, and steam engines; 92 horsepower, the rating of electric motors driven by purchased energy. About 86 percent of the total horsepower was for driving stationary equipment such as pumps and preparation-plant equipment; the remaining 14 percent was for driving mobile equipment such as power shovels and trucks. Power-loading machines at greensand operations at the end of the year included one steam shovel, one clamshell or orange-peel loader driven by electricity, and one electrically driven portable conveyor.

The industry consumed 385,000 kilowatt-hours of electricity. Of this amount, 94 percent was generated by the reporting companies for their own use and the remaining 6 percent was purchased. The consumption of bituminous coal was 3,738 tons; fuel oils, 2,922 barrels; and gasoline and kerosene, 1,000 gallons.

OTHER STATISTICS

For distribution of greensand operations by value of products, number of wage earners, number of days active, number of hours per wage earner in the full-time workweek, and by type of ownership, see General Summary tables 8, 15, 17, 18, and 26, respectively.

TABLE 1.—PRINCIPAL STATISTICS FOR THE GREENSAND INDUSTRY IN THE UNITED STATES: 1939¹

Number of operating companies-----	4	Total number of man-shifts worked by wage earners-----	18,168
Number of mines-----	3	Total number of man-hours worked by wage earners-----	146,320
Number of preparation plants-----	4	Average number of hours worked per shift-----	8.1
Number of persons engaged, total-----	96	Average hourly earning of wage earners-----	\$0.46
Wage earners (average for the year)-----	79	Tons of greensand produced per man-hour-----	0.028
Salaried employees-----	15	Average number of equivalent full days operations were active-----	227
Proprietors and firm members-----	2		
Performing manual labor-----	1	Horsepower rating of power equipment, total-----	709
Production of greensand (tons of 2,000 pounds) ² -----	4,054	Per wage earner-----	9.0
Value of all products ³ -----	\$285,230	Stationary equipment ⁶ -----	609
Principal expenses designated below, total ⁴ -----	\$153,644	Mobile equipment ⁷ -----	100
Wages-----	\$67,408		
Salaries-----	\$29,613	Electric energy consumed (thousands of kw.-hrs.), total-----	385
Supplies and materials-----	\$34,042	Purchased-----	25
Fuel-----	\$21,523	Generated by reporting companies-----	360
Purchased electric energy-----	\$1,058		

¹ The industry, as defined for census purposes, includes mines producing crude greensand and associated preparation plants engaged in such activities as the washing and treating of the crude greensand and the production of refined greensand. Statistics cover only those producing operations (mines, plants, or mines and plants operated together) for which the value of products, reported principal expenses, or cost of buildings, machinery, and equipment during the year amounted to at least \$2,500. No nonproducing operations were reported.

² All were located in New Jersey.

³ Refined greensand produced during the year.

⁴ Represents the value of crude greensand mined and the value added by preparation processes during the year. No secondary products or receipts for work done for other concerns were reported.

⁵ No expenditures for contract work were reported.

⁶ Aggregate horsepower rating of engines and motors for driving stationary or fixed equipment such as pumps, preparation-plant equipment, etc.

⁷ Aggregate horsepower rating of engines and motors for driving mobile equipment such as power shovels, trucks, etc.

TABLE 2.—NUMBER OF WAGE EARNERS IN THE GREENSAND INDUSTRY IN THE UNITED STATES, BY MONTH: 1939¹

MONTH	Number	MONTH	Number	MONTH	Number
Average-----	79	April-----	86	September-----	76
January-----	70	May-----	83	October-----	78
February-----	68	June-----	85	November-----	80
March-----	76	July-----	80	December-----	78
		August-----	86		

¹ For definition of the industry see table 1, footnote 1.TABLE 3.—EMPLOYMENT AND WORKING TIME IN THE GREENSAND INDUSTRY IN THE UNITED STATES, BY DEPARTMENT: 1939¹

Average number of wage earners on active days, total-----	80	Number of man-shifts worked by wage earners, total ³ -----	18,163
At mines, total ² -----	17	At mines, total ² -----	2,726
Open-pit-----	13	Open-pit-----	2,270
Surface shops and yards-----	4	Surface shops and yards-----	456
At preparation plants-----	63	At preparation plants-----	15,437
Average number of equivalent full days operations were active-----	227	Number of man-hours worked by wage earners, total ³ -----	146,320
At mines ² -----	160	At mines, total ² -----	22,570
Open-pit-----	175	Open-pit-----	18,922
Surface shops and yards-----	114	Surface shops and yards-----	5,648
At preparation plants-----	245	At preparation plants-----	123,750

¹ For definition of the industry see table 1, footnote 1.² No underground operations were reported.³ No employment was reported for inactive days.TABLE 4.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE GREENSAND INDUSTRY IN THE UNITED STATES BY TYPE: 1939¹

TYPE OF EQUIPMENT	PRIME MOVERS AND ELECTRIC MOTORS DRIVEN BY PURCHASED ENERGY										ELECTRIC MOTORS DRIVEN BY ENERGY GENERATED BY REPORTING COMPANIES		
	Aggregate horsepower	Prime movers								Electric motors driven by purchased energy		Number	Horsepower
		Total		Driving generators		Not driving generators		Ordinarily idle (included in preceding columns)		Number	Horsepower		
		Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower				
United States, total-----	709	9	617	3	285	6	352	1	10	18	92	87	403
Stationary-----	609	6	517	3	265	3	252	1	10	18	92	80	373
Mobile-----	100	3	100			3	100					7	30

¹ For definition of the industry see table 1, footnote 1.

GYPSUM

The gypsum-mining industry in the United States produced 3,302,208 short tons of crude gypsum in 1939. The total value of the industry's products was \$4,569,000, of which \$4,102,000 represented the mine value of crude gypsum (rock gypsum and gypsite) mined; the remainder represented the value added by crushing or grinding activities conducted at the mines.

Most of the gypsum produced is calcined and sold to the building industries for use in such forms as plasters, Keene's cement, lath, wallboard, and tile. Calcined gypsum is also used for molds in plate-glass and terra-cotta works and in the manufacture of pottery, surgical and dental plasters, and statuary products. Uncalcined gypsum is used principally as a retarder in the manufacture of portland cement, and some is used as a fertilizer material and as a filler in paint, paper, and cloth.

The gypsum-mining industry paid \$1,640,000 in wages, representing an average of 67 cents per man-hour worked by wage earners. Salaried employees were paid \$217,000. Supplies and materials consumed during the year cost \$824,000; purchased electric energy, \$146,000; fuel, \$37,000; and work done on contract by other concerns, \$6,000. Buildings, machinery, and equipment costing \$304,000 were erected or installed during the year. The number of wage earners employed by the industry averaged 1,327, varying from a minimum of 1,214 in February to a maximum of 1,394 in September. In addition, 97 salaried employees were reported for the month of October. The wage earners worked a total of 2,466,000 man-hours, working an average of 7.9 hours per shift. The average number of equivalent full days operations were active was 228 for the industry as a whole. Nearly all mines worked only one shift per day; three mines reported operating two shifts per day during some part of 1939.

Crude gypsum was produced in 1939 at 59 mines located in 15 States and operated by 34 companies; mines in New York, Michigan, and Iowa accounted for over one-half of the total production. Of the total output, 56 percent came from 30 underground mines (including 1 combination underground and open-cut mine using underground mining methods predominantly). The remaining 44 percent came from 29 open-cut mines (including 3 combination open-cut and underground mines at which open-cut mining methods predominated). The quantity of gypsum crushed and ground at mines in 1939 was 1,266,000 tons valued at \$1,850,000, an average of \$1.46 per ton. These figures for crushed and ground gypsum represent only that prepared at or near the mines in plants operated in conjunction with the mines; hence, they exclude statistics for a large quantity of gypsum crushed and ground in connection with calcining or other gypsum-manufacturing processes which are not covered by this report.

The average output of crude gypsum per man-hour worked by wage earners was 1.43 tons for the industry as a whole. Average output per man-hour at open-cut mines was 2.36 tons compared with 1.09 tons at underground mines. A comparison of these figures with similar figures for previous years as

reported by the United States Bureau of Mines and WPA National Research Project² indicates that output per man in 1939 for the industry as a whole was almost one-third greater than in 1929 and almost 2-1/2 times that in 1919. Output per man has increased more rapidly at open-cut mines, where the average output per man in 1939 was almost 1-1/2 times that in 1929 and over 3-1/2 times that in 1919. At underground mines, output per man in 1939 was one-fourth greater than in 1929 and about twice that in 1919.

This report includes statistics for the production of gypsite, a soft earthy form of gypsum occurring in easily mined surface deposits. Gypsite represented less than 5 percent of the total quantity of gypsum produced; it was produced at five mines (Texas, 4; Wyoming, 1), including one combination open-cut and underground mine employing open-cut methods predominantly; two of these five mines also produced rock gypsum. At the three mines that produced only gypsite, the average output per man-hour was 4.82 tons, or more than twice that for all open-cut mines.

Power equipment in use or available for use by the industry at the end of 1939 had an aggregate rating of 28,538 horsepower compared with 26,498 in 1929. The available horsepower per wage earner was 21-1/2 in 1939. About two-thirds of the total horsepower represented the rating of power units used for driving stationary or fixed equipment such as mine hoists, electric generators, and crushing and grinding equipment; the remainder represented mobile equipment such as dragline excavators, power shovels, tractors, and trucks. The industry consumed 13,712,000 kilowatt-hours of electricity in 1939, of which 86 percent was purchased and the remainder generated by the reporting companies. Electric motors driven by purchased energy had an aggregate rating of 21,175 horsepower; the horsepower rating of electric motors driven by energy generated by the reporting companies was 2,286.

At the end of the year surface operations had 24 power shovels, 13 driven by electric motors, 10 by internal-combustion engines, and 1 by steam. In addition, they had 11 dragline excavators, 4 driven by electric motors and 7 by internal-combustion engines. Surface operations were also reported equipped with 6 tractor-drawn scrapers or bulldozers, 1 scraper operated by a gasoline-engine hoist, and 4 clamshell or orange-peel loaders. Underground mines were equipped with 8 scrapers pulled by electric or compressed-air hoists and 2 shovel loaders.

The gypsum-mining industry, as constituted for the purpose of the 1939 and 1929 censuses, includes mines engaged in producing crude gypsum and includes gypsum crushing and grinding plants only when located at or near the mines and operated in conjunction with them. Statistics for 1939 and 1929 exclude the manufacture of calcined gypsum and other gypsum products. Statistics for 1939 also exclude data for the production of a relatively small quantity of byproduct gypsum such as that obtained from the waste of chemical plants.

¹ For method used in computing output per man-hour see table 2, footnote 10.

² See Robinson Newcomb and Knute Peterson, *Production, Employment, and Output Per Man in Gypsum Mining* (U. S. Dept. Int., Bur. Mines in cooperation with WPA National Research Project, Bur. Mines Inf. Cir. No. 7134, Sept. 1940), pp. 4-5.

TABLE 1.—PRINCIPAL STATISTICS FOR THE GYPSUM INDUSTRY IN THE UNITED STATES: 1939, 1929, 1919, 1909, 1902, AND 1889¹

(For producing operations only)

ITEM	1939	1929	1919	1909	1902	1889
Number of operating companies ² -----	34	(³)	(³)	78	45	(³)
Number of mines-----	59	63	48	222	62	(³)
Production of crude gypsum (tons of 2,000 pounds)-----	3,302,208	5,151,876	*2,420,163	*2,252,785	816,478	267,769
Value of products, total ⁵ -----	\$4,568,925	\$5,740,188	\$6,805,940	\$5,812,810	\$2,089,341	\$764,118
Gypsum produced-----	\$4,568,925	\$5,740,188	\$6,805,940	(⁴)	\$2,089,341	\$764,118
Other products and services rendered-----				(³)	(³)	(³)
Number of persons engaged, total-----	1,431	2,214	2,477	3,899	*1,721	*761
Wage earners (average for the year, including inactive periods)-----	1,327	2,078	2,191	3,462	71,472	*715
Salaried employees-----	97	134	232	431	245	*46
Proprietors and firm members-----	7	2	4	6	(³)	(³)
Performing manual labor-----		(³)	3	4	(³)	(³)
Principal expenses designated below, total-----	\$2,670,756	\$4,157,610	\$5,228,346	\$3,949,441	*\$1,401,844	*\$388,085
Wages-----	\$1,640,291	\$2,627,733	\$2,478,391	\$1,820,877	\$759,258	\$249,200
Salaries-----	\$217,281	\$306,659	\$355,450	\$551,889	\$300,420	
Supplies and materials-----	\$824,006	\$794,733	\$1,530,338	\$986,658		
Fuel-----	\$36,669	\$136,504	\$316,148	\$573,459	\$341,760	\$128,854
Purchased electric energy-----	\$146,335	\$284,977	\$144,272	\$16,558	\$406	\$10,081
Contract work-----	\$6,174	\$7,004	\$3,747	(³)	(³)	(³)
Cost of machinery and equipment erected or installed during year-----	\$276,580	\$577,546	(³)	(³)	(³)	(³)
Horsepower rating of prime movers and electric motors driven by purchased energy, total-----	28,538	26,498	15,032	17,685	7,319	2,045
Per wage earner-----	21.5	12.8	6.9	5.1	5.0	2.9
Prime movers-----	7,363	5,348	7,038	15,025	7,319	2,045
Electric motors driven by purchased energy-----	21,175	7,994	7,994	2,550		(³)
Horsepower rating of electric motors driven by energy generated by reporting companies-----	2,286	1,939	1,447	1,333	68	(³)
Fuels consumed:-----		698		(³)	(³)	(³)
Anthracite (tons of 2,000 pounds)-----	8	13,085	76,086	(³)	(³)	(³)
Bituminous coal (tons of 2,000 pounds)-----	5,071	18,375	62,893	(³)	(³)	(³)
Fuel oils (barrels of 42 gallons)-----	194,828	266,641	73,584	(³)	(³)	(³)
Gasoline and kerosene (gallons)-----	4,383	5,033		(³)	(³)	(³)
Natural gas (thousands of cubic feet)-----						
Electric energy consumed (thousands of kw.-hrs.), total-----	13,712	24,517	(³)	(³)	(³)	(³)
Purchased-----	11,781	19,265	(³)	(³)	(³)	(³)
Generated by reporting companies-----	1,931	5,252	(³)	(³)	(³)	(³)

¹Figures for 1939 and 1929 cover the production of crude gypsum, including crushing and grinding activities conducted at the mine but excluding all calcining activities; those for 1919, 1909, 1902, and 1889 include calcining activities carried on by gypsum-mining operations. Figures for 1939 cover those operations whose total value of products; designated principal expenses; or cost of buildings, machinery, and equipment erected or installed during the year amounted to \$2,500 or more. Figures for 1929 cover only those producing operations at which the reported value of products or cost of development work amounted to at least \$2,500; the corresponding minimum for 1919 was \$500 for value of products and \$5,000 for cost of development work. No minimum was placed on the size of operations included for 1909, 1902, and 1889. The 8 small mines (located in California, Colorado, Texas, and Wyoming) that were thus excluded from the statistics in this table for 1939 and 1 clay-mining operation (located in Iowa) that produced gypsum as a byproduct, for which statistics are also excluded from this table, produced 11,609 tons of gypsum valued at \$11,472. No nonproducing operations were reported for 1939.

²For 1939 and 1909, companies that submitted more than 1 report are counted only once in the totals.

³Not available.

⁴As reported by the United States Geological Survey.

⁵Figure for 1939 includes \$4,102,485 which represents the value at the mines of the 3,302,208 short tons of crude gypsum mined in 1939 and \$466,440 which represents the value added by crushing and grinding processes at the mines in 1939 in the production of 1,266,211 tons of crushed and ground gypsum, valued at \$1,849,681 at the mines.

⁶Excludes statistics for items for which information was not available as indicated by footnotes.

⁷On schedules for the 1902 census, concerns were instructed that "The average number employed during the year is the number that would be required, at continuous employment for the twelve months, to produce the quantity of product reported." "In editing the schedules ... the figures for the average number of employees were reduced to a 300-day basis wherever the schedule showed them to be the average number for a shorter period; when it was evident that the employees had worked more than 300 days, the average number for the longer period was allowed to stand."

⁸The 1889 census schedules called for "average number employed," presumably an average for active periods; and requested that figures for wage earners "include those employed by contractors and subcontractors."

⁹Represents foremen only.

¹⁰For 1919 and 1909 statistics include amounts paid for purchased power other than electric. Statistics for cost of purchased power for 1902 and 1889 were not explicitly requested but probably are included in part in the figures reported for supplies and materials.

¹¹Represents horsepower of steam boilers.

MINERAL INDUSTRIES

TABLE 2.—PRINCIPAL STATISTICS FOR THE GYPSUM INDUSTRY IN THE UNITED STATES, BY STATE: 1939¹

ITEM	United States	California	Iowa	Michigan	Nevada	New York	Oklahoma	Texas	Utah	Virginia	Other States ²
Number of operating companies ³	34	5	9	5	4	8	3	6	4	3	6
Number of mines	59	6	8	5	4	9	3	8	4	2	10
Number of preparation plants	25	1	5	3	1	5	2	2	1	1	4
Number of persons engaged, total	41,431	113	158	142	75	366	71	102	41	148	214
Wage earners (average for the year)	1,327	101	142	129	71	350	67	91	36	138	202
Salaried employees	497	9	15	13	4	16	4	9	4	10	12
Proprietors and firm members ⁵	7	3	1					2	1		
Production of crude gypsum (tons of 2,000 pounds), total	3,302,208	225,856	428,664	643,177	205,582	709,040	180,964	323,158	58,146	164,086	383,535
From underground mines ⁶	1,855,195	(7)	(7)	(7)		709,040		(7)	(7)	164,086	348,678
From open-cut mines ⁶	1,447,013	(7)	(7)	(7)	205,582		180,964	(7)	(7)		34,859
Value of all products	\$44,568,925	\$358,624	\$597,892	\$715,352	\$403,094	\$1,128,945	\$206,481	\$283,729	\$74,086	\$282,323	\$520,399
Principal expenses designated below, total	\$2,670,758	\$233,916	\$270,611	\$312,827	\$210,335	\$779,301	\$105,798	\$140,774	\$50,126	\$211,598	\$348,870
Wages	\$1,640,291	\$109,151	\$174,053	\$169,363	\$99,415	\$541,542	\$65,058	\$76,818	\$29,128	\$129,459	\$246,306
Salaries	\$217,281	\$24,095	\$32,372	\$33,757	\$10,250	\$38,680	\$7,759	\$13,148	\$10,220	\$11,976	\$28,424
Supplies and materials	\$624,006	\$86,646	\$49,947	\$74,735	\$89,161	\$158,951	\$29,922	\$32,749	\$8,266	\$49,729	\$63,920
Fuel	\$56,669	\$10,372	\$850	\$3,163	\$10,873	\$265	\$2,181	\$5,596	\$2,512		\$763
Purchased electric energy	\$146,335	\$5,852	\$13,348	\$31,809	\$431	\$59,883		\$12,463		\$17,481	\$7,268
Contract work	\$6,174		\$41		\$205		\$880			\$2,859	\$2,189
Cost of buildings, machinery, and equipment erected or installed during year	\$305,870	\$33,342	\$32,097	\$36,472	\$37,698	\$12,246	\$2,771	\$25,642	\$7,382	\$31,881	\$84,339
Buildings	\$27,340	\$450	\$7,000		\$4,046	\$4,072	\$2,771		\$6,268	\$1,500	\$1,233
Machinery and equipment, total	\$276,530	\$32,892	\$25,097	\$36,472	\$33,652	\$8,174		\$25,642	\$1,114	\$30,381	\$83,106
Purchased in new condition	\$254,338	\$27,646	\$23,021	\$36,472	\$20,054	\$7,659		\$25,642	\$449	\$30,381	\$83,014
Purchased in used condition	\$22,192	\$5,246	\$2,076		\$13,598	\$515			\$665		\$92
Total number of man-shifts worked by wage earners	311,190	21,666	33,404	31,133	18,644	85,203	15,808	17,627	7,952	32,520	47,233
Total number of man-hours worked by wage earners	2,465,664	165,192	287,226	249,196	146,090	681,615	126,455	143,895	63,615	258,935	363,445
Average number of hours worked per shift	7.9	7.6	8.0	8.0	7.8	8.0	8.0	8.2	8.0	8.0	7.7
Average hourly earning of wage earners	\$0.67	\$0.68	\$0.65	\$0.68	\$0.68	\$0.79	\$0.51	\$0.53	\$0.46	\$0.50	\$0.68
Tons of crude gypsum mined per man-hour, all mines ¹⁰	1.43	1.37	1.79	2.79	1.43	1.11	1.33	2.47	0.94	0.70	1.10
At underground mines ¹⁰	1.09	(7)	(7)	(7)		1.11		(7)	(7)	0.70	1.10
At open-cut mines ¹⁰	2.36	(7)	(7)	(7)	1.43		1.33	(7)	(7)		1.12
Average number of equivalent full days operations were active, all mines	228	245	203	224	278	236	224	180	234	224	236
Underground mines	229	257	206	212		236		176	203	224	240
Open-cut mines	224	216	175	243	278		224	180	245		191
Horsepower rating of power equipment, total	28,538	1,394	3,683	4,545	3,197	8,920	540	2,064	440	2,978	979
Per wage earner	21.5	13.8	25.9	33.7	45.0	25.5	8.1	22.7	12.2	21.6	4.8
Stationary equipment	18,765	448	1,598	2,005	2,618	7,385	265	854	205	2,926	461
Mobile equipment	9,773	946	2,085	2,340	579	1,535	275	1,210	235	50	518
Electric energy consumed (thousands of kw.-hrs.), total	13,712	483	1,299	2,334	437	5,399	3	600	11	1,386	1,760
Purchased	11,781	169	1,296	2,334	14	5,399		600		1,386	583
Generated by reporting companies	1,931	314	3		423		3		11		1,177

¹For definition of the industry see table 1, footnote 1.²Colorado, 2 mines and 1 plant; Kansas, 2 mines and 2 plants; Montana, 2 mines and 1 plant; Ohio, 2 mines; South Dakota, 1 mine; and Wyoming, 1 mine.³Companies with operations in more than 1 State are counted only once in the totals.⁴Includes statistics for central-office employees in Illinois.⁵No proprietors or firm members were reported performing manual labor.⁶Represents crude gypsum mined at 29 underground mines and 1 combination underground and open-cut mine whose output was principally from underground.⁷Not shown separately.⁸Represents crude gypsum mined at 26 open-cut mines and 3 combination open-cut and underground mines whose output was principally from open cuts.⁹Includes \$4,102,485 which represents the value at the mines of the 3,302,208 short tons of crude gypsum mined and \$455,440 representing the value added by crushing and grinding processes at the mines in the production of 1,266,211 tons of crushed and ground gypsum, valued at \$1,849,681 at the mines. No secondary products or services performed for others were reported.¹⁰Computed by dividing the number of tons of crude gypsum mined by the number of man-hours worked by wage earners in mining only. Of the total number of man-hours worked by wage earners, approximately 94 percent were expended in mining and 6 percent in preparation activities such as crushing and grinding.

TABLE 3.—PRINCIPAL STATISTICS FOR THE GYPSUM INDUSTRY IN THE UNITED STATES, BY TYPE OF OPERATION: 1939¹

ITEM	United States, total	Under-ground mines ²	Open-cut mines ³	ITEM	United States, total	Under-ground mines ²	Open-cut mines ³
Number of mines-----	59	30	29	Total number of man-shifts worked by wage earners-----	311,190	229,910	81,280
Number of preparation plants-----	25	16	9	Total number of man-hours worked by wage earners-----	2,465,664	1,817,023	648,641
Number of persons engaged, total-----	41,431	1,042	382	Average number of hours worked per shift-----	7.9	7.9	8.0
Wage earners (average for the year)-----	1,327	980	347	Average hourly earning of wage earners-----	\$0.67	0.69	0.59
Salaried employees-----	497	61	29				
Proprietors and firm members-----	7	1	6				
Production of crude gypsum (tons of 2,000 pounds), total-----	3,302,208	1,855,195	1,447,013	Tons of crude gypsum mined per man-hour, all mines ⁴ -----	1.43	1.09	2.36
From underground mines-----	1,855,195	1,855,195	-----	At underground mines-----	1.09	1.09	-----
From open-cut mines-----	1,447,013	-----	1,447,013	At open-cut mines-----	2.36	-----	2.36
Value of all products-----	\$4,568,925	\$2,771,901	\$1,797,024	Average number of equivalent full days operations were active, all mines-----	228	229	224
Principal expenses designated below, total-----	\$2,670,756	\$1,380,420	\$771,234	Underground mines-----	229	229	-----
Wages-----	\$1,640,291	\$1,258,898	\$381,393	Open-cut mines-----	224	-----	224
Salaries-----	\$217,281	\$140,338	\$57,846				
Supplies and materials-----	\$624,006	\$366,032	\$257,974	Horsepower rating of power equipment, total-----	28,538	16,272	12,266
Fuel-----	\$36,669	\$6,459	\$30,210	Per wage earner-----	21.5	15.6	35.3
Purchased electric energy-----	\$146,335	\$105,798	\$40,537	Stationary equipment-----	18,765	13,208	5,557
Contract work-----	\$6,174	\$2,900	\$3,274	Mobile equipment-----	9,773	3,064	6,709
Cost of buildings, machinery, and equipment erected or installed during year-----	\$303,870	\$192,321	\$111,549	Electric energy consumed (thousands of kw.-hrs.), total-----	13,712	10,515	3,197
Buildings-----	\$27,340	\$14,105	\$13,235	Purchased-----	11,781	9,059	2,722
Machinery and equipment, total-----	\$276,530	\$178,216	\$98,314	Generated by reporting companies-----	1,931	1,456	475
Purchased in new condition-----	\$254,338	\$172,287	\$82,051				
Purchased in used condition-----	\$22,192	\$6,929	\$16,263				

¹ For definition of the industry see table 1, footnote 1.² Includes statistics for 1 combination underground and open-cut mine using underground mining methods predominantly.³ Includes statistics for 3 combination open-cut and underground mines using open-cut mining methods predominantly.⁴ Includes statistics for 7 employees paid \$19,102 at central offices reported separately from their associated gypsum operations.⁵ Computed by dividing the number of tons of crude gypsum mined by the number of man-hours worked by wage earners in mining on active and inactive days.TABLE 4.—NUMBER OF WAGE EARNERS IN THE GYPSUM INDUSTRY IN THE UNITED STATES, BY MINING METHOD, BY STATE, AND BY MONTH: 1939¹

MINING METHOD AND STATE	Average for the 12 months	NUMBER RECEIVING PAY DURING PAY-ROLL PERIOD ENDING NEAREST THE 15TH OF THE MONTH											
		January	February	March	April	May	June	July	August	September	October	November	December
United States, total-----	1,327	1,226	1,214	1,243	1,325	1,373	1,324	1,368	1,377	1,394	1,390	1,360	1,330
MINING METHOD													
Underground ² -----	980	942	915	944	1,004	1,023	983	994	1,004	999	992	990	957
Open-cut ³ -----	347	284	299	299	321	350	341	374	373	395	398	370	363
STATE													
California-----	101	100	104	113	114	100	97	95	96	106	95	96	98
Iowa-----	142	120	105	117	138	156	151	151	156	154	154	154	154
Michigan-----	189	109	113	111	118	121	117	138	144	144	148	147	143
Nevada-----	71	52	64	66	59	71	70	75	84	79	80	74	74
New York-----	350	331	320	329	344	350	357	358	366	366	363	362	348
Oklahoma-----	67	59	61	61	66	68	69	70	71	71	70	69	67
Texas-----	91	75	72	70	87	98	87	110	92	108	112	92	93
Utah-----	36	34	34	34	39	39	38	34	34	36	36	36	36
Virginia-----	138	162	157	159	161	161	122	122	125	122	122	123	122
Other States-----	202	184	184	183	204	209	216	214	209	208	209	207	195

¹ For definition of the industry see table 1, footnote 1.² Includes statistics for 1 combination underground and open-cut mine using underground mining methods predominantly.³ Includes statistics for 3 combination open-cut and underground mines using open-cut mining methods predominantly.

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TABLE 5.—EMPLOYMENT AND WORKING TIME IN THE GYPSUM INDUSTRY IN THE UNITED STATES, BY DEPARTMENT AND BY STATE: 1939¹

DEPARTMENT	United States	California	Iowa	Michigan	Nevada	New York	Oklahoma	Texas	Utah	Virginia	Other States
Average number of wage earners on active days, total—	1,532	88	158	134	67	347	70	93	34	143	198
At mines, total—	1,246	87	144	125	66	325	67	81	33	129	189
Underground—	879	51	127	75	10	513	4	16	8	114	161
Open-pit—	290	26	12	45	42	—	62	59	24	—	20
Surface shops and yards—	77	10	5	5	14	12	1	6	1	15	8
At preparation plants—	86	1	14	9	1	22	3	12	1	14	9
Average number of equivalent full days operations were active—	228	245	203	224	278	236	224	180	234	224	236
At mines—	229	247	201	226	278	238	223	186	234	225	236
Underground—	229	254	205	212	306	237	144	185	199	226	240
Open-pit—	228	231	172	251	276	—	227	193	246	—	193
Surface shops and yards—	233	257	182	233	261	250	284	120	240	217	265
At preparation plants—	205	35	219	194	324	217	229	136	223	211	225
Number of man-shifts worked by wage earners, total—	311,180	21,666	33,404	31,133	18,644	85,203	15,808	17,627	7,952	32,520	47,233
On active days, total—	303,531	21,562	32,020	30,059	18,644	82,056	15,645	16,694	7,952	32,040	46,859
At mines, total—	285,863	21,527	28,954	28,312	18,320	77,274	14,958	15,067	7,729	29,088	44,634
Underground—	201,694	12,960	25,975	15,872	3,060	74,279	578	2,967	1,591	25,762	39,850
Open-pit—	66,192	5,995	2,070	11,277	11,608	—	14,096	11,582	5,898	—	5,866
Surface shops and yards—	17,977	2,572	909	1,163	3,652	2,995	284	718	240	3,326	2,118
At preparation plants—	17,468	35	3,066	1,747	324	4,782	687	1,627	223	2,952	2,025
On inactive days—	7,859	104	1,384	1,074	—	3,147	163	933	—	480	574
Number of man-hours worked by wage earners, total—	2,465,664	165,192	267,226	249,196	146,090	681,615	126,455	143,895	63,615	258,935	363,445
On active days, total—	2,402,860	164,412	256,154	240,607	146,090	656,439	125,155	136,434	63,615	255,095	358,859
At mines, total—	2,264,680	164,132	251,631	226,400	143,984	618,163	119,661	123,418	61,831	231,483	343,957
Underground—	1,593,202	97,200	207,799	126,976	24,480	594,222	4,620	23,735	12,731	205,139	296,300
Open-pit—	528,502	46,625	16,560	90,216	90,288	—	112,771	93,539	47,180	—	30,925
Surface shops and yards—	142,976	20,307	7,272	9,208	29,216	23,961	2,270	5,744	1,520	26,344	16,734
At preparation plants—	138,180	280	24,523	14,207	2,106	38,256	5,494	13,016	1,784	25,612	14,902
On inactive days—	62,804	780	11,072	8,586	—	25,176	1,300	7,461	—	3,840	4,586

¹For definition of the industry see table 1, footnote 1.TABLE 6.—QUANTITY OF FUEL AND ELECTRIC ENERGY CONSUMED IN THE GYPSUM INDUSTRY IN THE UNITED STATES, BY STATE AND BY KIND: 1939¹

STATE	FUEL ²				ELECTRIC ENERGY (thousands of kilowatt-hours)		
	Bituminous coal (tons of 2,000 pounds)	Fuel oils (barrels of 42 gallons)	Gasoline and kerosene (gallons)	Natural gas (thousands of cubic feet)	Total	Purchased	Generated by reporting companies
United States, total—	8	5,071	194,828	4,383	13,712	11,781	1,931
California—	—	1,907	55,743	—	483	169	314
Iowa—	—	—	5,000	—	1,290	1,296	5
Michigan—	—	1,200	6,829	—	2,334	2,334	—
Nevada—	—	813	50,282	—	437	14	423
New York—	—	—	1,638	—	5,399	5,399	—
Oklahoma—	—	—	12,912	4,383	3	—	3
Texas—	—	991	48,085	—	600	600	—
Utah—	—	160	8,950	—	11	—	11
Virginia—	—	—	489	—	1,386	1,386	—
Other States—	—	—	4,900	—	1,760	583	1,177

¹For definition of the industry see table 1, footnote 1.²No anthracite was reported consumed.

TABLE 7.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE GYPSUM INDUSTRY IN THE UNITED STATES, BY TYPE AND BY STATE: 1939

STATE AND TYPE OF EQUIPMENT	PRIME MOVERS AND ELECTRIC MOTORS DRIVEN BY PURCHASED ENERGY												ELECTRIC MOTORS DRIVEN BY ENERGY GENERATED BY REPORTING COMPANIES	
	Aggregate horsepower	Prime movers								Electric motors driven by purchased energy				
		Total		Driving generators		Not driving generators		Ordinarily idle (included in pre- ceding columns)						
		Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower	
United States, total-----	28,538	90	7,363	10	2,660	80	4,703	3	147	773	21,175	115	2,286	
Stationary ² -----	18,765	26	3,353	9	2,590	17	763	-----	-----	617	15,412	86	1,453	
Mobile ³ -----	9,773	64	4,010	1	70	63	3,940	3	147	156	5,763	29	833	
California, total-----	1,394	26	1,146	1	70	25	1,076	1	22	15	248	14	374	
Stationary ² -----	448	5	200	-----	-----	5	200	-----	-----	15	248	7	241	
Mobile ³ -----	946	21	946	1	70	20	876	1	22	-----	-----	7	133	
Iowa, total-----	3,683	3	155	1	50	2	105	-----	-----	110	3,528	8	88	
Stationary ² -----	1,598	2	70	1	50	1	20	-----	-----	76	1,528	6	38	
Mobile ³ -----	2,085	1	85	-----	-----	1	85	-----	-----	34	2,000	2	50	
Michigan, total-----	4,345	6	720	-----	-----	6	720	-----	-----	104	3,625	-----	-----	
Stationary ² -----	2,005	-----	-----	-----	-----	-----	-----	-----	-----	77	2,005	-----	-----	
Mobile ³ -----	2,340	6	720	-----	-----	6	720	-----	-----	27	1,620	-----	-----	
Nevada, total-----	3,197	19	3,164	5	2,430	14	734	-----	-----	2	33	27	501	
Stationary ² -----	2,618	8	2,585	5	2,430	3	155	-----	-----	2	33	22	254	
Mobile ³ -----	579	11	579	-----	-----	11	579	-----	-----	-----	-----	5	337	
New York, total-----	8,920	2	108	-----	-----	2	108	-----	-----	406	8,612	-----	-----	
Stationary ² -----	7,385	-----	-----	-----	-----	-----	-----	-----	-----	347	7,385	-----	-----	
Mobile ³ -----	1,535	2	108	-----	-----	2	108	-----	-----	59	1,427	-----	-----	
Oklahoma, total-----	540	8	540	1	25	7	515	1	60	-----	-----	7	23	
Stationary ² -----	265	5	265	1	25	4	240	-----	-----	-----	-----	-----	-----	
Mobile ³ -----	275	3	275	-----	-----	3	275	1	60	-----	-----	7	23	
Texas, total-----	2,064	14	865	-----	-----	14	865	-----	-----	50	1,199	-----	-----	
Stationary ² -----	854	2	8	-----	-----	2	8	-----	-----	33	846	-----	-----	
Mobile ³ -----	1,210	12	857	-----	-----	12	857	-----	-----	17	353	-----	-----	
Utah, total-----	440	7	440	2	85	5	355	-----	-----	-----	-----	1	50	
Stationary ² -----	205	3	205	2	85	1	120	-----	-----	-----	-----	1	50	
Mobile ³ -----	235	4	235	-----	-----	4	235	-----	-----	-----	-----	-----	-----	
Virginia, total-----	2,976	1	20	-----	-----	1	20	-----	-----	44	2,956	-----	-----	
Stationary ² -----	2,926	1	20	-----	-----	1	20	-----	-----	42	2,906	-----	-----	
Mobile ³ -----	50	-----	-----	-----	-----	-----	-----	-----	-----	2	50	-----	-----	
Other States, total-----	979	4	205	-----	-----	4	205	1	65	42	774	58	1,150	
Stationary ² -----	461	-----	-----	-----	-----	-----	-----	-----	-----	25	461	50	860	
Mobile ³ -----	518	4	205	-----	-----	4	205	1	65	17	313	8	290	

¹For definition of the industry see table 1, footnote 1.²Horsepower rating of engines, motors, etc. used for driving stationary or fixed equipment such as mine hoists, electric generators at power plants, crushing and grinding equipment, etc.³Horsepower rating of engines, motors, etc. used for driving mobile equipment such as dragline excavators, power shovels, tractors, trucks, etc.

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TABLE 8.—NUMBER OF POWER-LOADING MACHINES IN THE GYPSUM INDUSTRY IN THE UNITED STATES, BY TYPE, BY KIND OF POWER USED, BY SIZE, AND BY STATE: 1939¹

TYPE OF MACHINE, KIND OF POWER USED, AND SIZE	United States	California	Iowa	Michigan	Nevada	New York	Oklahoma	Texas	Utah	Virginia	Other States
Surface:											
Power shovels, total	24	4	2	7	4			5	1		1
Kind of power used:											
Steam	1	1									
Electric	13	1	2	6	1			2			1
Internal-combustion engine	10	2		1	3			3	1		
Dipper capacity (cu. yds.):											
Less than 3	22	4	1	6	4			5	1		1
3 - 5	2		1	1							
Dragline excavators, total	11		1	2			2	6			
Kind of power used:											
Electric	4		1	1				2			
Internal-combustion engine	7			1			2	4			
Bucket capacity (cu. yds.):											
Less than 3	8						2	6			
3 - 5	2		1	1							
More than 5	1			1							
Scraper loaders ²	1										1
Clamshell or orange-peel, total	4		1			2		1			
Kind of power used:											
Electric	2		1			1					
Internal-combustion engine	2					1		1			
Tractor-drawn scrapers or bulldozers ³	6	5			1						
Other types ⁴	1					1					
Underground:											
Shovel loaders, total	2									1	1
Kind of power used:											
Electric ⁵	1										1
Compressed air ⁶	1									1	
Scraper loaders, including slushers, total	8	4									4
Kind of power used:											
Electric	6	3									3
Compressed air	2	1									1
Horsepower rating of hoists:											
Less than 10	3	1									2
10 - 25	3	2									1
26 - 100	2	1									1
Other types ⁴	1			1							

¹For definition of the industry see table 1, footnote 1.²Driven by an internal-combustion engine; hoist rated at 10 - 25 horsepower.³Driven by internal-combustion engines.⁴Driven by electric power.⁵Requiring minimum working height of more than 8 feet.⁶Requiring minimum working height of 8 feet or less.TABLE 9.—SELECTED STATISTICS FOR INCORPORATED AND FOR UNINCORPORATED OPERATING COMPANIES IN THE GYPSUM INDUSTRY IN THE UNITED STATES: 1939¹

TYPE OF OWNERSHIP	Number of operating companies	Number of mines	Number of preparation plants	Production of gypsum (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
						Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total	34	59	25	5,302,208	\$4,568,925	1,431	1,327	97	7	\$1,640,291	\$217,281
Incorporated	27	50	24	5,190,889	4,425,881	1,372	1,279	93		1,595,863	212,377
Unincorporated	7	9	1	111,559	145,044	59	48	4	7	44,528	4,904

¹For definition of the industry see table 1, footnote 1.

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TABLE 10.—SELECTED STATISTICS FOR GYPSUM OPERATIONS IN THE UNITED STATES, CLASSIFIED BY VALUE OF PRODUCTS AND BY STATE: 1939¹

STATE AND VALUE OF PRODUCTS	Number of mines	Number of preparation plants	Production of gypsum (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total-----	59	25	3,302,208	\$4,568,925	21,431	1,327	297	7	\$1,640,291	\$217,281
\$1 - \$19,999-----	14	3	168,428	153,555	101	86	9	6	72,628	15,158
\$20,000 - \$49,999-----	20	12	556,351	632,975	300	270	29	1	264,815	57,073
\$50,000 - \$99,999-----	5	1	231,798	332,608	112	105	7	-----	128,258	16,607
\$100,000 - \$249,999-----	18	8	2,345,631	3,449,787	911	866	45	-----	1,174,590	109,341
\$250,000 - \$499,999-----	2	1								
Unclassified-----	-----	-----	-----	-----	27	-----	27	-----	-----	\$ 19,102
California, total-----	6	1	225,356	356,624	113	101	9	3	109,151	24,095
\$1 - \$19,999-----	3	-----	19,826	28,026	8	5	1	2	5,757	386
\$20,000 - \$49,999-----	1	1								
\$50,000 - \$99,999-----	1	-----	206,030	328,598	105	96	8	1	102,394	23,759
\$100,000 - \$249,999-----	1	-----								
Unclassified-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Iowa, total-----	8	5	428,664	597,892	158	142	15	1	174,053	32,372
\$1 - \$19,999-----	3	2	84,100	104,060	71	59	11	1	53,263	21,737
\$20,000 - \$49,999-----	2	1								
\$100,000 - \$249,999-----	3	2	344,564	493,832	87	83	4	-----	120,790	10,635
Michigan, total-----	5	3	643,177	715,352	142	129	13	-----	169,363	33,757
\$1 - \$19,999-----	1	-----	643,177	715,352	142	129	13	-----	169,363	33,757
\$100,000 - \$249,999-----	3	3								
\$250,000 - \$499,999-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----
Nevada, total-----	4	1	205,582	403,094	75	71	4	-----	99,415	10,250
\$20,000 - \$49,999-----	2	1	205,582	403,094	75	71	4	-----	99,415	10,250
\$50,000 - \$99,999-----	1	-----								
\$100,000 - \$249,999-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----
New York, total-----	9	5	709,040	1,128,945	366	350	16	-----	541,542	38,680
\$20,000 - \$49,999-----	3	2	115,674	169,912	88	78	10	-----	101,930	28,020
\$50,000 - \$99,999-----	1	1								
\$100,000 - \$249,999-----	4	2	593,366	959,033	278	272	6	-----	439,612	15,660
\$250,000 - \$499,999-----	1	1								
Oklahoma, total-----	3	2	160,964	206,481	71	67	4	-----	65,056	7,759
\$20,000 - \$49,999-----	2	2	160,964	206,481	71	67	4	-----	65,056	7,759
\$100,000 - \$249,999-----	1	-----								
Unclassified-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Texas, total-----	8	2	323,158	283,729	102	91	9	2	76,818	13,146
\$1 - \$19,999-----	3	-----	75,149	36,946	38	30	1	2	26,514	1,534
\$20,000 - \$49,999-----	4	2								
\$100,000 - \$249,999-----	1	-----	248,009	246,783	69	61	8	-----	50,304	11,614
Utah, total-----	4	1	58,146	74,086	41	36	4	1	29,128	10,220
\$1 - \$19,999-----	2	1	58,146	74,086	41	36	4	1	29,128	10,220
\$20,000 - \$49,999-----	2	-----								
Unclassified-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Virginia ² -----	2	1	164,086	282,323	148	138	10	-----	129,459	11,976
Other States, total-----	10	4	383,535	520,399	214	202	12	-----	246,306	28,424
\$1 - \$19,999-----	2	-----	110,832	141,578	78	72	6	-----	69,609	13,970
\$20,000 - \$49,999-----	4	3								
\$50,000 - \$99,999-----	2	1	272,703	378,821	136	130	6	-----	175,697	14,454
\$100,000 - \$249,999-----	2	-----								

¹For definition of the industry see table 1, footnote 1. Reports classified by value of products represent a single mine, or a single mine and a single preparation plant reported together. Statistics shown for "Unclassified" represent reports for central offices reported separately from their associated gypsum operations.

²Includes statistics for central-office employees in Illinois.

³Classified in the \$100,000 - \$249,999 class interval.

TABLE 11.—SELECTED STATISTICS FOR GYPSUM OPERATIONS IN THE UNITED STATES, CLASSIFIED BY QUANTITY OF PRODUCT: 1939

QUANTITY OF PRODUCT (tons of 2,000 pounds)	Number of mines	Number of preparation plants	Production of gypsum (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total-----	59	25	3,302,208	\$4,568,925	1,431	1,327	97	7	\$1,640,291	\$217,281
1 - 9,999-----	10	2	60,192	97,123	56	47	4	5	40,855	5,322
10,000 - 24,999-----	13	5	216,915	302,780	147	129	16	2	121,916	32,427
25,000 - 49,999-----	13	8	476,529	623,361	294	268	26	-----	283,804	48,072
50,000 - 99,999-----	12	6	914,406	1,308,475	395	372	23	-----	500,458	56,699
100,000 - 199,999-----	10	4	1,684,166	2,237,186	532	511	21	-----	693,258	55,659
200,000 and over-----	1	-----								
Unclassified-----	-----	-----	-----	-----	7	-----	7	-----	-----	19,102

¹For definition of the industry see table 1, footnote 1. Reports classified by quantity of product represent a single mine, or a single mine and a single preparation plant reported together. Statistics shown for "Unclassified" represent reports for central offices reported separately from their associated gypsum operations.

TABLE 12.—SELECTED STATISTICS FOR GYPSUM OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF WAGE EARNERS: 1939¹

NUMBER OF WAGE EARNERS	Number of mines	Number of preparation plants	Production of gypsum (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total	59	25	3,302,208	\$4,568,925	1,431	1,327	97	7	\$1,640,291	\$217,281
1 - 5	6	1	74,876	91,596	24	17	4	3	11,853	5,822
6 - 20	23	8	738,908	951,383	296	266	28	2	287,842	58,293
21 - 50	20	13	1,857,753	2,480,462	709	669	40	-----	908,628	98,054
51 - 100	5	2	587,236	999,049	360	343	17	-----	405,093	34,010
Unclassified	5	1	43,435	66,435	42	32	8	2	26,875	20,102

¹ For definition of the industry see table 1, footnote 1. Reports classified by average number of wage earners employed during the year represent a single mine, or a single mine and a single preparation plant reported together. Statistics shown for "Unclassified" represent reports on which number of wage earners, by month, was not adequately reported and reports for central offices reported separately from their associated gypsum operations.

TABLE 13.—SELECTED STATISTICS FOR GYPSUM OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF HOURS PER WAGE EARNER IN THE FULL-TIME WORKWEEK: 1939¹

HOURS PER WEEK	Number of mines	Number of preparation plants	Production of gypsum (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total	59	25	3,302,208	\$4,568,925	1,431	1,327	97	7	\$1,640,291	\$217,281
1 - 34	1	1	-----	-----	-----	-----	-----	-----	-----	-----
35 - 40	1	-----	1,578,228	2,159,453	727	683	43	1	877,146	96,695
41 - 42	10	2	562,845	696,242	255	238	17	-----	232,532	35,716
43 - 44	11	5	851,510	1,164,966	279	255	24	-----	350,945	57,680
45 - 47	1	1	-----	-----	-----	-----	-----	-----	-----	-----
48 - 54	2	1	198,620	358,878	96	90	3	3	128,491	3,986
54 - 59	2	-----	-----	-----	-----	-----	-----	-----	-----	-----
Unclassified	9	5	111,005	149,366	74	61	10	3	51,177	25,204

¹ For definition of the industry see table 1, footnote 1. Reports were classified by number of hours in the full-time workweek reported for wage earners in that department of the operation for which the largest number of man-hours worked was reported. Statistics shown for "Unclassified" represent reports on which number of hours was not reported and reports for central offices reported separately from their associated gypsum operations.

TABLE 14.—SELECTED STATISTICS FOR GYPSUM OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF DAYS ACTIVE DURING THE YEAR: 1939¹

NUMBER OF DAYS ACTIVE DURING THE YEAR	Number of mines	Number of preparation plants	Production of gypsum (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total	59	25	3,302,208	\$4,568,925	1,431	1,327	97	7	\$1,640,291	\$217,281
100 - 149	5	1	102,687	90,752	46	41	4	1	31,540	7,541
150 - 199	10	3	452,415	651,565	222	200	21	1	202,925	34,901
200 - 224	11	7	421,452	581,481	249	228	19	2	269,804	46,421
225 - 249	8	5	805,081	924,589	208	194	14	-----	257,195	33,530
250 - 274	11	5	1,051,984	1,570,213	488	467	21	-----	625,050	53,522
275 - 299	3	1	242,666	309,495	101	96	5	-----	137,728	9,480
300 - 324	5	1	-----	-----	-----	-----	-----	-----	-----	-----
325 and over	1	1	212,084	374,395	75	69	5	1	89,174	11,784
Unclassified	5	1	13,839	66,435	42	32	8	2	26,875	20,102

¹ For definition of the industry see table 1, footnote 1. Reports classified by number of days active represent a single mine, or a single mine and a single preparation plant reported together; such reports were classified by number of days the mine was in operation for production or development purposes during the year. Statistics shown for "Unclassified" represent reports on which number of days active was not reported and reports for central offices reported separately from their associated gypsum operations.

TABLE 15.—SELECTED STATISTICS FOR GYPSUM OPERATIONS IN THE UNITED STATES, CLASSIFIED BY OUTPUT PER MAN-HOUR: 1939¹

OUTPUT PER MAN-HOUR (tons of 2,000 pounds)	Number of mines	Number of preparation plants	Production of gypsum (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total	59	25	3,302,208	\$4,568,925	1,431	1,327	97	7	\$1,640,291	\$217,281
Less than 0.60	2	1	-----	-----	-----	-----	-----	-----	-----	-----
0.60 - 0.79	6	1	242,949	385,477	231	210	18	3	204,530	28,350
0.80 - 0.99	8	4	259,435	418,623	175	162	11	-----	201,863	23,907
1.00 - 1.24	13	8	897,885	1,496,366	450	429	21	-----	572,823	55,222
1.25 - 1.49	8	3	621,249	894,690	298	280	18	-----	386,520	50,166
1.50 - 1.99	4	2	229,252	271,386	79	76	3	-----	91,776	8,744
2.00 - 2.99	4	2	175,450	175,128	39	35	3	1	47,265	5,300
3.00 - 5.99	6	1	-----	-----	-----	-----	-----	-----	-----	-----
6.00 and over	2	1	811,203	839,472	108	95	14	1	100,202	24,290
Unclassified	6	2	64,785	87,785	53	42	9	2	55,312	21,302

¹ For definition of the industry see table 1, footnote 1. Reports classified by output per man-hour represent a single mine, or a single mine and a single preparation plant reported together. Statistics shown for "Unclassified" represent reports on which man-hours were not reported and reports for central offices reported separately from their associated gypsum operations.

KYANITE, ANDALUSITE, AND DUMORTIERITE

The total production of kyanite, andalusite, and dumortierite in the United States in 1939 amounted to 3,730 short tons valued at \$125,000 at points of production. The total value of products of the industry was \$139,000, of which \$14,000 represented the value of secondary products.

Kyanite, andalusite, and dumortierite are valued for their ability to withstand high temperatures; kyanite is used in the manufacture of refractories, electrical and chemical porcelain and chinaware, enamelware, glass, and other products; andalusite and dumortierite are used chiefly for ceramic spark-plug cores.

In 1939 kyanite was produced in California, Georgia, North Carolina, and Virginia; andalusite, in California and Nevada; and dumortierite, in Nevada. Kyanite represented the greatest portion of the total tonnage of the three minerals produced during the year. Six of the eight mines employed open-cut mining methods, including two that used underground methods but to a lesser extent than open-cut methods; the remaining two mines employed underground mining methods only.

PRINCIPAL EXPENSES

The industry paid \$68,000 in wages—an average of 41 cents per man-hour worked by wage earners. Salaried employees were paid \$31,000. Supplies and materials consumed during the year cost \$18,000; fuel, \$8,000; and purchased electric energy, about \$8,000. These reported principal expenses totaled \$131,000. Buildings, machinery, and equipment costing \$33,000 were erected or installed during the year.

EMPLOYMENT AND WORKING TIME

The number of wage earners employed by the industry averaged 83. The minimum number reported for a single month was 30 in March; the maximum, 108 in September. In addition, 16 salaried employees were reported for October. For the industry as a whole, wage earners worked a total of 135,000 man-hours, an average of 7.6 hours per shift. Operations were

active the equivalent of 216 full days during the year, with only one operation reported as working more than one shift per day at any time during 1939.

POWER EQUIPMENT

Power equipment in use or available for use at the end of 1939 had an aggregate rating of 1,574 horsepower—an average of 19 horsepower per wage earner. Of the total, 1,149 horsepower represented the rating of prime movers such as gasoline, Diesel, and steam engines, and 425 horsepower the rating of electric motors driven by purchased energy. About 68 percent of the rated horsepower was for driving stationary or fixed equipment such as mine hoists and milling equipment; the remaining 32 percent was for driving mobile equipment such as power shovels, dragline excavators, tractors, and trucks.

At the end of the year operations in the industry were equipped with three power shovels and one dragline excavator, all of which were driven by internal-combustion engines and had dipper or bucket capacities of less than 3 cubic yards. Other surface equipment included two electric scraper loaders, and one tractor scraper driven by a Diesel engine.

The industry consumed 511,000 kilowatt-hours of electricity in 1939, of which 54 percent was generated by the reporting companies for their own use and 46 percent was purchased. The total consumption of gasoline and kerosene was 13,814 gallons; fuel oils, 1,465 barrels; and coal, 39 short tons.

OTHER STATISTICS

For distribution of kyanite, andalusite, and dumortierite operations by value of products, number of wage earners, number of days active, number of hours per wage earner in the full-time workweek, and by type of ownership, see General Summary tables 8, 15, 17, 18, and 26, respectively.

TABLE 1.—PRINCIPAL STATISTICS FOR THE KYANITE, ANDALUSITE, AND DUMORTIERITE INDUSTRY IN THE UNITED STATES: 1939

Number of operating companies—	7	Cost of buildings, machinery, and equipment erected or installed during year—	\$33,212
Number of mines—	28	Buildings—	\$1,598
Number of preparation plants—	5	Machinery and equipment, total—	\$31,614
		Purchased in new condition—	\$27,614
Number of persons engaged, total—	101	Purchased in used condition—	\$4,000
Wage earners (average for the year)—	83	Total number of man-shifts worked by wage earners—	21,863
Salaried employees—	16	Total number of man-hours worked by wage earners—	164,866
Proprietors and firm members ³ —	2	Average number of hours worked per shift—	7.6
Production of kyanite, andalusite, and dumortierite:		Average hourly earning of wage earners—	\$0.41
Tons of 2,000 pounds ⁴ —	3,730	Tons of kyanite, andalusite, and dumortierite produced per man-hour—	0.023
Value at mines or plants—	\$125,198	Average number of equivalent full days operations were active—	216
Value of all products ⁵ —	\$139,454	Horsepower rating of power equipment, total—	1,574
Principal expenses designated below, total ⁶ —	\$130,535	Per wage earner—	19.0
Wages—	\$68,048	Stationary equipment ⁷ —	1,065
Salaries—	\$30,761	Mobile equipment ⁸ —	509
Supplies and materials—	\$18,117	Electric energy consumed (thousands of kw.-hrs.), total—	511
Fuel—	\$8,075	Purchased—	237
Purchased electric energy—	\$5,584	Generated by reporting companies—	274

¹ The industry includes mines producing crude kyanite, andalusite, and dumortierite and associated preparation plants engaged in such activities as the milling and concentrating of the crude ore. Statistics cover only those producing operations (mines or mines and plants operated together) for which the value of products, reported principal expenses, or cost of buildings, machinery, and equipment during the year amounted to at least \$2,500. No nonproducing operations were reported.

² California, 2 mines and 1 plant; Georgia, 2 mines and 2 plants; Nevada, 2 mines; North Carolina, 1 mine and 1 plant; and Virginia, 1 mine and 1 plant.

³ No proprietors performing manual labor were reported.

⁴ Crude and concentrated kyanite and crude andalusite and dumortierite produced during the year. Kyanite was produced in California, Georgia, North Carolina, and Virginia; andalusite, in California and Nevada; dumortierite, in Nevada.

⁵ Includes \$125,198 representing the value at points of production of kyanite, andalusite, and dumortierite and \$14,256 representing the value of garnet, graphite, and mica schist produced as secondary products.

⁶ No expenditures for contract work were reported.

⁷ Aggregate horsepower rating of engines, motors, etc. used for driving stationary or fixed equipment such as mine hoists and milling equipment.

⁸ Aggregate horsepower rating of engines, motors, etc. used for driving mobile equipment such as power shovels, dragline excavators, tractors, and trucks.

TABLE 2.—NUMBER OF WAGE EARNERS IN THE KYANITE, ANDALUSITE, AND DUMORTIERITE INDUSTRY IN THE UNITED STATES, BY MONTH: 1939¹

MONTH	Number	MONTH	Number	MONTH	Number
Average-----	83	April-----	72	September-----	108
January-----	63	May-----	67	October-----	107
February-----	65	June-----	78	November-----	102
March-----	60	July-----	79	December-----	103
		August-----	93		

¹For definition of the industry see table 1, footnote 1.TABLE 3.—EMPLOYMENT AND WORKING TIME IN THE KYANITE, ANDALUSITE, AND DUMORTIERITE INDUSTRY IN THE UNITED STATES, BY DEPARTMENT: 1939¹

Average number of wage earners on active days, total-----	98	Number of man-shifts worked by wage earners, total-----	21,563
At mines, total-----	53	On active days, total-----	21,157
Underground-----	18	At mines, total-----	9,905
Open-pit-----	34	Underground-----	3,014
Surface shops and yards-----	1	Open-pit-----	6,691
At preparation plants-----	45	Surface shops and yards-----	200
		At preparation plants-----	11,282
		On inactive days-----	506
Average number of equivalent full days operations were active-----	216	Number of man-hours worked by wage earners, total-----	164,968
At mines-----	187	On active days, total-----	161,530
Underground-----	167	At mines, total-----	71,581
Open-pit-----	197	Underground-----	18,426
Surface shops and yards-----	200	Open-pit-----	51,495
At preparation plants-----	250	Surface shops and yards-----	1,600
		At preparation plants-----	90,009
		On inactive days-----	3,458

¹For definition of the industry see table 1, footnote 1.TABLE 4.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE KYANITE, ANDALUSITE, AND DUMORTIERITE INDUSTRY IN THE UNITED STATES, BY TYPE: 1939¹

TYPE OF EQUIPMENT	PRIME MOVERS AND ELECTRIC MOTORS DRIVEN BY PURCHASED ENERGY								ELECTRIC MOTORS DRIVEN BY ENERGY GENERATED BY REPORTING COMPANIES		
	Aggregate horsepower	Prime movers ^a						Electric motors driven by purchased energy		Number	Horsepower
		Total		Driving generators		Not driving generators		Number	Horsepower		
		Number	Horsepower	Number	Horsepower	Number	Horsepower				
United States, total-----	1,574	16	1,149	4	573	12	576	45	425	37	246
Stationary-----	1,065	7	640	4	573	3	67	45	425	29	196
Mobile-----	509	9	509	---	---	9	509	---	---	8	50

¹For definition of the industry see table 1, footnote 1.²No prime movers ordinarily idle were reported.

MAGNESITE AND BRUCITE

Magnesite and brucite mines in the United States produced over 188,000 short tons of crude magnesite and brucite in 1939 with a mine value of \$1,396,000.

Domestic production of magnesite and brucite mined in the United States was consumed principally as refractory materials for lining metallurgical furnaces, where high temperatures are maintained, and for similar uses. Both magnesite (natural magnesium carbonate) and brucite (natural magnesium hydrate) are potential sources of a substantial production of magnesium, in great demand by the aircraft and other industries.

Magnesite and brucite mines in the United States employed an average of 216 wage earners during 1939. The amount paid to wage earners, who worked a total of nearly 437,000 man-hours, was \$300,000, representing 69 cents per man-hour. Payments to salaried employees, of whom there were 12 in October, amounted to \$24,000. Supplies and materials used during 1939 cost \$80,000; fuel, \$5,000. The reported principal expenses, including the cost of purchased electric energy and amount paid for work done on contract by other concerns, aggregated about \$432,000. Buildings, machinery, and equipment were erected or installed during the year at a cost of \$40,000.

Most of the crude magnesite produced was processed by the mining companies and sold as caustic calcined magnesite or as dead-burned magnesite. The former is used in making oxychloride cements for stucco work, flooring, and wallboard, in the manufacture of heat-insulation materials, and by the rubber industry. Dead-burned magnesite accounts for the larger part of the processed magnesite and is used both as grain magnesite in the building of melting hearths and in the manufacture of magnesite brick for basic open-hearth steel furnaces. Brucite is also used principally as a refractory material, sometimes in combination with dolomite.

Production of magnesite in 1939 was reported by two companies that operated two underground mines in California and one mine in Washington; the latter employed open-cut mining methods principally. Brucite was produced at one open-cut mine in Nevada. Magnesite and brucite mining operations were active the equivalent of 248 full days during 1939, working a single 8-hour shift.

Power equipment in use or available for use at the end of the year had a total rating of 1,820 horsepower, or 8.4 horsepower per wage earner. Of the total horsepower, 63 percent represented the rating of engines and motors used for driving fixed or stationary equipment such as crushers, mine hoists, and ventilating fans. The remaining horsepower was used for driving mobile equipment such as power shovels and trucks.

The statistics for 1939 summarized in this report are for operations engaged in the production of crude magnesite and brucite, and do not cover the production of calcined and dead-burned magnesite. The production of synthetic magnesite from sea-water bitterns and the production of other magnesium compounds, such as magnesium sulfate and magnesium chloride from brine wells and sea water, and of dolomite and serpentine are also excluded. Statistics for dolomite used for refractory purposes are included in a separate report covering the limestone industry.

For distribution of magnesite and brucite operations by value of products, number of wage earners, number of days active, number of hours per wage earner in the full-time work-week, and by type of ownership, see General Summary tables 8, 15, 17, 18, and 26, respectively.

TABLE 1.—PRINCIPAL STATISTICS FOR THE MAGNESITE AND BRUCITE INDUSTRY IN THE UNITED STATES: 1939, 1929, 1919, 1909, AND 1902¹
(For producing operations only)

ITEM	1939	1929	1919	1909	1902
Number of operating companies ²	5	(s)	(s)	6	1
Number of mines.....	4	5	11	13	1
Production of magnesite and brucite (tons of 2,000 pounds).....	188,349	98,381	(s)	(s)	3,086
Value of all products, total.....	\$1,396,188	\$2,043,905	\$2,138,106	\$88,463	\$19,639
Magnesite and brucite produced.....	\$1,396,188	\$2,043,905	\$2,137,886	(s)	\$19,639
Other products and services rendered.....			\$210	(s)	(s)
Number of persons engaged, total.....	228	378	499	60	(s)
Wage earners (average for the year).....	216	351	448	50	(s)
Salaried employees.....	12	27	38	7	(s)
Proprietors and firm members.....			13	3	(s)
Performing manual labor.....				2	(s)
Principal expenses designated below, total.....	\$431,511	\$1,150,652	\$1,395,179	\$53,760	(s)
Wages.....	\$300,199	\$465,936	\$652,302	\$32,479	(s)
Salaries.....	\$23,626	\$88,201	\$95,185	\$7,443	(s)
Supplies and materials.....	\$80,480	\$252,178	\$300,741	\$6,282	(s)
Fuel.....	\$5,038	\$231,375	\$258,411	\$7,556	(s)
Purchased electric energy.....	\$10,689	\$56,992	\$37,694		(s)
Contract work.....	\$11,499	\$55,970	\$50,846		(s)
Cost of machinery and equipment erected or installed during year.....	\$39,282	\$44,256	(s)	(s)	(s)
Horsepower rating of prime movers and electric motors driven by purchased energy, total.....	1,820	3,197	2,540	126	(s)
Per wage earner.....	8.4	9.1	5.7	2.5	(s)
Prime movers.....	657	220	827	124	(s)
Electric motors driven by purchased energy.....	1,163	2,977	1,713	2	(s)
Horsepower rating of electric motors driven by energy generated by reporting companies.....					(s)
Fuels consumed:					
Anthracite (tons of 2,000 pounds).....				(s)	(s)
Bituminous coal (tons of 2,000 pounds).....		26,816	22,178	(s)	(s)
Fuel oils (barrels of 42 gallons).....	122	20,462	66,563	(s)	(s)
Gasoline and kerosene (gallons).....	22,803	5,670	47,208	(s)	(s)
Natural gas (thousands of cubic feet).....				(s)	(s)
Electric energy consumed (thousands of kw.-hrs.), total.....	1,218	5,323	(s)	(s)	(s)
Purchased.....	1,213	5,323	(s)	(s)	(s)
Generated by reporting companies.....	5		(s)	(s)	(s)

¹ Figures for 1939 cover the production of crude magnesite and brucite, including crushing but excluding calcining activities; the quantity of brucite mined in 1939 amounted to less than 8 percent of the total production of magnesite and brucite. Statistics for 1929 and previous years cover the production of crude magnesite and calcined magnesite where the calcining was done at preparation plants located at mines. Figures for 1939 cover only those producing operations (mines, or mines and plants operated together) for which the value of products, reported principal expenses, or cost of buildings, machinery, and equipment erected or installed during the year amounted to at least \$2,500. Figures for 1929 cover only "enterprises" for which the value of products or cost of development work amounted to at least \$2,500; the corresponding minimum for 1919 was \$500 for value of products and \$5,000 for cost of development work. No minimum was placed on the size of operations included for 1909 and 1902. Figures for 1939 thus exclude statistics for a small quantity of magnesite (less than 250 tons) produced by a talc-milling operation (as a secondary product) and by one small mine. No nonproducing operations were reported for 1939.

² For 1939 and 1909, companies that submitted more than one report are counted only once in the totals.

³ Not available.

⁴ Excludes value of "Other products and services rendered."

⁵ Statistics include amounts paid for purchased power other than electric.

TABLE 2.—PRINCIPAL STATISTICS FOR THE MAGNESITE AND BRUCITE INDUSTRY IN THE UNITED STATES: 1939¹

Number of operating companies-----	3	Cost of buildings, machinery, and equipment erected or installed during year-----	\$40,037
Number of mines-----	4	Buildings-----	\$755
Number of preparation plants-----	1	Machinery and equipment, total-----	\$39,282
Number of persons engaged, total-----	228	Purchased in new condition-----	\$38,482
Wage earners (average for the year)-----	216	Purchased in used condition-----	\$800
Salaried employees-----	12	Total number of man-shifts worked by wage earners-----	54,805
Production of magnesite and brucite (tons of 2,000 pounds) ² -----	188,349	Total number of man-hours worked by wage earners-----	436,839
Value of all products ³ -----	\$1,596,168	Average number of hours worked per shift-----	8.0
Principal expenses designated below, total-----	\$431,511	Average hourly earning of wage earners-----	\$0.69
Wages-----	\$500,199	Tons of magnesite and brucite produced per man-hour-----	0.431
Salaries-----	\$23,826	Average number of equivalent full days operations were active-----	248
Supplies and materials-----	\$80,460	Horsepower rating of power equipment, total-----	1,820
Fuel-----	\$5,038	Per wage earner-----	8.4
Purchased electric energy-----	\$10,689	Stationary equipment-----	1,145
Contract work-----	\$11,499	Mobile equipment-----	675
		Electric energy consumed (thousands of kw.-hrs.), total-----	1,216
		Purchased-----	1,213
		Generated by reporting companies-----	5

¹For definition of the industry see table 1, footnote 1.²California, 2 mines; Nevada, 1 mine; and Washington, 1 mine and 1 plant.³Represents crude magnesite and brucite. The quantity of brucite mined in 1939 amounted to less than 8 percent of the total production of magnesite and brucite.⁴Represents the value at mine of magnesite and brucite. The value of brucite accounted for less than 6 percent of the total value of magnesite and brucite. No secondary products or services performed for others were reported.TABLE 3.—NUMBER OF WAGE EARNERS IN THE MAGNESITE AND BRUCITE INDUSTRY IN THE UNITED STATES, BY MONTH: 1939¹

MONTH	Number	MONTH	Number	MONTH	Number
Average-----	216	April-----	156	September-----	257
January-----	157	May-----	91	October-----	328
February-----	140	June-----	167	November-----	379
March-----	155	July-----	151	December-----	431
		August-----	186		

¹For definition of the industry see table 1, footnote 1.TABLE 4.—EMPLOYMENT AND WORKING TIME IN THE MAGNESITE AND BRUCITE INDUSTRY IN THE UNITED STATES, BY DEPARTMENT: 1939¹

Average number of wage earners on active days, total-----	219	Number of man-shifts worked by wage earners, total-----	54,805
At mines, total-----	211	On active days, total-----	54,395
Underground-----	90	At mines, total-----	52,396
Open-pit-----	98	Underground-----	21,038
Surface shops and yards-----	23	Open-pit-----	25,599
At preparation plants-----	8	Surface shops and yards-----	5,759
Average number of equivalent full days operations were active-----	248	At preparation plants-----	1,999
At mines-----	248	On inactive days-----	210
Underground-----	234	Number of man-hours worked by wage earners, total-----	436,839
Open-pit-----	261	On active days, total-----	435,159
Surface shops and yards-----	250	At mines, total-----	419,167
At preparation plants-----	250	Underground-----	168,304
		Open-pit-----	204,792
		Surface shops and yards-----	46,071
		At preparation plants-----	15,992
		On inactive days-----	1,680

¹For definition of the industry see table 1, footnote 1.TABLE 5.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE MAGNESITE AND BRUCITE INDUSTRY IN THE UNITED STATES, BY TYPE: 1939¹

TYPE OF POWER EQUIPMENT	Aggregate horsepower	PRIME MOVERS								ELECTRIC MOTORS DRIVEN BY PURCHASED ENERGY	
		Total		Driving generators		Not driving generators		Ordinarily idle (included in preceding columns)		Number	Horsepower
		Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower		
United States, total-----	1,820	10	657	1	22	9	635	1	240	40	1,163
Stationary ² -----	1,145	3	322	1	22	2	300	1	240	51	823
Mobile ³ -----	675	7	335			7	335			9	340

¹For definition of the industry see table 1, footnote 1. No electric motors were reported driven by energy generated by reporting companies.²Horsepower rating of engines, motors, etc., used for driving stationary or fixed equipment such as crushers, mine hoists, ventilating fans, etc.³Horsepower rating of engines, motors, etc., used for driving mobile equipment such as power shovels, trucks, etc.

MICA

The mica industry in the United States produced 229,862 pounds of sheet mica valued at \$63,000 and 20,616 short tons of scrap mica valued at \$253,000 in 1939.¹ The total value of products was \$327,000, about \$11,000 of which represented the value of other minerals recovered as secondary products at mica operations.

Mica is valued chiefly for its insulating qualities. Sheet mica is used in the manufacture of radio and magneto condensers; fuse boxes; airplane spark plugs; telephones; electric light sockets; radio tubes; stove fronts; oven, furnace, and kiln windows; and other products. Built-up mica, made by joining thin splittings of mica under high pressure and temperature, is used for segment plates for commutators of electric motors and generators, heater plates for electric irons and toasters, and insulating tapes for electrical machinery. Ground mica is used in the manufacture of roofing, wallpaper, rubber products, paint, molded electric insulation, and other products.

Of the 21 mica mines in 1939, 11 were located in North Carolina, and the remaining 10 in California, Colorado, Connecticut, Georgia, Maine, South Dakota, Vermont, and Virginia. In addition, two plants in North Carolina produced mica from waste and from material obtained as a secondary product of clay-mining activities.

PRINCIPAL EXPENSES

The mica industry paid \$118,000 in wages to an average of 190 wage earners during 1939. Salaried employees were paid \$20,000. Supplies and materials consumed during the year cost \$25,000; fuel, \$10,000; and purchased electric energy, about

¹Statistics do not cover operations for which neither the value of products, nor reported principal expenses, nor cost of buildings, machinery, and equipment amounted to \$2,500 during the year. Figures for the mica industry summarized in this report exclude statistics for such "small" mica operations, located in Arizona, Colorado, Georgia, Connecticut, Maine, New Hampshire, New Mexico, New York, North Carolina, South Dakota, Utah, Virginia, and Wyoming. These "small" operations reported the production of 512,446 pounds of sheet mica valued at \$49,595 and 3,670 short tons of scrap mica valued at \$37,884. Figures for the mica industry also exclude statistics for the production of 47,242 pounds of sheet mica valued at \$12,588 and 2,475 tons of scrap mica valued at \$19,249 obtained as secondary products at clay, feldspar, kyanite, lithium-minerals, and sandstone operations.

\$16,000. Buildings, machinery, and equipment costing about \$10,000 were erected or installed during the year.

EMPLOYMENT AND WORKING TIME

The number of wage earners employed by the industry, which averaged 190 for the year, varied from a minimum of 149 in February to a peak of 222 in September. In addition, 20 salaried employees and 11 proprietors or firm members were reported for October. Employment was greatest in North Carolina where the average number of wage earners employed was 111 compared with 79 for all other States. For the industry as a whole, wage earners worked a total of about 361,000 man-hours and earned an average of 33 cents per man-hour. Operations were active the equivalent of 198 full days during the year, most operations working only one shift per day. However, for a part of the year three operations were reported working two shifts per day and three operations three shifts per day. Of the total number of man-shifts worked on active days, about 90 percent were worked during the first shift. The average length of shift was 8 hours.

POWER EQUIPMENT

Power equipment in use or available for use at the end of 1939 had an aggregate rating of 1,696 horsepower—an average of about 9 horsepower per wage earner. Of the total, 954 horsepower represented the rating of prime movers such as gasoline, Diesel, and steam engines and 742 horsepower the rating of electric motors driven by purchased energy. About 84 percent of the total horsepower was for driving stationary or fixed equipment such as mine hoists, electric generators, and pumps; the remainder was for driving mobile equipment such as power shovels, portable air compressors, tractors, and trucks.

The industry consumed 865,000 kilowatt-hours of electricity in 1939, of which about 94 percent was purchased and the remainder generated by the reporting companies. The total consumption of gasoline and kerosene was about 37,990 gallons; fuel oils, 531 barrels; and bituminous coal, less than 300 short tons.

TABLE 1.—PRINCIPAL STATISTICS FOR THE MICA INDUSTRY IN THE UNITED STATES: 1939, 1929, 1919, 1909, 1902, 1889, AND 1880¹

(For producing operations only)

ITEM	1939	1929	1919	1909	1902	1889	1880
Number of operating companies ² -----	22	(3)	(3)	73	38	(3)	(3)
Number of mines-----	21	32	69	78	49	4	22
Production of mica (tons of 2,000 pounds) ⁴ -----	20,731	12,130	(3)	(3)	1,587	221	41
Value of all products, total-----	\$326,573	\$516,305	\$607,025	\$206,794	\$118,849	\$52,450	\$127,825
Mica produced ⁴ -----	\$315,501	\$510,056	\$606,426	(3)	\$118,849	\$52,450	\$127,825
Other products and services rendered-----	\$11,072	\$6,249	\$599	(3)	(3)	(3)	(3)
Number of persons engaged, total-----	221	250	555	407	5119	5185	5272
Wage earners (average for the year, including inactive periods)-----	190	226	448	272	598	7170	272
Salaried employees-----	20	25	40	19	21	815	
Proprietors and firm members-----	11	1	67	116	(3)	(3)	(3)
Performing manual labor-----	7	(3)	27	65	(3)	(3)	(3)
Principal expenses designated below, total-----	\$189,667	\$354,225	\$472,992	\$167,993	\$69,448	\$49,582	\$71,710
Wages-----	\$118,397	\$195,142	\$288,487	\$124,656	\$44,043	\$35,835	\$65,600
Salaries-----	\$20,219	\$58,193	\$46,579	\$14,530	\$13,444	\$8,339	
Supplies and materials-----	\$25,285	\$65,474	\$107,933	\$10,377			\$6,110
Fuel-----	\$10,111	\$17,805	\$20,935	\$12,392	\$11,961	\$7,408	(3)
Purchased electric energy-----	\$15,542	\$17,811	\$1,733			(3)	(3)
Contract work-----	\$109		\$7,325	\$6,036		(3)	(3)
Cost of machinery and equipment erected or installed during year-----	\$8,567	\$6,406	(3)	(3)	(3)	(3)	(3)
Horsepower rating of prime movers and electric motors driven by purchased energy, total-----	1,696	1,721	803	463	185	(3)	(3)
Per wage earner-----	8.9	7.6	1.8	1.7	1.9	(3)	(3)
Prime movers-----	954	732	765	463	185	(3)	(3)
Electric motors driven by purchased energy-----	742	989	40			(3)	(3)
Horsepower rating of electric motors driven by energy generated by reporting companies-----	271	113		1172	1.6	(3)	(3)
Fuels consumed:							
Anthracite (tons of 2,000 pounds)-----		2	3	(3)	(3)	(3)	(3)
Bituminous coal (tons of 2,000 pounds)-----	298	1,617	2,655	(3)	(3)	(3)	(3)
Fuel oils (barrels of 42 gallons)-----	531	976	7	(3)	(3)	(3)	(3)
Gasoline and kerosene (gallons)-----	37,990	40,524	5,502	(3)	(3)	(3)	(3)
Natural gas (thousands of cubic feet)-----				(3)	(3)	(3)	(3)
Electric energy consumed (thousands of kw.-hrs.), total-----	665	1,279	(3)	(3)	(3)	(3)	(3)
Purchased-----	815	1,279	(3)	(3)	(3)	(3)	(3)
Generated by reporting companies-----	50		(3)	(3)	(3)	(3)	(3)

¹The mica industry, as defined for census purposes in 1939, covers mines engaged in producing sheet and scrap mica as their principal mineral product and includes associated preparation plants engaged in such activities as the sorting and trimming of mica and the reclaiming of mica from waste and other material such as clay. Statistics for mica-grinding activities are excluded for 1939; figures for 1929 and earlier years include statistics for mica-grinding activities conducted at the mine location. Figures for 1939 cover only those producing operations (mines, plants, or mines and plants operated together) for which the value of products, reported principal expenses, or cost of buildings, machinery, and equipment erected or installed during the year amounted to at least \$2,500. Figures for 1929 cover only "enterprises" for which the value of products or cost of development work amounted to at least \$2,500; the corresponding minimum for 1919 was \$500 for value of products and \$5,000 for cost of development work. No minimum was placed on the size of operations included for 1909, 1902, 1889, and 1880. In 1939, smaller mica operations, statistics for which are thus excluded, reported the production of 512,448 pounds of sheet mica valued at \$49,593 and 3,670 tons of scrap mica valued at \$37,884. In addition, 47,242 pounds of sheet mica valued at \$12,588 and 2,475 tons of scrap mica valued at \$19,249 were produced in 1939 as secondary products of clay, feldspar, kyanite, lithium-minerals, and sandstone operations. No nonproducing operations were reported for 1939.

²For 1939 and 1909, companies that submitted more than one report are counted only once in the totals.

³Not available.

⁴Except for 1880, figures represent sheet and scrap mica; for 1880 figure represents sheet mica only (scrap mica was not reported for that year). Scrap mica for 1939 includes mica recovered from kaolin, reclaimed mica from waste, and mica schist.

⁵Excludes statistics for items for which information was not available as indicated by footnotes.

⁶On schedules for the 1902 census, concerns were instructed that "The average number employed during the year is the number that would be required, at continuous employment for the twelve months, to produce the quantity of products reported." "In editing the schedules ... the figures for the average number of employees were reduced to a 300-day basis whenever the schedules showed them to be the average number for a shorter period; when it was evident that the employees had worked more than 300 days, the average number for the longer period was allowed to stand."

⁷The 1889 census schedule called for "average number employed," presumably an average for active periods; and requested that figures for wage earners "include those employed by contractors and subcontractors."

⁸Represents statistics for foremen only.

⁹For 1919 and 1909, statistics include amounts paid for purchased power other than electric. Statistics for cost of purchased power for 1902 and 1889 were not explicitly requested but probably are included in part in the figures reported for supplies and materials.

¹⁰Represents cost of explosives only.

¹¹Represents statistics for producing and nonproducing operations.

TABLE 2.—PRINCIPAL STATISTICS FOR THE MICA INDUSTRY IN THE UNITED STATES, BY STATE: 1939¹

ITEM	United States	North Carolina	Other States ²	ITEM	United States	North Carolina	Other States ²
Number of operating companies ³ -----	22	12	10	Cost of buildings, machinery, and equipment erected or installed during year-----	\$9,767	\$5,471	\$4,296
Number of mines-----	21	11	10	Buildings-----	11,800	11,200	-----
Number of preparation plants-----	10	7	3	Machinery and equipment, total-----	\$8,567	\$4,271	\$4,296
Number of persons engaged, total-----	⁴ 221	130	87	Purchased in new condition-----	\$6,437	\$3,121	\$3,316
Wage earners (average for the year)-----	190	111	79	Purchased in used condition-----	\$2,130	\$1,150	\$980
Salaried employees-----	⁴ 20	12	4	Total number of man-shifts worked by wage earners-----	44,996	24,963	20,033
Proprietors and firm members-----	11	7	4	Total number of man-hours worked by wage earners-----	360,603	199,704	160,899
Performing manual labor-----	7	3	4	Average number of hours worked per shift-----	8.0	8.0	8.0
Production:				Average hourly earning of wage earners-----	\$0.33	\$0.28	\$0.34
Sheet and scrap mica-----				Tons of mica produced per man-hour-----	0.027	0.028	0.030
Tons of 2,000 pounds-----	20,731	12,605	8,125	Average number of equivalent full days operations were active-----	198	189	211
Value at mine or plant-----	\$315,501	\$184,485	\$131,016	Horsepower rating of power equipment, total-----	1,696	843	853
Sheet mica-----				Per wage earner-----	8.9	7.6	10.8
Pounds-----	229,852	125,503	104,359	Stationary equipment-----	1,419	787	632
Value at mine or plant-----	\$82,755	\$30,329	\$32,426	Mobile equipment-----	277	56	221
Scrap mica-----				Electric energy consumed (thousands of kw.-hrs.), total-----	865	750	115
Tons of 2,000 pounds-----	20,616	12,543	8,073	Purchased-----	215	750	65
Value at mine or plant-----	\$252,745	\$154,156	\$98,590	Generated by reporting companies-----	50	-----	50
Value of all products-----	\$926,573	\$184,485	\$142,098				
Principal expenses designated below, total-----	⁴ \$189,657	\$96,919	\$88,648				
Wages-----	\$118,397	\$55,528	\$62,869				
Salaries-----	\$20,219	\$9,161	\$6,958				
Supplies and materials-----	\$25,285	\$14,170	\$11,115				
Fuel-----	\$10,111	\$4,420	\$5,691				
Purchased electric energy-----	\$15,546	\$13,640	\$1,906				
Contract work-----	\$109	-----	\$109				

¹ For definition of the industry see table 1, footnote 1.² California, 1 mine and 1 plant; Colorado, 1 mine; Connecticut, 1 mine; Georgia, 1 mine; Maine, 1 mine; South Dakota, 2 mines; Vermont, 1 mine and 1 plant; and Virginia, 2 mines and 1 plant.³ Companies with operations in more than 1 State are counted only once in the totals.⁴ Includes statistics for central-office employees in Illinois.⁵ Includes, in addition to value of sheet and scrap mica produced during the year, \$11,072 representing the value of beryl, feldspar, garnet, lithium minerals, quartz and tantalite produced as secondary products.TABLE 3.—NUMBER OF WAGE EARNERS IN THE MICA INDUSTRY IN THE UNITED STATES, BY STATE AND BY MONTH: 1939¹

STATE	Average for the 12 months	NUMBER RECEIVING PAY DURING PAY-ROLL PERIOD ENDING NEAREST THE 15TH OF THE MONTH											
		January	February	March	April	May	June	July	August	September	October	November	December
United States-----	190	155	149	161	180	180	190	196	207	222	213	218	206
North Carolina-----	111	87	83	89	102	109	117	125	137	133	115	119	114
Other States-----	79	68	66	72	78	71	73	71	70	89	98	99	92

¹ For definition of the industry see table 1, footnote 1.TABLE 4.—EMPLOYMENT AND WORKING TIME IN THE MICA INDUSTRY IN THE UNITED STATES, BY DEPARTMENT AND BY STATE: 1939¹

DEPARTMENT	United States	North Carolina	Other States	DEPARTMENT	United States	North Carolina	Other States
Average number of wage earners on active days, total-----	226	132	94	Number of man-shifts worked by wage earners, total-----	44,996	24,963	20,033
At mines, total ² -----	151	71	80	On active days, total-----	44,815	24,963	19,852
Underground-----	60	20	40	At mines, total ² -----	30,905	14,025	16,880
Open-pit-----	91	51	40	Underground-----	13,939	5,444	8,495
At preparation plants-----	75	61	14	Open-pit-----	16,966	8,581	8,385
Average number of equivalent full days operations were active-----	198	189	211	At preparation plants-----	13,910	10,938	2,972
At mines-----	205	198	211	On inactive days-----	191	-----	151
Underground-----	232	272	212	Number of man-hours worked by wage earners, total-----	360,603	199,704	160,899
Open-pit-----	186	168	210	On active days, total-----	359,155	199,704	159,449
At preparation plants-----	185	179	212	At mines, total ² -----	247,212	112,198	135,014
				Underground-----	111,507	43,551	67,956
				Open-pit-----	135,705	68,547	67,058
				At preparation plants-----	111,941	87,506	24,436
				On inactive days-----	1,450	-----	1,450

¹ For definition of the industry see table 1, footnote 1.² No employment was reported at surface shops and yards.

TABLE 5.—NUMBER OF MAN-SHIFTS WORKED BY WAGE EARNERS ON ACTIVE DAYS AT MINES AND AT PREPARATION PLANTS IN THE MICA INDUSTRY IN THE UNITED STATES, BY SHIFT AND BY STATE: 1939 ¹

SHIFT AND DEPARTMENT	UNITED STATES		North Carolina	Other States
	Number	Percent of total		
Number of man-shifts worked by wage earners on active days, total—	44,815	100.0	24,963	19,852
During first shift—	40,248	89.8	20,939	19,308
During second shift—	3,847	8.6	3,336	511
During third shift—	720	1.6	688	32
At mines, total—	30,905	100.0	14,025	16,880
During first shift—	28,330	91.7	11,450	16,880
During second shift—	2,182	7.0	2,182	—
During third shift—	593	1.3	393	—
At preparation plants, total—	13,910	100.0	10,938	2,972
During first shift—	11,918	85.7	9,489	2,429
During second shift—	1,665	12.0	1,154	511
During third shift—	327	2.3	295	32

¹ For definition of the industry see table 1, footnote 1. Figures refer only to man-shifts worked by wage earners on active days; they exclude statistics for inactive days, when only maintenance work was carried on.

TABLE 6.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE MICA INDUSTRY IN THE UNITED STATES, BY TYPE AND BY STATE: 1939 ¹

STATE AND TYPE OF EQUIPMENT	PRIME MOVERS AND ELECTRIC MOTORS DRIVEN BY PURCHASED ENERGY									ELECTRIC MOTORS DRIVEN BY ENERGY GENERATED BY REPORTING COMPANIES	
	Aggregate horsepower	Prime movers ²						Electric motors driven by purchased energy			
		Total		Driving generators		Not driving generators					
		Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower
United States, total—	1,696	28	954	1	270	27	684	37	742	14	271
Stationary ³ —	1,419	19	677	1	270	18	407	37	742	14	271
Mobile ⁴ —	277	9	277			9	277				
North Carolina, total—	843	6	181			6	181	33	662		
Stationary ³ —	787	5	125			5	125	33	662		
Mobile ⁴ —	56	1	56			1	56				
Other States, total—	655	22	773	1	270	21	503	4	80	14	271
Stationary ³ —	632	14	552	1	270	13	282	4	80	14	271
Mobile ⁴ —	221	8	221			8	221				

¹ For definition of the industry see table 1, footnote 1.

² No prime movers ordinarily idle were reported.

³ Horsepower rating of engines, motors, etc. for driving stationary or fixed equipment such as mine hoists, electric generators, pumps, etc.

⁴ Horsepower rating of engines, motors, etc. for driving mobile equipment such as power shovels, tractors, trucks, etc.

TABLE 7.—SELECTED STATISTICS FOR INCORPORATED AND FOR UNINCORPORATED OPERATING COMPANIES IN THE MICA INDUSTRY IN THE UNITED STATES, BY STATE: 1939 ¹

STATE AND TYPE OF OWNERSHIP	Number of operating companies	Number of mines	Number of plants	Production of mica (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED					Wages	Salaries
						Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members			
									Total	Performing manual labor		
United States, total—	22	21	10	20,731	\$326,573	² 221	190	² 20	11	7	\$119,397	² \$20,219
Incorporated—	11	10	5	8,731	165,940	² 133	118	² 15	—	—	78,550	² 14,635
Unincorporated—	11	11	5	12,000	160,633	88	72	5	11	7	39,847	5,584
North Carolina, total—	12	11	7	12,606	184,485	130	111	12	7	3	55,528	9,161
Incorporated—	5	4	3	4,105	61,001	57	50	7	—	—	26,027	4,020
Unincorporated—	7	7	4	8,501	123,484	73	61	5	7	3	29,501	5,141
Other States, total—	10	10	3	8,125	142,068	87	79	4	4	4	62,869	6,958
Incorporated—	6	6	2	4,626	104,959	72	68	4	—	—	52,523	6,515
Unincorporated—	4	4	1	3,499	37,149	15	11	—	4	4	10,346	443

¹ For definition of the industry see table 1, footnote 1.

² Includes statistics for central-office employees in Illinois.

TABLE 8.—SELECTED STATISTICS FOR MICA OPERATIONS IN THE UNITED STATES, CLASSIFIED BY VALUE OF PRODUCTS: 1939¹

VALUE OF PRODUCTS	Number of mines	Number of preparation plants	Production of mica (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED					Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members			
								Total	Performing manual labor		
United States, total-----	21	10	20,781	\$326,573	221	190	20	11	7	\$118,397	\$20,219
\$1 - \$9,999-----	16	7	10,691	148,257	132	115	9	8	7	68,061	6,778
\$20,000 - \$49,999-----	5	3	10,040	178,316	83	75	5	3	-----	50,336	5,341
Unclassified-----	-----	-----	-----	-----	6	-----	6	-----	-----	-----	8,100

¹ For definition of the industry see table 1, footnote 1. Reports classified by value of products represent a single mine, a single preparation plant, or a single mine and a single preparation plant reported together. Statistics shown for "Unclassified" represent reports for central offices reported separately from their associated mica operations.

TABLE 9.—SELECTED STATISTICS FOR MICA OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF WAGE EARNERS: 1939¹

NUMBER OF WAGE EARNERS	Number of mines	Number of preparation plants	Production of mica (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED					Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members			
								Total	Performing manual labor		
United States, total-----	21	10	20,781	\$326,573	221	190	20	11	7	\$118,397	\$20,219
1 - 5-----	8	2	4,796	58,119	33	27	2	4	4	20,308	1,078
6 - 20-----	7	7	13,880	223,229	155	141	11	3	-----	80,885	9,041
21 - 50-----	2	1									
Unclassified-----	4	-----	2,053	45,225	33	22	7	4	3	17,204	10,100

¹ For definition of the industry see table 1, footnote 1. Reports classified by average number of wage earners employed during the year represent a single mine, a single preparation plant, or a single mine and a single preparation plant reported together. Statistics shown for "Unclassified" represent reports on which number of wage earners, by month, was not adequately reported and reports for central offices reported separately from their associated mica operations.

TABLE 10.—SELECTED STATISTICS FOR MICA OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF HOURS PER WAGE EARNER IN THE FULL-TIME WORKWEEK: 1939¹

HOURS PER WEEK	Number of mines	Number of preparation plants	Production of mica (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED					Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members			
								Total	Performing manual labor		
United States, total-----	21	10	20,781	\$326,573	221	190	20	11	7	\$118,397	\$20,219
40-----	3	2	5,107	88,039	72	63	8	1	-----	33,368	4,806
41 - 42-----	5	5	6,800	68,983	58	53	3	2	-----	27,837	4,235
43 - 44-----	5	1	4,400	82,008	37	34	1	2	2	29,764	120
45-----	1	1									
Unclassified-----	7	1	4,424	87,543	54	40	8	6	5	27,428	11,058

¹ For definition of the industry see table 1, footnote 1. Reports were classified by number of hours in the full-time workweek reported for wage earners in that department of the operation for which the largest number of man-hours worked was reported. Statistics shown for "Unclassified" represent reports on which number of hours was not reported and reports for central offices reported separately from their associated mica operations.

TABLE 11.—SELECTED STATISTICS FOR MICA OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF DAYS ACTIVE DURING THE YEAR: 1939¹

THE YEAR: 1900

NUMBER OF DAYS ACTIVE DURING THE YEAR	Number of mines	Number of preparation plants	Production of mica (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED					Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members			
								Total	Performing manual labor		
United States, total-----	21	10	20,781	\$326,573	221	190	20	11	7	\$118,397	\$20,219
50 - 99-----	3	2	1,470	14,318	15	14	1	-----	-----	9,643	515
100 - 199-----	3	3	-----	-----	-----	-----	-----	-----	-----	-----	-----
200 - 299-----	-----	1	7,907	80,947	50	43	3	4	2	25,634	1,865
300 - 399-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
400 - 499-----	7	3	7,393	149,704	107	97	9	1	-----	58,036	7,296
500 - 599-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
600 - 699-----	3	1	-----	-----	-----	-----	-----	-----	-----	-----	-----
700 - 799-----	6	1	3,961	81,604	49	36	7	6	5	25,084	10,543
Unclassified-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

¹ For definition of the industry see table 1, footnote 1. Reports classified by number of days active represent a single mine, a single preparation plant, or a single mine and a single preparation plant reported together; such reports for a single mine or a single preparation plant were classified by number of days the mine or preparation plant was in operation for production or development purposes during the year; such reports for a single mine and a single preparation plant reported together were classified by number of days the mine was in operation during the year. Statistics shown for "Unclassified" represent reports on which number of days active was not reported and reports for central offices reported separately from their associated mica operations.

NATIVE ASPHALT AND BITUMENS

The native asphalt and bitumens industry in the United States had products valued at \$2,968,000 in 1939. Of the total value of products, \$2,818,000 represented the value of the 495,000 short tons of native asphalt and bitumens produced. The remaining \$150,000 represented principally the value added by mixing native asphalt materials with such petroleum products as flux and cut-back asphalt for the purpose of making paving mixtures.

Native asphalt and bitumens and manufactured or petroleum asphalt produced at petroleum refineries have many similar uses. Bituminous rock, in crushed or pulverized form, is used principally for street and highway surfacing and for other paving purposes. Gilsonite and wurtzilite have a variety of uses including the manufacture of paint, varnish, printing inks, weatherproofing, roofing, insulation, and molding compounds and, in addition, are used for blending with rubber. Native asphalt and bitumens produced in 1939 represented less than 10 percent of the tonnage of manufactured or petroleum asphalt produced at petroleum refineries in that year.

The native asphalt and bitumens industry paid \$608,000 in wages. Salaried employees were paid \$285,000. Supplies and materials consumed during 1939 cost \$317,000; fuel, \$68,000; and purchased electric energy, \$28,000. The amount paid for work done on contract by other concerns was less than \$1,000. Buildings, machinery, and equipment costing \$115,000 were erected or installed during the year.

The number of wage earners employed by the industry averaged 730, varying from a minimum of 473 in February to a maximum of 991 in August. In addition, 123 salaried employees were reported for the month of October. The wage earners worked a total of about 1,330,000 man-hours, an average of 8.2 hours per shift; the average wage per man-hour was 46 cents. The average number of equivalent full days operations were active, which indicates approximately the number of days worked per wage earner, was 159 for the industry as a whole. Practically all mines worked only one shift per day; one mine reported operating two shifts per day for at least a part of the year. Bituminous rock represented about 92 percent of the total tonnage of native asphalt and bitumens produced in 1939 and was valued

at \$4.01 per ton at points of production. Bituminous rock was produced in Alabama, California, Kansas, Kentucky, Missouri, Ohio, Oklahoma, Texas, and Utah, principally at open-cut mines. Of the total production of bituminous rock, operations in Kentucky, Oklahoma, and Texas accounted for about 80 percent. Five plants were reported engaged in the mixing of crushed and pulverized bituminous rock with such materials as flux and cut-back asphalt for paving mixtures. Gilsonite and wurtzilite, representing about 8 percent of the total tonnage of native asphalt and bitumens produced in 1939 and having an average value of about \$26 per ton, were produced only at underground mines in Utah.

Power equipment in use or available for use by the industry at the end of 1939 had an aggregate rating of 12,966 horsepower, representing an average of about 18 available horsepower per wage earner. Of the total, 8,690 horsepower represented the rating of prime movers and 4,276 horsepower represented the rating of electric motors driven by purchased energy. About 58 percent of the total horsepower represented the rating of power units used for driving stationary or fixed equipment such as mine hoists, electric generators, and crushing, pulverizing, and mixing equipment. The remaining 42 percent represented the rating of power units used for driving mobile equipment such as dragline excavators, power shovels, tractors, and trucks. The industry consumed 1,516,000 kilowatt-hours of electricity in 1939, of which 78 percent was purchased and the remainder generated by the reporting companies.

The total consumption of coal was 14,095 short tons. Fuel oils consumed amounted to 4,783 barrels and gasoline and kerosene used during the year totaled 163,576 gallons. The consumption of natural gas was over 1,000,000 cubic feet.

At the end of the year operations in the industry were equipped with 28 power shovels, 14 driven by steam engines, 11 by internal-combustion engines, and 3 by electric motors; 10 clamshell or orange-peel loaders and cranes, 6 driven by steam engines and 4 by internal-combustion engines; and 3 dragline excavators, 2 driven by internal-combustion engines and 1 by electricity. In addition, 2 underground shovel loaders driven by compressed air were reported.

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TABLE 1.—PRINCIPAL STATISTICS FOR THE NATIVE ASPHALT AND BITUMENS INDUSTRY IN THE UNITED STATES: 1939, 1929, 1919, 1909, 1902, 1889, AND 1880¹
(For producing operations only)

ITEM	1939	1929	1919	1909	1902	1889	1880
Number of operating companies ²	23	(³)	(³)	12	24	(³)	(³)
Number of mines	23	25	12	19	24	(³)	(³)
Production of native asphalt (tons of 2,000 pounds)	494,864	819,438	(³)	(³)	66,258	51,755	2
Value of all products	\$2,968,145	\$5,123,856	\$749,520	\$466,461	\$256,728	\$171,537	444
Value of native asphalt produced	\$2,818,367	\$5,122,755	\$749,520	(³)	(³)	(³)	\$4,440
Value of other products and services rendered	\$149,778	\$1,081	(³)	(³)	(³)	(³)	(³)
Number of persons engaged, total	860	1,307	387	231	208	136	12
Wage earners (average for the year)	730	1,123	324	205	156	126	12
Salaried employees	125	183	65	26	52	10	(³)
Proprietors and firm members	7	1	(³)	(³)	(³)	(³)	(³)
Performing manual labor	1	(³)	(³)	(³)	(³)	(³)	(³)
Principal expenses designated below, total	\$1,306,168	\$2,619,666	\$837,855	\$268,409	\$159,791	\$98,727	\$2,220
Wages	\$507,729	\$1,254,855	\$294,652	\$128,977	\$79,570	\$59,555	\$2,220
Salaries	\$284,659	\$585,563	\$136,401	\$44,129	\$48,253	\$58,948	(³)
Supplies and materials	\$516,695	\$517,712	\$378,009	\$66,159	(³)	(³)	(³)
Fuel	\$68,445	\$138,500	\$24,876	\$13,596	\$21,928	\$13,884	(³)
Purchased electric energy	\$28,062	\$58,785	(³)	(³)	(³)	(³)	(³)
Contract work	\$580	\$84,273	\$5,917	\$15,546	\$10,060	\$8,340	(³)
Cost of machinery and equipment erected or installed during year	\$89,295	\$182,214	(³)	(³)	(³)	(³)	(³)
Horsepower rating of prime movers and electric motors driven by purchased energy, total	12,966	13,109	648	828	720	(³)	(³)
Per wage earner	17.8	11.7	2.0	4.6	4.6	(³)	(³)
Prime movers	8,690	10,177	648	828	720	(³)	(³)
Electric motors driven by purchased energy	4,276	2,932	(³)	(³)	(³)	(³)	(³)
Horsepower rating of electric motors driven by energy generated by reporting companies	1,348	3,136	(³)	(³)	25	(³)	(³)
Fuels consumed:							
Anthracite (tons of 2,000 pounds)	250	(³)	(³)	(³)	(³)	(³)	(³)
Bituminous coal (tons of 2,000 pounds)	13,845	31,173	5,427	(³)	(³)	(³)	(³)
Fuel oils (barrels of 42 gallons)	4,783	25,302	2,761	(³)	(³)	(³)	(³)
Gasoline and kerosene (gallons)	165,576	112,471	6,468	(³)	(³)	(³)	(³)
Natural gas (thousands of cubic feet)	1,032	(³)	(³)	(³)	(³)	(³)	(³)
Electric energy consumed (thousands of kw.-hrs.), total	1,516	4,509	(³)	(³)	(³)	(³)	(³)
Purchased	1,185	1,426	(³)	(³)	(³)	(³)	(³)
Generated by reporting companies	331	3,083	(³)	(³)	(³)	(³)	(³)

¹The native asphalt and bitumens industry includes mines engaged in producing crude native asphalt and bitumens and includes associated preparation plants such as crushing, pulverizing, and screening plants. Data covering the preparation of paving mixtures by the mixing of crushed and pulverized bituminous rock with petroleum products such as flux and cut-back asphalt were included for 1939 when these activities were performed at or in conjunction with the mines. Statistics for the production of manufactured or petroleum asphalt by petroleum refineries are excluded. Figures for 1939 cover only those producing operations (mines, plants, or mines and plants operated together) for which the value of products; reported principal expenses; or cost of buildings, machinery, and equipment erected or installed during the year amounted to at least \$2,500. Statistics are thus excluded for a small quantity of bitumen produced at a small mine in Utah in 1939. No nonproducing operations were reported for 1939. Figures for 1929 cover only "enterprises" for which the value of products or cost of development work amounted to at least \$2,500; the corresponding minimum for 1919 was \$500 for value of products and \$5,000 for cost of development work. No minimum was placed on the size of operations included for 1909, 1902, 1889, and 1880.

²For 1939 and 1909, companies that submitted more than one report are counted only once in the totals.

³Not available.

⁴Excludes statistics for items for which information was not available as indicated by footnotes.

⁵On schedules for the 1902 census, concerns were instructed that "The average number employed during the year is the number that would be required, at continuous employment for the twelve months, to produce the quantity of products reported." "In editing the schedules ... the figures for the average number of employees were reduced to a 300-day basis whenever the schedules showed them to be the average number for a shorter period; when it was evident that the employees had worked more than 300 days, the average number for the longer period was allowed to stand."

⁶The 1889 census schedule called for "average number employed," presumably an average for active periods; and requested that figures for wage earners "include those employed by contractors and subcontractors."

⁷For 1909 statistics include amounts paid for purchased power other than electric. Statistics for cost of purchased power for 1902 and 1889 were not explicitly requested but probably are included in part in the figures reported for supplies and materials.

TABLE 2.—PRINCIPAL STATISTICS FOR THE NATIVE ASPHALT AND BITUMENS INDUSTRY IN THE UNITED STATES, BY STATE: 1939¹

ITEM	United States	Kentucky	Texas	Utah	Other States ²
Number of operating companies ³ -----	23	3	3	9	9
Number of mines-----	23	3	3	9	8
Number of preparation plants-----	15	2	3	3	7
Number of persons engaged, total-----	4660	325	108	183	233
Wage earners (average for the year)-----	730	294	77	165	194
Salaries-----	423	31	29	16	36
Proprietors and firm members-----	7	-----	2	2	3
Performing manual labor-----	1	-----	1	-----	-----
Production of native asphalt and related bitumens:					
Tons of 2,000 pounds-----	494,864	146,132	135,313	56,405	157,014
Value at mines or plants-----	\$2,618,367	\$921,409	\$219,705	\$1,079,931	\$597,322
Value of all products-----	\$2,968,145	\$921,409	\$332,255	\$1,079,931	\$654,550
Principal expenses designated below, total-----	\$1,306,188	\$396,205	\$182,263	\$368,706	\$339,974
Wages-----	\$607,729	\$200,301	\$54,531	\$204,004	\$146,893
Salaries-----	\$284,659	\$53,465	\$59,051	\$41,522	\$101,601
Supplies and materials-----	\$316,695	\$98,057	\$47,714	\$102,651	\$66,093
Fuel-----	\$68,443	\$34,382	\$7,645	\$14,135	\$12,278
Purchased electric energy-----	\$28,082	-----	\$13,322	\$6,211	\$8,529
Contract work-----	\$580	-----	-----	-----	\$580
Cost of buildings, machinery, and equipment erected or installed during year-----	\$115,221	\$37,976	\$24,945	\$33,294	\$19,004
Buildings-----	\$25,926	\$2,587	-----	\$21,476	\$1,663
Machinery and equipment, total-----	\$89,295	\$35,391	\$24,945	\$11,818	\$17,141
Purchased in new condition-----	\$72,063	\$32,347	\$14,996	\$10,954	\$13,786
Purchased in used condition-----	\$17,212	\$3,044	\$9,949	\$864	\$3,355
Total number of man-shifts worked by wage earners-----	182,395	64,115	19,629	39,618	38,633
Total number of man-hours worked by wage earners-----	1,329,676	547,250	157,034	315,115	310,479
Average number of hours worked per shift-----	8.2	8.5	8.0	7.9	8.0
Average hourly earning of wage earners-----	\$0.46	\$0.37	\$0.35	\$0.65	\$0.48
Tons of native asphalt and bitumens produced per man-hour-----	0.372	0.267	0.862	0.179	0.506
Average number of equivalent full days operations were active-----	159	116	301	209	179
Horsepower rating of power equipment, total-----	12,966	3,250	4,296	1,746	3,674
Per wage earner-----	17.8	11.1	55.6	10.6	18.9
Stationary equipment-----	7,540	1,275	3,329	1,179	1,757
Mobile equipment-----	5,426	1,975	967	567	1,917
Electric energy consumed (thousands of kw.-hrs.), total-----	1,516	70	667	397	382
Purchased-----	1,185	-----	423	380	382
Generated by reporting companies-----	331	70	244	17	-----

¹For definition of the industry see table 1, footnote 1.²Alabama, 2 mines and 2 plants; California, 2 mines and 1 plant; and Kansas, Missouri, Ohio, and Oklahoma, 1 mine and 1 plant each.³Companies with operations in more than 1 State are counted only once in the totals.⁴Includes statistics for central-office employees in Illinois, New Jersey, and New York.⁵Represents crushed and pulverized bituminous rock, crude bituminous rock mined but not prepared, crude and prepared gilsonite, and crude wurtzite.⁶Includes \$149,778 representing principally the value added by mixing crushed and pulverized bituminous rock with such materials as flux and cut-back asphalt for paving mixtures and secondarily the value of crushed limestone and trap rock produced as secondary products.TABLE 3.—NUMBER OF WAGE EARNERS IN THE NATIVE ASPHALT AND BITUMENS INDUSTRY IN THE UNITED STATES, BY STATE AND BY MONTH: 1939¹

STATE	Average for the 12 months	NUMBER RECEIVING PAY DURING PAY-ROLL PERIOD ENDING NEAREST THE 15TH OF THE MONTH											
		January	February	March	April	May	June	July	August	September	October	November	December
United States-----	730	514	473	503	623	808	938	935	991	931	779	748	511
Kentucky-----	294	138	93	102	161	357	429	445	492	450	363	348	126
Texas-----	77	74	74	74	70	75	79	82	86	80	77	62	76
Utah-----	165	134	143	150	170	162	194	193	199	174	159	150	151
Other States-----	194	168	163	177	202	214	236	215	214	227	180	166	158

¹For definition of the industry see table 1, footnote 1.

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TABLE 4.—EMPLOYMENT AND WORKING TIME IN THE NATIVE ASPHALT AND BITUMENS INDUSTRY IN THE UNITED STATES,
BY DEPARTMENT AND BY STATE: 1939¹

DEPARTMENT	United States	Kentucky	Texas	Utah	Other States
Average number of wage earners on active days, total-----	988	531	65	189	213
At mines, total-----	833	463	36	178	156
Underground-----	191	94	-----	93	4
Open-pit-----	539	335	31	30	143
Surface shops and yards-----	103	34	5	55	9
At preparation plants-----	185	68	29	11	57
Average number of equivalent full days operations were active-----	189	116	301	209	179
At mines, total-----	153	108	291	211	185
Underground-----	120	27	-----	215	120
Open-pit-----	158	129	284	222	185
Surface shops and yards-----	184	129	333	200	208
At preparation plants-----	193	171	314	164	165
Number of man-shifts worked by wage earners, total-----	162,395	64,115	19,629	39,818	38,833
On active days, total-----	158,991	61,790	19,567	39,440	38,194
At mines, total-----	127,075	50,150	10,471	37,637	28,817
Underground-----	22,937	2,499	-----	19,958	480
Open-pit-----	85,178	43,256	8,794	6,660	26,468
Surface shops and yards-----	18,960	4,395	1,677	11,019	1,869
At preparation plants-----	31,916	11,640	9,096	1,803	9,377
On inactive days-----	3,404	2,325	62	378	639
Number of man-hours worked by wage earners, total-----	1,329,878	547,250	157,054	515,115	310,479
On active days, total-----	1,305,286	530,950	156,539	512,431	305,367
At mines, total-----	1,043,653	431,831	83,772	298,004	230,046
Underground-----	183,176	21,992	-----	157,824	3,360
Open-pit-----	708,058	372,679	70,358	53,280	211,741
Surface shops and yards-----	152,419	37,160	13,414	86,900	14,945
At preparation plants-----	251,633	98,119	72,766	14,427	75,321
On inactive days-----	24,592	16,300	496	2,684	5,112

¹For definition of the industry see table 1, footnote 1.TABLE 5.—QUANTITY OF FUEL AND ELECTRIC ENERGY CONSUMED IN THE NATIVE ASPHALT AND BITUMENS INDUSTRY IN THE UNITED STATES,
BY STATE AND BY KIND: 1939¹

STATE	FUEL					ELECTRIC ENERGY (thousands of kilowatt hours)		
	Anthracite (tons of 2,000 pounds)	Bituminous coal (tons of 2,000 pounds)	Fuel oils (barrels of 42 gallons)	Gasoline and kerosene (gallons)	Natural gas (thousands of cubic feet)	Total	Purchased	Generated by reporting companies
United States, total-----	250	13,845	4,783	163,576	1,032	1,516	1,185	331
Kentucky-----	-----	12,796	890	13,470	-----	70	-----	70
Texas-----	-----	-----	3,006	29,315	-----	667	423	244
Utah-----	250	176	841	64,893	-----	397	380	17
Other States-----	-----	873	46	56,098	1,032	382	382	-----

¹For definition of the industry see table 1, footnote 1.

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TABLE 6.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE NATIVE ASPHALT AND BITUMENS INDUSTRY IN THE UNITED STATES, BY TYPE AND BY STATE: 1939¹

STATE AND TYPE OF EQUIPMENT	PRIME MOVERS AND ELECTRIC MOTORS DRIVEN BY PURCHASED ENERGY										ELECTRIC MOTORS DRIVEN BY ENERGY GENERATED BY REPORTING COMPANIES		
	Aggregate horsepower	Prime movers								Electric motors driven by purchased energy		Number	Horsepower
		Total		Driving generators		Not driving generators		Ordinarily idle (included in preceding columns)		Number	Horsepower		
		Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower				
United States, total-----	12,966	138	8,690	6	1,233	132	7,457	1	5	118	4,276	48	1,348
Stationary ² -----	7,540	37	3,364	6	1,233	31	2,131	-----	-----	116	4,176	46	1,220
Mobile ³ -----	5,426	101	5,326	-----	-----	101	5,326	1	5	2	100	2	128
Kentucky, total-----	3,250	53	3,250	2	250	51	3,000	-----	-----	-----	-----	21	540
Stationary ² -----	1,275	6	1,275	2	250	4	1,025	-----	-----	-----	-----	21	540
Mobile ³ -----	1,975	47	1,975	-----	-----	47	1,975	-----	-----	-----	-----	-----	-----
Texas, total-----	4,296	20	2,260	2	935	18	1,325	-----	-----	38	2,036	21	688
Stationary ² -----	3,329	8	1,293	2	935	6	358	-----	-----	38	2,036	19	560
Mobile ³ -----	967	12	967	-----	-----	12	967	-----	-----	-----	-----	2	128
Utah, total-----	1,746	31	853	2	48	29	805	1	5	35	893	-----	-----
Stationary ² -----	1,179	18	366	2	48	16	338	-----	-----	33	793	-----	-----
Mobile ³ -----	567	13	487	-----	-----	13	467	1	5	2	100	-----	-----
Other States, total-----	3,674	34	2,327	-----	-----	34	2,327	-----	-----	45	1,347	6	120
Stationary ² -----	1,757	5	410	-----	-----	5	410	-----	-----	45	1,347	6	120
Mobile ³ -----	1,917	29	1,917	-----	-----	29	1,917	-----	-----	-----	-----	-----	-----

¹For definition of the industry see table 1, footnote 1.²Horsepower rating of engines, motors, etc. used for driving stationary or fixed equipment such as mine hoists, electric generators, crushing, pulverizing, and mixing equipment, etc.³Horsepower rating of engines, motors, etc. used for driving mobile equipment such as dragline excavators, power shovels, tractors, trucks, etc.TABLE 7.—NUMBER OF POWER-LOADING MACHINES IN THE NATIVE ASPHALT AND BITUMENS INDUSTRY IN THE UNITED STATES, BY TYPE, BY KIND OF POWER USED, BY SIZE, AND BY STATE: 1939¹

TYPE OF MACHINE, KIND OF POWER USED, AND SIZE	United States	Kentucky	Texas	Utah	Other States
Surfaces:					
Power shovels, total	28	13	2	2	11
Kind of power used:					
Steam	14	11	—	—	3
Electric	3	—	1	2	—
Internal-combustion engine	11	2	1	—	8
Dipper capacity (cu. yds.):					
Less than 3	26	11	2	2	11
3 - 5	2	2	—	—	—
Dragline excavators, total ²	5	—	3	—	—
Kind of power used:					
Steam	—	—	—	—	—
Electric	1	—	1	—	—
Internal-combustion engine	2	—	2	—	—
Clamshells or orange-peel loaders ³	5	4	—	—	1
Cranes and hoists, total	5	3	—	—	2
Kind of power used:					
Steam	1	1	—	—	—
Internal-combustion engine	4	2	—	—	2
Other types ⁴	2	—	—	—	2
Underground:					
Shovel loaders ⁵	2	2	—	—	—

¹For definition of the industry see table 1, footnote 1.²All had bucket capacities of less than 3 cubic yards.³All were driven by steam power.⁴All were driven by internal-combustion engines.⁵All were driven by compressed air and required a minimum working height of more than 8 feet.

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TABLE 8.—SELECTED STATISTICS FOR INCORPORATED AND FOR UNINCORPORATED OPERATING COMPANIES IN THE NATIVE ASPHALT AND BITUMENS INDUSTRY IN THE UNITED STATES, BY STATE: 1939¹

STATE AND TYPE OF OWNERSHIP	Number of operating companies	Number of mines	Number of preparation plants	Production of native asphalt and bitumens (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
						Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
									Total	Performing manual labor	
United States, total-----	23	23	15	494,864	\$2,968,145	² 860	730	² 123	7	1	\$607,729 ² \$284,659
Incorporated-----	16	17	12	434,221	2,727,859	² 775	677	² 96	-----	-----	576,480 ² 237,287
Unincorporated-----	7	6	3	60,643	240,506	85	53	27	7	1	31,249 ² 47,372
Kentucky ¹ -----	3	3	2	146,132	921,409	325	294	31	-----	-----	200,301 ² 63,465
Texas, total-----	3	3	3	135,313	332,255	108	77	29	2	1	54,531 ² 59,051
Incorporated-----	2	2	2	135,313	332,255	108	77	29	2	1	54,531 ² 59,051
Unincorporated-----	1	1	1								
Utah, total-----	9	9	3	56,405	1,079,931	183	165	16	2	-----	204,004 ² 41,522
Incorporated-----	7	7	3	56,405	1,079,931	183	165	16	2	-----	204,004 ² 41,522
Unincorporated-----	2	2	-----								
Other States, total-----	9	8	7	157,014	634,550	233	194	36	3	-----	148,893 ² 101,601
Incorporated-----	5	5	5	149,509	599,188	207	174	33	-----	-----	143,460 ² 97,201
Unincorporated-----	4	3	2	7,505	35,362	26	20	3	3	-----	5,433 ² 4,400

¹For definition of the industry see table 1, footnote 1.²Includes statistics for central-office employees in Illinois, New Jersey, and New York.³Incorporated only; no unincorporated operating companies were reported.TABLE 9.—SELECTED STATISTICS FOR NATIVE ASPHALT AND BITUMENS OPERATIONS IN THE UNITED STATES, CLASSIFIED BY VALUE OF PRODUCTS AND BY STATE: 1939¹

STATE AND VALUE OF PRODUCTS	Number of mines	Number of preparation plants	Production of native asphalt and bitumens (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
								Total	Performing manual labor	
United States, total-----	23	15	494,864	\$2,968,145	² 860	730	² 123	7	1	\$607,729 ² \$284,659
\$1 - \$19,999-----	6	2	13,931	41,290	38	31	4	3	-----	21,858 ² 3,537
\$20,000 - \$49,999-----	3	3	24,802	92,743	39	33	5	1	-----	14,112 ² 7,540
\$50,000 - \$99,999-----	5	3	41,634	346,327	61	75	5	1	-----	84,895 ² 7,164
\$100,000 - \$249,999-----	6	5	195,678	861,613	326	295	30	1	1	226,698 ² 66,415
\$250,000 - \$499,999-----	1	1	218,619	1,606,172	321	296	25	-----	-----	259,966 ² 44,560
\$500,000 - \$999,999-----	2	1								
Unclassified-----	-----	-----	-----	-----	² 55	-----	² 54	1	-----	² 153,423
Kentucky, total-----	3	2	146,132	921,409	325	294	31	-----	-----	200,301 ² 63,465
\$1 - \$19,999-----	1	-----	146,132	921,409	319	294	25	-----	-----	200,301 ² 41,465
\$100,000 - \$249,999-----	1	1								
\$500,000 - \$999,999-----	1	1								
Unclassified-----	-----	-----	-----	-----	6	-----	6	-----	-----	22,000
Texas, total-----	3	3	135,313	332,255	108	77	29	2	1	54,531 ² 59,051
\$20,000 - \$49,999-----	1	1	135,313	332,255	94	77	16	1	1	54,531 ² 32,213
\$100,000 - \$249,999-----	2	2								
Unclassified-----	-----	-----	-----	-----	14	-----	13	1	-----	26,638
Utah, total-----	9	3	56,405	1,079,931	183	165	16	2	-----	204,004 ² 41,522
\$1 - \$19,999-----	2	-----	27,112	305,541	77	71	4	2	-----	76,164 ² 4,764
\$50,000 - \$99,999-----	4	2								
\$100,000 - \$249,999-----	2	1	29,293	776,590	104	94	10	-----	-----	127,640 ² 29,263
\$500,000 - \$999,999-----	1	-----								
Unclassified-----	-----	-----	-----	-----	2	-----	2	-----	-----	7,495
Other States, total-----	8	7	157,014	634,550	233	194	36	3	-----	148,893 ² 101,601
\$1 - \$19,999-----	3	2	12,479	19,980	20	16	2	2	-----	8,520 ² 1,214
\$20,000 - \$49,999-----	2	2	144,535	614,570	191	178	12	1	-----	140,373 ² 22,517
\$50,000 - \$99,999-----	1	1								
\$100,000 - \$249,999-----	1	1								
\$250,000 - \$499,999-----	1	1								
Unclassified-----	-----	-----	-----	-----	22	-----	22	-----	-----	78,070

¹For definition of the industry see table 1, footnote 1. Reports classified by value of products represent a single mine, a single preparation plant, or a single mine and a single preparation plant reported together. Statistics shown for "Unclassified" represent reports for central offices reported separately from their associated native asphalt and bitumens operations.²Includes statistics for central-office employees in Illinois, New Jersey, and New York.

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TABLE 10.—SELECTED STATISTICS FOR NATIVE ASPHALT AND BITUMENS OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OR WAGE EARNERS. 1939¹

NUMBER OF WAGE EARNERS	Number of mines	Number of preparation plants	Production of native asphalt and bitumens (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members Total Performing manual labor		
United States, total—	23	15	494,864	\$2,968,145	860	730	123	7 1	\$607,729	\$284,659
1 - 5	4	1	10,189	28,171	14	10	2	2	10,508	1,214
6 - 20	10	7	102,475	499,356	136	109	23	4 1	75,766	38,044
21 - 50	5	3	118,509	1,031,478	195	181	14	—	211,262	39,019
51 - 100	1	1	—	—	—	—	—	—	—	—
101 - 250	2	2	263,691	1,409,140	515	430	84	1	310,193	206,382
Unclassified	1	1	—	—	—	—	—	—	—	—

¹ For definition of the industry see table 1, footnote 1. Reports classified by average number of wage earners employed during the year represent a single mine, a single preparation plant, or a single mine and a single preparation plant reported together. Statistics shown for "Unclassified" represent reports on which number of wage earners, by month, was not adequately reported and reports for central offices reported separately from their associated native asphalt and bitumens operations.

TABLE 11.—SELECTED STATISTICS FOR NATIVE ASPHALT AND BITUMENS OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF HOURS PER WAGE EARNER IN THE FULL-TIME WORKWEEK: 1939¹

HOURS PER WEEK	Number of mines	Number of preparation plants	Production of native asphalt and bitumens (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members Total Performing manual labor		
United States, total—	23	15	494,864	\$2,968,145	860	730	123	7 1	\$607,729	\$284,659
35	1	1	165,542	1,535,158	303	272	29	2	249,418	53,330
40	7	4	—	—	—	—	—	—	—	—
41 - 42	8	4	125,932	746,002	278	246	29	3 1	172,336	57,796
43 - 44	3	3	103,216	285,088	102	97	5	—	89,122	11,196
Unclassified	4	3	100,174	401,897	177	115	60	2	96,853	162,337

¹ For definition of the industry see table 1, footnote 1. Reports were classified by number of hours in the full-time workweek reported for wage earners in that department of the operation for which the largest number of man-hours worked was reported. Statistics shown for "Unclassified" represent reports on which number of hours was not reported and reports for central offices reported separately from their associated native asphalt and bitumens operations.

TABLE 12.—SELECTED STATISTICS FOR NATIVE ASPHALT AND BITUMENS OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF DAYS ACTIVE DURING THE YEAR: 1939¹

NUMBER OF DAYS ACTIVE DURING THE YEAR	Number of mines	Number of preparation plants	Production of native asphalt and bitumens (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members Total Performing manual labor		
United States, total—	23	15	494,864	\$2,968,145	860	730	123	7 1	\$607,729	\$284,659
1 - 49	1	—	—	—	—	—	—	—	—	—
50 - 99	1	—	46,520	369,675	188	172	11	5	93,448	21,437
100 - 149	6	4	—	—	—	—	—	—	—	—
150 - 199	2	2	186,986	996,856	284	261	23	—	221,727	34,959
200 - 224	2	2	—	—	—	—	—	—	—	—
250 - 274	3	1	39,932	751,728	92	84	8	—	105,610	24,655
275 - 299	1	—	—	—	—	—	—	—	—	—
300 - 324	3	3	127,058	421,509	114	94	19	1 1	84,716	39,448
325 and over	—	—	—	—	—	—	—	—	—	—
Unclassified	4	3	94,368	428,397	182	119	62	1	102,228	164,160

¹ For definition of the industry see table 1, footnote 1. Reports classified by number of days active represent a single mine, a single preparation plant, or a single mine and a single preparation plant reported together; such reports for a single mine or a single preparation plant were classified by number of days the mine or preparation plant was in operation for production or development purposes during the year; such reports for a single mine and a single preparation plant reported together were classified by number of days the mine was in operation during the year. Statistics shown for "Unclassified" represent reports on which number of days active was not reported and reports for central offices reported separately from their associated native asphalt and bitumens operations.

NATURAL ABRASIVES

The natural-abrasives industry of the United States had products valued at \$1,295,000 in 1939, about 35 percent less than in 1929. The industry's products included 86,577 short tons of pumice and pumicite, 9,644 short tons of grindstones and pulpstones, 548 short tons of miscellaneous dimension abrasive stones, and 4,707 short tons of emery, flint lining and pebbles, and garnet. These minerals had an aggregate value at points of production of \$1,135,869; miscellaneous secondary products and other work were valued at \$159,000.

The industry paid \$349,000 in wages to an average of 368 wage earners. Salaried employees, of whom there were 45 in October 1939, received \$106,000. Supplies and materials purchased during the year cost \$148,000; fuels, \$65,000. These expenses, the cost of purchased electric energy, and a small amount paid for contract work totaled \$692,000 for the year. Expenditures for buildings, machinery, and equipment amounted to \$50,000.

The natural-abrasives industry in 1939 included 41 mines and 31 preparation plants, operated by 33 companies. The industry's output of pumice and pumicite was produced at 16 open pits, 3 underground mines, and 14 associated preparation plants operated by 15 companies. The pits and mines were located in California, Kansas, Nebraska, New Mexico, Oklahoma, and Oregon, with California and Kansas accounting for 41 and 44 percent, respectively, of the total output. Pumice and pumicite operations accounted for 30 percent of the value of all products of the natural-abrasives industry. Pumice and pumicite are commercial varieties of volcanic materials formed from the more silicic lavas. "Pumice" is used to denote fragments of a highly cellular, glassy volcanic lava. "Pumicite" refers to a natural volcanic dust or ash of about the same composition as pumice. Pumicite is used largely for cleansing and scouring preparations and abrasive hand soaps. It is also used in increasing amounts as a cement admixture for heat and cold insulation, and for miscellaneous other purposes. Pumice is also used principally for abrasive purposes, usually in ground form. Ground pumice, the grains of which are more sharp and angular than those of pumicite, is used for purposes requiring a more powerful abrasive such as metal polishing. Pumice is also used in accoustc plaster, lightweight concrete aggregate, and other materials.

Grindstones and pulpstones were produced as the major products in 1939 of 13 quarries and 10 associated dressing plants; these quarries and plants were operated by 10 companies. The quarries were located in Ohio and West Virginia, the former accounting for nearly three-fourths of the total tonnage. Operations producing grindstones and pulpstones accounted for 38 percent of the industry's products. Grindstones are used principally for work on metal tools, forgings, etc. Pulpstones are used for grinding wood into fiber for making paper pulp. Grindstones and pulpstones, many over 5 feet in diameter, are shaped from large blocks of sandstone free from cracks and impurities and quarried from carefully selected beds. Sandstone suitable for grindstones should be of uniform and proper hardness, have a sharp, even grain of appropriate size, be free from impurities, and have individual silica grains cemented in such a way as to have proper tenacity and yet crumble away rapidly enough to prevent glazing. Sandstone for pulpstones should cut rapidly and uniformly, wear evenly, and possess other special qualities.

Other dimension abrasive stones produced by the industry include "millstones," a term generally applied to circular grinding stones of varying sizes, and a group of sharpening

and rubbing stones, generally operated by hand, such as oil-stones, whetstones, scythestones, hones, and holystones. Differences between the sharpening stones are not clearly marked, their use varying according to texture and hardness. Some are used dry and on some oil or water is used to prevent glazing. The natural-abrasives industry includes one producer of millstones and six operations engaged in producing sharpening stones, located in Arkansas, Indiana, Ohio, New Hampshire, and North Carolina; their products constituted 8 percent of the value of all products of the industry.

Three of the operations included in the natural-abrasives industry produced garnet, flint tube-mill lining and grinding pebbles, and emery. Abrasive garnet is consumed mainly in the manufacture of abrasive-coated papers and cloths that are used primarily for woodworking, for finishing hard rubber and celluloid, for scouring heels and soles of shoes, and for fine dental disks. Although largely replaced by steel balls and steel linings for most uses, natural flint grinding-mill liners and grinding pebbles are still used for some purposes, especially where metal worn off the steel balls and liners may be a source of undesirable impurities, as in the pulverizing of ceramic raw materials. The emery produced in the United States is used mainly in abrasive pastes and compositions. Garnet, flint liners and pebbles, and emery were produced in Minnesota and New York, and the operations producing them accounted for 24 percent of the value of all products of the industry.

The wage earners employed by the natural-abrasives industry worked a total of 711,000 man-hours and were paid an average of 49 cents per man-hour. Operations were active the equivalent of 211 full days during the year, and the average number of hours worked per man per shift was 8.2. Monthly employment rose steadily from a low of 265 in February to a high of 429 in October, and fell off in November and December.

Power equipment in use or available for use by the industry at the end of 1939 had a rated capacity of 6,147 horsepower. Nearly 65 percent, or 3,951 horsepower, was for driving fixed or stationary equipment such as hoists, crushing and screening equipment, and generators; the remaining 2,196 horsepower was for driving mobile equipment such as power shovels, tractors, and trucks. The industry consumed 1,555,000 kilowatt-hours of electricity in 1939, less than half of which was generated by the reporting companies for their own use.

The natural-abrasives industry was not as active in 1939 as in 1929. The number of mines declined from 50 in 1929 to 41 in 1939. The value of products dropped 35 percent in the decade. The average number of wage earners in 1939 was 60 percent of the 1929 average and wages in 1939 were less than half of what they had been in 1929. Consumption of electric energy declined 15 percent, although the horsepower rating of power equipment showed only a slight decrease. Thus horsepower per wage earner rose from 10 in 1929 to nearly 17 in 1939.

The natural-abrasives industry, as defined for census purposes, covers mines and preparation plants that are engaged primarily in extracting and preparing for the market minerals that are used chiefly as natural abrasives. Statistics for abrasive materials produced as secondary products of operations classified in other industries are excluded.

For distribution of natural-abrasives operations by value of products, number of wage earners, number of days active and number of hours per wage earner in the full-time workweek see General Summary tables 8, 15, 17, and 18, respectively.

MINERAL INDUSTRIES

TABLE 1.—PRINCIPAL STATISTICS FOR THE NATURAL-ABRASIVES INDUSTRY IN THE UNITED STATES: 1939, 1929, 1909, 1902, 1889, AND 1880¹

(For producing operations only)

ITEM	1939	1929	1909	1902 ²	1889 ²	1880 ²
Number of operating companies ³	35	(⁴)	58	60	(⁴)	(⁴)
Number of quarries and mines	41	50	98	65	(⁴)	15
Value of products, total	\$1,295,228	\$2,032,119	\$803,967	\$1,078,632	\$615,287	\$63,568
Natural abrasives	\$1,185,856	\$2,016,762	(⁴)	\$1,078,632	\$615,287	\$63,568
Other products and services rendered	\$111,392	\$15,357	(⁴)	(⁴)	(⁴)	(⁴)
Number of persons engaged, total	435	727	845	605	518	85
Wage earners (average for the year, including inactive periods)	366	626	761	546	518	85
Salaried employees	45	90	32	59	(⁴)	(⁴)
Proprietors and firm members	24	11	52	(⁴)	(⁴)	(⁴)
Performing manual labor	8	(⁴)	31	(⁴)	(⁴)	(⁴)
Principal expenses designated below, total	\$692,227	\$1,289,721	\$504,726	\$584,664	\$388,651	\$26,637
Wages	\$549,134	\$712,802	\$283,489	\$269,640	\$208,424	\$20,876
Salaries	\$106,154	\$264,634	\$56,827	\$37,962	(⁴)	(⁴)
Supplies and materials	\$148,299	\$187,395	\$125,200	(⁴)	(⁴)	(⁴)
Fuel	\$64,585	\$60,497	(⁴)	\$77,062	\$11,834	\$5,781
Purchased electric energy	\$28,757	\$27,055	\$26,983	(⁴)	(⁴)	(⁴)
Contract work	\$298	\$37,858	\$32,219	(⁴)	\$2,593	(⁴)
Cost of machinery and equipment installed during year	\$37,265	\$37,828	(⁴)	(⁴)	(⁴)	(⁴)
Horsepower rating of power equipment, total	6,147	6,345	2,411	2,065	(⁴)	(⁴)
Per wage earner	16.8	10.1	3.2	3.8	(⁴)	(⁴)
Prime movers	5,785	5,541	2,335	2,053	(⁴)	(⁴)
Electric motors driven by purchased energy	2,564	2,804	18	12	(⁴)	(⁴)
Horsepower rating of electric motors driven by energy generated by reporting companies	515	205	100	(⁴)	(⁴)	(⁴)
Fuels consumed:						
Anthracite (tons of 2,000 pounds)	18	17	(⁴)	(⁴)	(⁴)	(⁴)
Bituminous coal (tons of 2,000 pounds)	4,596	7,196	(⁴)	(⁴)	(⁴)	(⁴)
Fuel oils (barrels of 42 gallons)	10,535	8,528	(⁴)	(⁴)	(⁴)	(⁴)
Gasoline and kerosene (gallons)	160,991	91,939	(⁴)	(⁴)	(⁴)	(⁴)
Natural gas (thousands of cubic feet)	24,932	5,077	(⁴)	(⁴)	(⁴)	(⁴)
Electric energy consumed (thousands of kw.-hrs.), total	1,555	1,846	(⁴)	(⁴)	(⁴)	(⁴)
Purchased	940	1,554	(⁴)	(⁴)	(⁴)	(⁴)
Generated by reporting companies	615	292	(⁴)	(⁴)	(⁴)	(⁴)

¹The natural-abrasives industry embraces operations engaged principally in extracting and preparing for the market minerals that are used chiefly as natural abrasives, such as pumice and pumicite, grindstones and pulpstones, millstones, oilstones, rubbing stones, whetstones, flint lining, grinding pebbles, emery and corundum, garnet, and industrial diamonds and sapphires. Some of these minerals were not reported produced in all years. Statistics for operations producing tripoli and diatomite, which are used for abrasive and other purposes, are summarized in separate reports and are not included in this report. Statistics for operations engaged principally in the production of materials such as ground sandstone, quartz, and quartzite, which are also used for abrasive purposes, are excluded from this report and included in other reports, principally those covering the production of sand and sandstone. Figures for 1939 cover only those producing operations (mines, preparation plants, or mines and plants operated together), for which the value of products, reported principal expenses, or cost of buildings, machinery, and equipment erected or installed during the year amounted to at least \$2,500. Figures for 1929 cover only "enterprises" for which the value of products or cost of development work amounted to at least \$2,500. No minimum was placed on the size of operations included for 1909, 1902, 1889, and 1880. Comparable statistics are not available for 1919. Twenty-six operations that were too small to come within the scope of the census canvass in 1939 had products valued at \$17,626. No nonproducing operations were reported for 1939.

²Excludes statistics for pumice. For 1889 represents corundum and emery, millstones, oilstones, whetstones, and scythestones; statistics for grindstones are included in those for the sandstone industry. For 1880 represents corundum (emery), garnet, oilstones, scythestones, shoemakers' sandstones, and whetstones.

³For 1939 and 1909, companies that submitted more than one report are counted only once in the totals.

⁴Not available.

⁵Excludes statistics for items for which information was not available as indicated by footnotes.

⁶On schedules for the 1902 census, concerns were instructed that "The average number employed during the year is the number that would be required, at continuous employment for the twelve months, to produce the quantity of products reported." "In editing the schedules ... the figures for the average number of employees were reduced to a 300-day basis whenever the schedules showed them to be the average number for a shorter period; when it was evident that the employees had worked more than 300 days, the average number for the longer period was allowed to stand."

⁷The 1889 census schedule called for "average number employed," presumably an average for active periods, and requested that figures for wage earners "include those employed by contractors and subcontractors." Figure includes foremen.

⁸For 1909, statistics include amounts paid for purchased power other than electric. Statistics for cost of purchased power for 1902, 1889, and 1880 were not explicitly requested but probably are included in part in the figures reported for supplies and materials.

⁹Represents horsepower of equipment driven by purchased power other than electric.

NATURAL ABRASIVES

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TABLE 2.—PRINCIPAL STATISTICS FOR THE NATURAL-ABRASIVES INDUSTRY IN THE UNITED STATES, BY STATE: 1939¹

ITEM	United States	California ²	Kansas ²	Ohio ³	West Virginia ³	Other States ⁴
Number of operating companies ⁵	33	9	3	4	6	13
Number of quarries and mines ⁵	41	9	3	6	7	16
Number of preparation plants ⁵	31	7	3	5	5	11
Production of natural abrasives ⁶						
Tons of 2,000 pounds-----	101,476	35,535	37,889	7,250	2,634	18,168
Value at operations-----	\$1,135,869	\$125,792	\$90,969	\$240,430	\$170,841	\$607,837
Value of all products-----	\$1,295,228	\$125,792	\$90,969	\$290,614	\$200,841	\$587,012
Number of persons engaged, total-----	435	43	23	132	81	156
Wage earners (average for the year)-----	366	35	22	123	68	118
Salaried employees-----	45	2	1	7	11	24
Proprietors and firm members-----	24	6	-----	2	-----	14
Performing manual labor-----	8	2	-----	-----	-----	6
Principal expenses designated below, total-----	\$592,227	\$84,159	\$45,532	\$181,413	\$97,124	\$283,999
Wages-----	\$349,134	\$48,661	\$24,628	\$95,703	\$60,530	\$119,614
Salaries-----	\$106,154	\$1,300	\$2,430	\$19,575	\$15,900	\$66,949
Supplies and materials-----	\$148,299	\$21,095	\$4,985	\$52,728	\$9,611	\$59,880
Fuel-----	\$54,585	\$10,536	\$10,863	\$11,456	\$1,629	\$30,091
Purchased electric energy-----	\$23,757	\$2,269	\$2,628	\$1,941	\$9,454	\$7,465
Contract work-----	\$298	\$298	-----	-----	-----	-----
Cost of buildings, machinery, and equipment erected or installed during year-----	\$50,093	\$6,811	\$3,500	\$2,705	\$3,400	\$33,677
Buildings-----	\$12,828	\$3,600	-----	-----	-----	\$9,228
Machinery and equipment, total-----	\$37,265	\$3,211	\$3,500	\$2,705	\$3,400	\$24,449
Purchased in new condition-----	\$27,223	\$1,530	\$1,750	\$2,705	-----	\$21,238
Purchased in used condition-----	\$10,042	\$1,681	\$1,750	-----	\$3,400	\$3,211
Total number of man-shifts worked by wage earners-----	87,144	9,383	5,162	30,808	15,118	26,673
Total number of man-hours worked by wage earners-----	710,529	75,064	41,295	245,457	120,998	226,714
Average number of hours worked per shift-----	8.2	8.0	8.0	8.0	8.0	8.5
Average hourly earning of wage earners-----	\$0.49	\$0.65	\$0.60	\$0.39	\$0.50	\$0.53
Tons of natural abrasives produced per man-hour-----	0.14	0.47	0.92	0.03	0.02	0.06
Average number of equivalent full days operations were active-----	211	218	224	232	178	207
Horsepower rating of power equipment, total-----	6,147	1,088	875	1,120	1,083	1,981
Per wage earner-----	16.8	31.1	39.8	9.1	15.9	16.8
Stationary equipment ¹⁰ -----	3,951	373	500	735	864	1,479
Mobile equipment ¹¹ -----	2,196	715	375	385	219	502
Electric energy consumed (thousands of kw.-hrs.), total-----	1,555	87	121	72	311	964
Purchased-----	940	86	121	72	311	350
Generated by reporting companies-----	615	1	-----	-----	-----	614

¹ For definition of the industry see table 1, footnote 1.² The operations in California and Kansas produced pumice and pumicite.³ The operations in Ohio and West Virginia were engaged principally in producing grindstones and pulpstones. They accounted for the entire 1939 production of such stones in the natural-abrasives industry.⁴ Arkansas, 3 quarries and 1 preparation plant; Indiana, 2 quarries and 2 plants; Minnesota, 1 quarry and 1 plant; Nebraska, 3 quarries and 1 plant; New Hampshire, 1 plant; New Mexico, 1 mine and 1 plant; New York, 2 quarries and 1 plant; North Carolina, 1 quarry and 1 plant; Oklahoma, 1 mine, 1 quarry, and 1 plant; and Oregon, 1 quarry and 1 plant.⁵ Companies with operations in more than 1 State are counted only once in the totals.⁶ The total includes 3 underground mines and 38 open-pit quarries.⁷ All plants but one were operated in conjunction with mines or quarries.⁸ The total production includes 5,529 tons produced at underground operations and 94,947 tons at open-pit operations. Total production of pumice and pumicite amounted to 86,577 tons valued at \$387,193 and was produced at 16 quarries and 3 mines; garnet, flint lining and pebbles, and emery, 4,707 tons valued at \$308,151 were produced at 3 quarries; grindstones and pulpstones, 9,644 tons, and millstones, oilstones, whetstones, rubbing stones, etc., 548 tons with a combined value of \$440,525, were produced at 19 quarries or mines.⁹ Total for the United States includes, in addition to the value of natural abrasives, \$159,359 representing the value of miscellaneous secondary products (rubble, road gravel, salable scrap, etc.) and receipts for services performed for others including custom milling.¹⁰ Aggregate horsepower rating of engines, motors, etc. used for driving stationary or fixed equipment such as mine hoists, crushing and screening equipment, electric generators, etc.¹¹ Aggregate horsepower rating of engines, motors, etc. used for driving mobile equipment such as power shovels, trucks, tractors, etc.TABLE 3.—NUMBER OF WAGE EARNERS IN THE NATURAL ABRASIVES INDUSTRY IN THE UNITED STATES, BY TYPE OF OPERATION, BY STATE, AND BY MONTH: 1939¹

TYPE OF OPERATION AND STATE	Average for the 12 months	NUMBER RECEIVING PAY DURING PAY-ROLL PERIOD ENDING NEAREST THE 15TH OF THE MONTH											
		January	February	March	April	May	June	July	August	September	October	November	December
United States-----	366	268	265	288	353	388	410	417	422	423	429	406	327
TYPE OF OPERATION													
Underground mine-----	33	33	32	35	33	33	35	34	31	32	33	33	34
Open quarry-----	333	235	233	253	320	355	375	383	391	391	396	373	293
STATE													
California-----	35	26	25	28	32	40	43	37	40	39	43	40	34
Kansas-----	22	24	24	24	22	17	19	18	17	23	27	24	22
Ohio-----	123	79	88	100	123	132	134	135	142	145	150	137	108
West Virginia-----	68	31	26	28	64	82	91	100	102	91	84	80	39
Other States-----	118	108	102	108	112	117	128	126	121	125	125	125	124

¹ For definition of the industry see table 1, footnote 1.

MINERAL INDUSTRIES

TABLE 4.—EMPLOYMENT AND WORKING TIME IN THE NATURAL-ABRASIVES INDUSTRY IN THE UNITED STATES, BY DEPARTMENT, BY TYPE OF OPERATION, AND BY STATE: 1939¹

DEPARTMENT	United States	TYPE OF OPERATION		STATE				
		Underground mine	Open quarry	California	Kansas	Ohio	West Virginia	Other
Average number of wage earners on active days, total-----	413	34	379	43	23	133	85	129
At quarries and mines, total-----	285	14	271	27	13	114	70	61
Underground-----	14	14	-----	4	-----	-----	-----	10
Open-quarry-----	266	-----	266	23	13	114	70	46
Surface shops and yards-----	5	-----	5	-----	-----	-----	-----	5
At preparation plants-----	128	20	108	16	10	19	15	68
Average number of equivalent full days operations were active, all operations-----	211	201	211	214	224	232	178	207
At quarries and mines-----	204	197	205	201	221	235	169	185
Underground-----	197	197	-----	180	-----	-----	-----	204
Open-quarry-----	205	-----	205	205	221	235	169	179
Surface shops and yards-----	205	-----	205	-----	-----	-----	-----	205
At preparation plants-----	224	204	228	236	229	211	217	226
Number of man-shifts worked by wage earners, total-----	87,144	6,840	80,304	9,383	5,162	30,808	15,118	26,573
On active days, total-----	² 86,972	6,840	80,132	9,211	5,162	30,808	15,118	26,673
At quarries and mines, total-----	58,276	2,760	55,516	5,440	2,876	26,799	11,863	11,298
Underground-----	2,760	2,760	-----	720	-----	-----	-----	2,040
Open-quarry-----	54,491	-----	54,491	4,720	2,876	26,799	11,863	8,233
Surface shops and yards-----	1,025	-----	1,025	-----	-----	-----	-----	1,025
At preparation plants-----	28,896	4,080	24,816	3,771	2,286	4,009	3,255	15,375
On inactive days-----	172	-----	172	-----	-----	-----	-----	-----
Number of man-hours worked by wage earners, total-----	710,529	54,720	655,809	75,064	41,296	246,457	120,998	226,714
On active days, total-----	709,153	54,720	654,433	73,688	41,296	246,457	120,998	226,714
At quarries and mines, total-----	471,757	22,080	449,677	43,518	23,171	214,388	94,958	95,722
Underground-----	22,080	22,080	-----	5,760	-----	-----	-----	16,320
Open-quarry-----	439,425	-----	439,425	37,758	23,171	214,388	94,958	69,150
Surface shops and yards-----	10,252	-----	10,252	-----	-----	-----	-----	10,252
At preparation plants-----	237,396	32,640	204,756	30,170	18,125	32,069	26,040	130,992
On inactive days-----	1,376	-----	1,376	-----	-----	-----	-----	-----

¹ For definition of the industry see table 1, footnote 1.² Only one report covering 3 quarries showed operation on more than one shift. This report indicated 1,560 man-shifts worked during the second shift.TABLE 5.—QUANTITY OF FUEL AND ELECTRIC ENERGY CONSUMED IN THE NATURAL-ABRASIVES INDUSTRY IN THE UNITED STATES, 1939 AND 1929, AND BY STATE, 1939¹

STATE AND CENSUS YEAR	FUEL					ELECTRIC ENERGY (thousands of kilowatt-hours)		
	Anthracite (tons of 2,000 pounds)	Bituminous coal (tons of 2,000 pounds)	Fuel oils (barrels of 42 gallons)	Gasoline and kerosene (gallons)	Natural gas (thousands of cubic feet)	Total	Purchased	Generated by reporting companies
United States, total-----	18	4,386	10,533	160,991	24,932	1,555	940	615
STATE: 1939	17	7,196	8,526	91,939	5,077	1,846	1,554	292
California-----	-----	-----	2,018	35,840	-----	87	86	1
Kansas-----	-----	-----	1,262	41,000	22,365	121	121	-----
Ohio-----	-----	3,570	-----	10,687	2,567	72	72	-----
West Virginia-----	-----	512	-----	738	-----	311	311	-----
Other States-----	18	304	7,253	72,726	-----	964	350	614

¹ For definition of the industry see table 1, footnote 1.

TABLE 6.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE NATURAL-ABRASIVES INDUSTRY IN THE UNITED STATES, 1939 AND 1929, AND BY STATE, 1939¹

STATE, TYPE OF EQUIPMENT, AND CENSUS YEAR	PRIME MOVERS AND ELECTRIC MOTORS DRIVEN BY PURCHASED ENERGY									ELECTRIC MOTORS DRIVEN BY ENERGY GENERATED BY RE- PORTING COMPANIES	
	Aggregate horsepower	Prime Movers						Electric motors driven by purchased energy			
		Total		Driving generators		Not driving generators					
		Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower
United States, total:											
1939-----	6,147	87	3,783	(²) 7	842	(²) 80	2,941	136	2,364	18	313
1929-----	6,345	47	3,541	(²)	(²)	(²)	(²)	102	2,804	13	205
Stationary:											
1939-----	3,951	48	2,222	(²) 7	842	(²) 41	1,380	128	1,729	18	313
1929-----	6,120	45	3,491	(²)	(²)	(²)	(²)	101	2,629	13	205
Mobile:											
1939-----	2,196	39	1,561	(²)	(²)	(²) 39	1,561	8	635	-----	-----
1929-----	225	2	50	(²)	(²)	(²)	(²)	1	175	-----	-----
STATE: 1939											
California, total-----	1,088	11	444	2	11	9	433	15	644	-----	-----
Stationary-----	373	7	264	2	11	5	253	11	109	-----	-----
Mobile-----	715	4	180	-----	-----	4	180	4	535	-----	-----
Kansas, total-----	875	4	350	-----	-----	4	350	39	525	-----	-----
Stationary-----	500	-----	-----	-----	-----	-----	-----	38	500	-----	-----
Mobile-----	375	4	350	-----	-----	4	350	1	25	-----	-----
Ohio, total-----	1,120	30	1,002	-----	-----	30	1,002	11	118	-----	-----
Stationary-----	735	16	617	-----	-----	16	617	11	118	-----	-----
Mobile-----	385	14	385	-----	-----	14	385	-----	-----	-----	-----
West Virginia, total-----	1,085	12	344	-----	-----	12	344	40	739	-----	-----
Stationary-----	864	5	200	-----	-----	5	200	37	664	-----	-----
Mobile-----	219	7	144	-----	-----	7	144	3	75	-----	-----
Other States, total-----	1,961	30	1,643	5	831	25	812	51	338	18	313
Stationary-----	1,479	20	1,141	5	831	15	310	51	338	18	313
Mobile-----	502	10	502	-----	-----	10	502	-----	-----	-----	-----

¹ For definition of the industry see table 1, footnote 1. For explanation of the terms "Stationary" and "Mobile" see table 2, footnotes 10 and 11.² Not available.TABLE 7.—NUMBER OF SURFACE POWER-LOADING MACHINES IN THE NATURAL-ABRASIVES INDUSTRY IN THE UNITED STATES, BY TYPE, BY KIND OF POWER USED, BY SIZE, AND BY STATE: 1939¹

TYPE OF MACHINE, KIND OF POWER USED, AND SIZE	United States	California	Kansas	Ohio	West Virginia	Other States
Power shovels, total	11	2	1	1	4	3
Kind of power used:						
Steam	3			1	1	1
Electric	5	1	1		3	
Internal-combustion engine	3	1				2
Dipper capacity (cu. yds.):						
Less than 3	10	1	1	1	4	5
More than 3	1	1				
Dragline excavators, total ²	4		1	2		1
Kind of power used:						
Steam	3			2		1
Internal-combustion engine	1		1			
Scraper loaders ³	1	1				
Clamshell and orange-peel loaders ⁴	1			1		
Cranes and open-pit and quarry hoists, total	19			9	8	2
Kind of power used:						
Steam	18			9	8	1
Internal-combustion engine	1					1
Other types ⁵	3	1		1		1

¹ For definition of the industry see table 1, footnote 1. In addition to surface power-loading equipment, 1 underground scraper loader operated by electricity was reported.² All dragline excavators had a bucket capacity of less than 3 cubic yards.³ Horsepower rating of hoist between 26 and 100; operated by compressed air.⁴ Operated by steam.⁵ Operated by internal-combustion engines.TABLE 8.—SELECTED STATISTICS FOR INCORPORATED AND FOR UNINCORPORATED OPERATING COMPANIES IN THE NATURAL-ABRASIVES INDUSTRY IN THE UNITED STATES: 1939¹

TYPE OF OWNERSHIP	Number of operating companies	Number of quarries and mines	Number of preparation plants	Production of natural abrasives (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED					Wages	Salaries
						Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members			
									Total	Performing manual labor		
United States, total	33	41	31	101,476	\$1,295,228	435	566	45	24	8	\$349,134	\$106,154
Incorporated	17	22	18	81,091	1,038,143	311	269	42			264,273	98,558
Unincorporated	16	19	13	20,385	257,085	124	97	3	24	8	84,861	7,596

¹ For definition of the industry, see table 1, footnote 1.

NATURAL SODIUM COMPOUNDS

The total production of natural sodium compounds in the United States in 1939 was 438,000 short tons valued at \$8,764,000 at points of production. Of the total tonnage, about three-fifths was produced by the natural sodium compounds industry; the remainder was produced as secondary products of operations classified in the potash industry. The total value of the products of the natural sodium compounds industry in 1939 was \$3,067,000, of which \$3,028,000 represented the mine or plant value of sodium borates, sodium carbonates, and sodium sulfates produced; the remainder represented the value of secondary products and receipts for services performed for other concerns.

Borax (sodium borate) has a wide variety of uses in manufacturing industries. It is used principally in the making of enamels for such products as kitchen utensils, stoves, refrigerators, bathtubs, and sinks, and in the manufacture of glass, where it imparts heat-resisting qualities necessary for such products as kitchen and laboratory glassware. Borax and boric acid are well known for their cleansing and antiseptic properties and are used in many household commodities such as eye lotions, ointments, soaps, disinfectants, and cosmetics. Borax is also used in pottery glazes; for the sizing of paper; as a food and wood preservative; as a flux in welding, assaying, and smelting; in the tanning industry; as a fertilizer material; and for many other purposes. Sodium carbonates are basic materials for the chemical industry. They are used in the manufacture of glass, sodium hydroxide, soaps and washing powders, dyes, water softeners, baking soda, and fire extinguishers; they find use also in the pulp and paper, textile, petroleum-refining, and other industries. Sodium sulfates are used by the pulp and paper industry; in textile processing; in the glass and ceramics industry; in the manufacture of heavy chemicals, dyes, rayon, and soap; and for other purposes.

The natural sodium compounds industry paid \$779,000 in wages, representing an average of 73 cents per man-hour worked by wage earners. Salaried employees were paid \$314,000. Supplies and materials consumed during the year cost \$429,000; fuel, \$251,000; and purchased electric energy, \$198,000. Work done on contract by other concerns amounted to \$24,000. Buildings, machinery, and equipment costing \$277,000 were erected or installed during the year.

The number of wage earners employed by the industry averaged 533, varying from a minimum of 505 in January and May to a maximum of 578 in December. In addition, 105 salaried employees were reported for the month of October. The wage earners worked a total of 1,070,000 man-hours, an average of 8.0 hours per shift. The average number of equivalent full days operations were active, which indicates approximately the number of days worked per wage earner, was 262 for the industry as a whole. The total number of man-shifts worked during the year on all shifts on days when mines or plants were active for production or development purposes was 129,152, of which 67 percent were worked during the first shift, 17 percent during the second, and 16 percent during the third.

Of the total production of sodium carbonates and sodium sulfates obtained from all sources, only a small part represented natural sodium compounds. Natural sodium carbonates (chiefly soda ash) represented less than 5 percent of the total quantity of soda ash produced in 1939 from all sources. Natural sodium sulfates represented less than 40 percent of the total quantity of anhydrous (refined) sulfate, Glauber's

salt, and crude salt cake produced for sale in 1939 from all sources.

Natural sodium borates were produced principally in California by mining underground kernite deposits and by refining brines from Owens Lake and Searles Lake. Ulexite, a sodium borate, was mined at one open-cut mine in Nevada. Natural sodium carbonates, consisting chiefly of soda ash but including trona and bicarbonate, were produced in California by refining brines from Owens Lake and Searles Lake. Natural sodium sulfates, consisting of crude salt cake, anhydrous (refined) sulfate, and Glauber's salt, were produced at operations in Texas, Utah, and Wyoming. Well operations in California producing potash as their principal mineral product contributed large quantities of sodium borates, sodium carbonates, and sodium sulfates; statistics for such operations, however, are not included in the figures for the natural sodium compounds industry.

Power equipment in use or available for use by the industry at the end of 1939 had an aggregate rating of 16,066 horsepower, representing an average of about 30 available horsepower per wage earner. Of the total, 4,192 horsepower represented the rating of prime movers and 11,874 horsepower represented the rating of electric motors driven by purchased energy. About 83 percent of the total horsepower represented the rating of power units used for driving stationary or fixed equipment such as pumps, mine hoists, electric generators, and milling equipment. The remaining 17 percent represented the rating of power units used for driving mobile equipment such as dragline excavators, power shovels, tractors, and trucks. The industry consumed 22,470,000 kilowatt-hours of electricity in 1939, nearly all of which was purchased.

The total consumption of fuel oil by the industry in 1939 was 115,442 barrels, nearly all of which was used by operations in California. Natural-gas consumption amounted to 528,809,000 cubic feet and was reported only by operations in Texas and Utah. Gasoline and kerosene used during the year totaled 45,709 gallons. A little more than 1,000 tons of coal, including a small quantity of anthracite, were reported used.

At the end of the year surface operations were equipped with five power shovels, four of which were driven by internal-combustion engines and one by steam power. Other surface equipment included one dragline excavator and one tractor scraper driven by internal-combustion engines. Underground mines were equipped with seven electric scraper loaders with hoists rated at 10 to 25 horsepower.

The natural sodium compounds industry includes only those operations engaged in producing natural sodium compounds (other than common salt, NaCl) from natural brines and saline deposits. Statistics are excluded for operations engaged in producing sodium compounds by manufacturing processes such as the production of soda ash (as by the ammonia-soda process) and sodium sulfate from common salt and the production of synthetic salt cake. Only those operations producing natural sodium compounds as their principal mineral product are included; hence statistics for the production of natural sodium compounds as secondary products in the potash industry are excluded.

For distribution of natural sodium compounds operations by value of products, number of wage earners, number of days active, number of hours per wage earner in the full-time work-week, and by type of ownership, see General Summary tables 8. 15, 17, 18, and 26, respectively.

NATURAL SODIUM COMPOUNDS

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TABLE 1.—PRINCIPAL STATISTICS FOR THE NATURAL SODIUM COMPOUNDS INDUSTRY IN THE UNITED STATES, BY STATE: 1939¹

(For producing operations only)

ITEM	United States	California	Nevada, Texas, Utah, and Wyoming ²	ITEM	United States	California	Nevada, Texas, Utah, and Wyoming ²
Number of operating companies ³	10	4	6	Cost of buildings, machinery, and equipment erected or installed during year	\$276,795	\$175,064	\$101,731
Number of mines	12	5	7	Buildings	\$130,609	\$116,158	\$14,451
Number of preparation plants	9	4	5	Machinery and equipment, total	\$146,186	\$58,906	\$87,280
Number of persons engaged, total	4643	530	99	Purchased in new condition	\$130,766	\$58,906	\$71,880
Wage earners (average for the year)	533	448	85	Purchased in used condition	\$15,400		\$15,400
Salaried employees	4105	78	13	Total number of man-shifts worked by wage earners	133,724	111,051	22,673
Proprietors and firm members ⁴	5	4	1	Total number of man-hours worked by wage earners	1,059,793	868,407	181,386
Production of natural sodium compounds:				Average number of hours worked per shift	8.0	8.0	8.0
Tons of 2,000 pounds ⁵	255,385	207,821	47,764	Average hourly earning of wage earners	\$0.73	\$0.76	\$0.58
Value of mines or plants	\$3,027,987	\$2,488,028	\$539,959	Tons of natural sodium compounds produced per man-hour	0.239	0.234	0.263
Value of all products	\$5,067,179	\$2,527,220	\$539,959	Average number of equivalent full days operations were active	262	263	192
Principal expenses designated below, total	\$1,993,964	\$1,668,719	\$298,208	Horsepower rating of power equipment, total	16,086	12,192	3,874
Wages	\$778,846	\$672,756	\$106,090	Per wage earner	30.1	27.2	45.6
Salaries	\$313,553	\$248,297	\$38,219	Stationary equipment ⁶	13,282	9,866	3,416
Supplies and materials	\$429,177	\$372,197	\$56,980	Mobile equipment ⁷	2,784	2,326	458
Fuel	\$250,577	\$202,614	\$47,963	Electric energy consumed (thousands of kw.-hrs.), total	22,470	19,406	3,064
Purchased electric energy	\$197,647	\$172,855	\$24,792	Purchased	22,449	19,406	3,043
Contract work	\$24,164		\$24,164	Generated by reporting companies	21		21

¹Figures cover the production of natural sodium compounds (other than common salt, NaCl) from natural brines and saline deposits, and cover only those producing operations (mines and well operations, including associated mills or plants) engaged in producing natural sodium compounds as their principal mineral product and at which the reported value of products, reported principal expenses, or cost of buildings, machinery, and equipment during the year amounted to at least \$2,500. Figures exclude statistics for the production of natural sodium compounds obtained as secondary products in the potash industry; the tonnage and value thus excluded represent 42 and 55 percent, respectively, of the total tonnage and value of natural sodium compounds (other than common salt) produced in the United States in 1939. Only 1 operation without products and with designated principal expenses or cost of buildings, machinery, and equipment amounting to \$2,500 or more was reported; statistics for this operation are excluded. Statistics are also excluded for 1 small mine producing colemanite (calcium borate).

²Nevada, 1 mine; Texas, 3 mines and 3 plants; Utah, 1 mine and 1 plant; and Wyoming, 2 mines and 1 plant.

³Companies with operations in more than 1 State are counted only once in the totals.

⁴Includes statistics for central-office employees in Iowa and Oklahoma.

⁵No proprietors performing manual labor were reported.

⁶Includes 131,149 tons of sodium borates (borate concentrates from kernite, crude kernite mined but not prepared in 1939, borax, and ulexite) valued at \$1,504,614; 76,800 tons of sodium carbonates (soda ash, trona, and bicarbonate) valued at \$988,004; and 47,436 tons of sodium sulfates (crude salt cake, Glauber's salt, and anhydrous sulfate) valued at \$535,369.

⁷Includes, in addition to the value of natural sodium compounds, the value of a small amount of lime reported as a secondary product and amounts received or due for services performed for other concerns.

⁸Aggregate horsepower rating of engines, motors, etc. used for driving stationary or fixed equipment such as pumps, mine hoists, electric generators, milling equipment, etc.

⁹Aggregate horsepower rating of engines, motors, etc. used for driving mobile equipment such as dragline excavators, power shovels, tractors, trucks, etc.

TABLE 2.—NUMBER OF WAGE EARNERS IN THE NATURAL SODIUM COMPOUNDS INDUSTRY IN THE UNITED STATES, BY STATE, AND BY MONTH: 1939¹

(For producing operations only)

STATE	Average for the 12 months	NUMBER RECEIVING PAY DURING PAY-ROLL PERIOD ENDING NEAREST THE 15TH OF THE MONTH											
		January	February	March	April	May	June	July	August	September	October	November	December
United States, total	533	505	526	521	513	505	526	529	551	542	538	567	578
California	448	403	419	427	434	440	465	451	472	465	455	473	473
Nevada, Texas, Utah, and Wyoming	85	102	107	94	79	65	61	78	79	77	83	94	105

¹For definition of the industry see table 1, footnote 1.

MINERAL INDUSTRIES

TABLE 3.—EMPLOYMENT AND WORKING TIME IN THE NATURAL SODIUM COMPOUNDS INDUSTRY IN THE UNITED STATES, BY DEPARTMENT AND BY STATE: 1939¹

(For producing operations only)

DEPARTMENT	United States	California	Nevada, Texas, Utah, and Wyoming
Average number of wage earners on active days, total	493	390	113
At mines, total	116	90	26
Underground	64	64	—
Well operations and open pits	33	7	26
Surface shops and yards	19	19	—
At preparation plants	377	290	87
Average number of equivalent full days operations were active	262	233	192
At mines	194	217	113
Underground	254	234	—
Well operations and open pits	103	68	113
Surface shops and yards	215	215	—
At preparation plants	263	303	215
Number of man-shifts worked by wage earners, total	133,724	111,051	22,673
On active days, total	129,152	107,474	21,678
At mines, total	22,496	19,563	2,933
Underground	15,005	15,005	—
Well operations and open pits	3,411	478	2,933
Surface shops and yards	4,080	4,080	—
At preparation plants	106,656	87,911	18,745
On inactive days	4,572	3,577	995
Number of man-hours worked by wage earners, total	1,069,793	888,407	181,386
On active days, total	1,033,218	859,793	173,425
At mines, total	179,969	156,505	23,466
Underground	120,038	120,038	—
Well operations and open pits	27,291	3,825	23,466
Surface shops and yards	32,640	32,640	—
At preparation plants	853,249	703,290	149,959
On inactive days	56,575	28,614	7,961

¹ For definition of the industry see table 1, footnote 1.TABLE 4.—QUANTITY OF FUEL AND ELECTRIC ENERGY CONSUMED IN THE NATURAL SODIUM COMPOUNDS INDUSTRY IN THE UNITED STATES, BY KIND AND BY STATE: 1939¹

(For producing operations only)

STATE	FUEL					ELECTRIC ENERGY (thousands of kilowatt-hours)		
	Anthracite (tons of 2,000 pounds)	Bituminous coal (tons of 2,000 pounds)	Fuel oils (barrels of 42 gallons)	Gasoline and kerosene (gallons)	Natural gas (thousands of cubic feet)	Total	Purchased	Generated by reporting companies
United States, total	6	1,000	115,442	45,709	528,809	22,470	22,449	21
California	6	—	115,211	28,879	—	19,406	19,406	—
Nevada, Texas, Utah, and Wyoming	—	1,000	231	16,830	528,809	3,064	3,043	21

¹ For definition of the industry see table 1, footnote 1.TABLE 5.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE NATURAL SODIUM COMPOUNDS INDUSTRY IN THE UNITED STATES, BY TYPE AND BY STATE: 1939¹

(For producing operations only)

STATE AND TYPE OF EQUIPMENT	PRIME MOVERS AND ELECTRIC MOTORS DRIVEN BY PURCHASED ENERGY										ELECTRIC MOTORS DRIVEN BY ENERGY GENERATED BY REPORTING COMPANIES		
	Aggregate horsepower	Prime movers								Electric motors driven by purchased energy			
		Total		Driving generators		Not driving generators		Ordinarily idle (included in pre- ceding columns)					
		Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower
United States, total	16,066	70	4,192	1	500	69	3,692	5	234	1,358	11,874	21	275
Stationary	13,282	24	2,307	1	500	23	1,807	5	234	1,258	10,975	21	275
Mobile	2,784	46	1,885			46	1,885			100	899		
California, total	12,192	42	1,841			42	1,841	1	45	1,153	10,351		
Stationary	9,866	8	414			8	414	1	45	1,053	9,452		
Mobile	2,326	34	1,427			34	1,427			100	899		
Nevada, Texas, Utah, and Wyoming, total,	3,874	28	2,351	1	500	27	1,851	4	189	205	1,523	21	275
Stationary	3,416	16	1,893	1	500	15	1,393	4	189	205	1,523	21	275
Mobile	458	12	458			12	458						

¹ For definition of the industry see table 1, footnote 1.

PEAT

The peat industry in the United States produced over 55,000 short tons of peat in 1939 with a value of \$378,000 at points of production.¹

The principal use of peat in the United States is for soil improvement for such purposes as the growing of vegetables, fruits, flowers, trees, and shrubbery and for the maintenance of lawns, golf courses, and gardens. In Europe, on the other hand, peat is used principally as a fuel for both domestic and industrial purposes. Peat may be applied directly to the soil or as an ingredient of mixed fertilizers. It is also used as an insulating material, as poultry litter, and as a packing material for the shipment of such products as eggs, vegetables, and fruits.

Peat was produced in 1939 at 25 mines in the United States. The principal producing States were New York and New Jersey; these two States accounted for over one-half the total production. Other production came from California, Colorado, Connecticut, Florida, Iowa, Maine, Michigan, Minnesota, Ohio, and Washington. Reed or sedge peat and peat humus constituted almost 90 percent of the total production; the remaining 10 percent was peat moss and other peat.

PRINCIPAL EXPENSES

The industry paid \$101,000 in wages--an average of 41 cents per man-hour worked by wage earners. Salaried employees were paid \$43,000. Supplies and materials consumed during the year cost \$21,000; fuel, \$15,000; purchased electric energy, \$4,000; and work done on contract by other concerns, less than \$400. These reported principal expenses amounted to \$164,000. Buildings, machinery, and equipment costing \$26,000 were erected or installed during the year.

EMPLOYMENT AND WORKING TIME

The number of wage earners employed by the industry averaged 157, varying from a minimum of 131 in March to a maximum

of 187 in July. Wage earners worked a total of about 246,000 man-hours, averaging 8.1 hours per shift. The average number of equivalent full days operations were active was 167. Operations reported working only one shift per day.

POWER EQUIPMENT

Power equipment in use or available for use at the end of 1939 had an aggregate rating of 2,759 horsepower--an average of 18 horsepower per wage earner. Of the total, 1,885 horsepower represented the rating of prime movers such as gasoline, Diesel, and steam engines and 874 the rating of electric motors driven by purchased energy. About 57 percent of the total horsepower was for driving mobile equipment such as power shovels, dragline excavators, clamshell loaders, tractors, and trucks; the remaining 43 percent was for driving stationary equipment such as grinding, shredding, and screening equipment.

At the end of the year operations in the industry were equipped with 6 power shovels, 2 driven by steam engines and 4 by internal-combustion engines; 4 dragline excavators, 1 driven by steam and 3 by internal-combustion engines; 3 clamshell or orange-peel loaders, 1 driven by steam and 2 by internal-combustion engines; and 14 tractor scrapers or bulldozers and 1 scraper loader driven by internal-combustion engines.

The industry consumed 125,000 kilowatt-hours of electricity, all of which was purchased. The total consumption of gasoline and kerosene was 74,022 gallons; fuel oils, 447 barrels; and coal, 476 short tons.

OTHER STATISTICS

For distribution of peat operations by value of products, number of wage earners, number of days active, number of hours per wage earner in the full-time workweek, and by type of ownership, see General Summary tables 8, 15, 17, 18, and 26 respectively.

¹ These statistics do not include 4,182 tons of peat valued at \$17,255 produced by small operations for which neither the value of products, nor reported principal expenses, nor cost of buildings, machinery, and equipment during the year amounted to \$2,500 (see table 1, footnote 1).

MINERAL INDUSTRIES

TABLE 1.—PRINCIPAL STATISTICS FOR THE PEAT INDUSTRY IN THE UNITED STATES, BY STATE: 1939¹

(For producing operations only)

ITEM	United States	California	Maine	New York	Other States ²
Number of operating companies ³	23	4	3	4	12
Number of mines	25	4	4	4	13
Number of preparation plants	23	3	3	4	13
Number of persons engaged, total	195	13	36	22	124
Wage earners (average for the year)	157	8	32	17	100
Salaried employees	27	—	4	5	18
Proprietors and firm members	11	—	—	—	6
Performing manual labor	4	3	—	—	1
Production of peat (tons of 2,000 pounds) ⁴	55,556	4,228	1,264	17,650	32,414
Value of all products ⁵	\$378,141	\$22,433	\$26,560	\$114,500	\$214,648
Principal expenses designated below, total	\$184,353	\$11,317	\$23,210	\$29,109	\$120,717
Wages	\$101,269	\$6,197	\$12,100	\$13,774	\$69,198
Salaries	\$42,616	—	\$3,500	\$3,652	\$35,464
Supplies and materials	\$20,919	\$1,975	\$2,500	\$6,700	\$7,744
Fuel	\$14,981	\$2,642	\$4,745	\$2,909	\$4,685
Purchased electric energy	\$4,203	\$503	—	\$74	\$3,626
Contract work	\$365	—	\$365	—	—
Cost of buildings, machinery, and equipment erected or installed during year	\$25,798	\$2,200	\$4,000	\$4,233	\$15,365
Buildings	\$7,990	—	\$1,500	\$750	\$5,740
Machinery and equipment, total	\$17,808	\$2,200	\$2,500	\$3,483	\$9,625
Purchased in new condition	\$10,007	—	\$500	\$1,832	\$7,675
Purchased in used condition	\$7,801	\$2,200	\$2,000	\$1,651	\$1,950
Total number of man-shifts worked by wage earners	30,340	1,640	3,775	3,876	21,049
Total number of man-hours worked by wage earners	245,722	13,118	30,196	30,466	171,942
Average number of hours worked per shift	8.1	8.0	8.0	7.9	8.2
Average hourly earning of wage earners	\$0.41	\$0.47	\$0.40	\$0.45	\$0.40
Tons of peat produced per man-hour	0.228	0.322	0.042	0.579	0.189
Average number of equivalent full days operations were active	187	164	118	204	174
Horsepower rating of power equipment, total	2,759	389	132	586	1,650
Per wage earner	17.6	49.6	4.1	34.6	16.5
Stationary equipment ⁶	1,198	55	88	166	887
Mobile equipment ⁷	1,563	334	44	422	765
Electric energy consumed (thousands of kw.-hrs.) ⁸	125	13	—	1	111

¹The peat industry, as defined for census purposes, includes mines producing peat and associated preparation plants engaged in such activities as grinding, shredding, and screening peat. Figures cover only those producing operations for which the value of products, reported principal expenses, or cost of buildings, machinery, and equipment during the year amounted to at least \$2,500; thus figures exclude statistics for the production of 4,182 short tons of peat, valued at \$17,235, reported by 18 smaller operations (in California, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, and Washington). Statistics for operations without products are also excluded; only 1 such operation without products and with reported principal expenses or cost of buildings, machinery, and equipment during the year amounting to \$2,500 or more was reported.

²Colorado, 1 mine and 1 plant; Connecticut, 1 mine and 1 plant; Florida, 1 mine and 1 plant; Iowa, 2 mines and 2 plants; Michigan, 1 mine and 1 plant; Minnesota, 2 mines and 2 plants; New Jersey, 2 mines and 2 plants; Ohio, 2 mines and 2 plants; and Washington, 1 mine and 1 plant.

³Companies with operations in more than 1 State are counted only once in the totals.

⁴Crude and prepared peat humus, reed or sedge peat, peat moss, and other peat.

⁵Total value at points of production of crude and prepared peat. No secondary products or services performed for others were reported.

⁶Aggregate horsepower rating of engines, motors, etc. used for driving stationary or fixed equipment such as grinding equipment, screening equipment, etc.

⁷Aggregate horsepower rating of engines, motors, etc. used for driving mobile equipment such as power shovels, dragline excavators, clamshell loaders, tractors, trucks, etc.

⁸Represents purchased electric energy. No electric energy was reported generated and consumed by the reporting companies.

TABLE 2.—NUMBER OF WAGE EARNERS IN THE PEAT INDUSTRY IN THE UNITED STATES, BY STATE AND BY MONTH: 1939¹

(For producing operations only)

STATE	Average for the 12 months	NUMBER RECEIVING PAY DURING PAY-ROLL PERIOD ENDING NEAREST THE 15TH OF THE MONTH											
		January	February	March	April	May	June	July	August	September	October	November	December
United States, total	157	138	132	131	149	159	159	187	183	177	186	156	142
California	8	6	6	7	8	7	7	8	8	—	8	8	8
Maine	32	32	32	32	32	32	32	32	32	32	32	32	32
New York	17	18	15	15	16	18	18	18	18	16	18	16	18
Other States	100	82	79	77	91	102	102	129	125	119	108	98	84

¹For definition of the industry see table 1, footnote 1.

TABLE 3.—EMPLOYMENT AND WORKING TIME IN THE PEAT INDUSTRY IN THE UNITED STATES, BY DEPARTMENT AND BY STATE: 1939¹

(For producing operations only)

DEPARTMENT	United States	California	Maine	New York	Other States
Average number of wage earners on active days, total	182	10	32	19	121
At mines ²	121	7	20	13	81
At preparation plants	61	3	12	6	40
Average number of equivalent full days operations were active	167	164	118	204	174
At mines ²	168	201	117	206	172
At preparation plants	163	77	120	200	177
Number of man-shifts worked by wage earners, total	30,340	1,640	3,775	5,876	21,049
On active days, total	30,326	1,640	3,775	5,876	21,035
At mines ²	20,365	1,408	2,334	2,676	13,946
At preparation plants	9,961	231	1,441	1,200	7,089
On inactive days	14				14
Number of man-hours worked by wage earners, total	245,722	13,118	30,196	50,466	171,942
On active days, total	245,607	13,118	30,196	50,466	171,827
At mines ²	166,019	11,269	18,672	21,067	115,011
At preparation plants	79,588	1,849	11,524	9,599	56,816
On inactive days	115				115

¹For definition of the industry see table 1, footnote 1.²Represents employment at open-pit mines. No underground mines were reported. No employment was reported at surface shops and yards.TABLE 4.—QUANTITY OF FUEL AND ELECTRIC ENERGY CONSUMED IN THE PEAT INDUSTRY IN THE UNITED STATES, BY STATE AND BY KIND: 1939¹

(For producing operations only)

STATE	FUEL ²				ELECTRIC ENERGY PURCHASED ³ (thousand of kilowatt-hours)
	Anthracite (tons of 2,000 pounds)	Bituminous coal (tons of 2,000 pounds)	Fuel oils (barrels of 42 gallons)	Gasoline and kerosene (gallons)	
United States, total	8	468	447	74,022	125
California			425	15,605	13
Maine		448		10,975	
New York		20		17,200	1
Other States	8		22	30,242	111

¹For definition of the industry see table 1, footnote 1.²No natural gas was reported consumed.³No electric energy generated by reporting companies was reported consumed.TABLE 5.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE PEAT INDUSTRY IN THE UNITED STATES, BY TYPE AND BY STATE: 1939¹

(For producing operations only)

STATE AND TYPE OF EQUIPMENT	PRIME MOVERS AND ELECTRIC MOTORS DRIVEN BY PURCHASED ENERGY			
	Aggregate horsepower	Prime movers ²		Electric motors driven by purchased energy
		Number	Horsepower	
United States, total	2,759	64	1,685	874
Stationary	1,196	23	368	69
Mobile	1,563	41	1,319	5
California, total	589	9	294	3
Stationary	55			2
Mobile	534	9	294	1
Maine ³ , total	132	8	132	
Stationary	88	5	88	
Mobile	44	3	44	
New York, total	568	14	576	1
Stationary	166	7	154	1
Mobile	422	7	422	
Other States, total	1,650	33	883	66
Stationary	887	11	124	66
Mobile	763	22	759	2

¹For definition of the industry see table 1, footnote 1. No electric motors driven by energy generated by reporting companies were reported.²Represents prime movers not driving generators; no prime movers driving generators were reported.

PHOSPHATE ROCK

The phosphate-rock industry in the United States produced 3,958,000 long tons of phosphate rock in 1939. The total value of the industry's products during the year was \$12,286,000, of which approximately 68 percent represented the value of rock mined and washed and of that recovered by selective-concentration methods. The remaining 32 percent represented largely the value added during the year by preparation processes such as drying, calcining, sintering, and grinding.

Phosphate rock is valued for its content of phosphorus, one of the principal elements necessary to plant and animal life. Most of the phosphate rock produced is used in the manufacture of fertilizer, chiefly in the form of superphosphate. This is obtained by treating the phosphate rock with acid, or by other chemical processes. The Federal Government has devoted considerable attention to the adequate utilization of phosphate rock in agriculture because of its importance in maintaining the fertility of the Nation's soil. The principal nonfertilizer use of phosphate rock is in the manufacture of sodium phosphates for the preparation of cleaning compounds, water softeners, and boiler compounds. It is also used in producing elemental phosphorus, phosphoric acid, and in the manufacture of matches, baking powder, self-rising flour, and livestock and poultry feeds. In the metallurgical industries it is used in the form of ferrophosphorus, copper phosphide, and tin phosphide. Phosphorus compounds are also used in incendiary shells and tracer bullets and in the production of smoke screens for military purposes.

PRINCIPAL EXPENSES

The amount paid to wage earners in the industry aggregated \$2,871,000 during the year, an average of 43 cents for each man-hour of labor. Salaried employees were paid a total of \$858,000. Supplies and materials consumed during the year cost \$1,503,000; fuel and purchased electric energy, \$1,757,000; and work done on contract by other concerns, \$23,000. These reported expenses totaled \$7,012,000. The cost of new buildings constructed during the year, of major alterations to buildings or other structures, and of new and used machinery and equipment purchased was \$579,000.

EMPLOYMENT AND WORKING TIME

The number of wage earners employed during the year averaged 3,372, ranging from a maximum of 3,512 in April to a minimum of 3,192 in October. In addition, 382 salaried employees were reported for the month of October. The wage earners worked a total of 6,880,000 man-hours during about 827,000 man-shifts, the average length of shift being 8.1 hours.

For the industry as a whole, operations were active the equivalent of 250 full days. Most of the large operations conducted their activities on a three-shift basis for at least a part of the year. Of the total number of man-shifts worked by wage earners at all operations on active days, 76 percent were worked on the first shift, 15 percent on the second, and 9 percent on the third.

Florida land-pebble operations employed an average of 1,688 wage earners during the year, accounting for 50 percent of the total number employed in the industry. Tennessee operations employed 1,308 wage earners, or 39 percent of the total. Florida soft-rock and hard-rock mines and Idaho and Montana mines accounted for the remaining 11 percent.

PRODUCTION

Phosphate rock was mined in 1939 at 23 mines in Florida, 14 in Tennessee, and 3 in Idaho and Montana. As in the two

preceding decennial census years, Florida was the principal producing State, accounting in 1939 for seven-tenths of the total United States output and producing more than two and a half times the quantity mined in Tennessee, the second largest producing State. Of the total Florida production, over 95 percent came from land-pebble operations. Production from Tennessee mines was greater than in any previous year.

The 1939 output of dried, calcined, and sintered Florida land pebble was 2,509,000 tons valued at \$7,203,000, or at \$2.87 per ton, at points of production. The quantity of calcined and sintered rock included was small, however, amounting to less than 4 percent of this total. Florida land-pebble operations also prepared a small quantity of ground rock, the total quantity of which amounted to less than 2 percent of the total quantity of dried, calcined, and sintered rock produced at these operations.

The output of crushed, ground, and screened Florida soft rock and of Florida hard rock was about 117,000 tons, valued at \$418,000. Florida hard rock, usually exported, is of higher grade than other Florida phosphate rock, and its average value per ton was over \$4.

The 1939 output of dried and sintered Tennessee rock was 906,000 tons, valued at \$3,520,000, or at \$3.89 per ton, at points of production. The quantity of sintered rock included represented less than 17 percent of this total. Tennessee operations also prepared a small quantity of ground rock, amounting to less than 7 percent of the total quantity of dried and sintered rock produced at these operations.

MINING AND PREPARATION METHODS

Florida land pebble was mined in 1939 at 11 open-cut mines and at 1 dredging operation. The general mining practice at the open-cut mines is to strip the overburden from the bed of matrix (mixed clay, sand, gravel, and phosphate rock) by means of large dragline excavators, generally electrically operated. The exposed matrix is then broken up by high-pressure streams of water from hydraulic guns, and the resulting mixture of water and matrix is pumped to a washing plant. There the phosphate-rock particles are separated from the other material and transferred to wet-storage stock piles near the drying plant. Here, before shipment, the rock is dried in large oil-fired rotary kilns. Florida soft rock was produced at nine open-cut mines, and hard rock was reported produced at one open-cut operation and at one dredging operation. One company in Florida reported sintered matrix, and calcined rock was produced at several plants in that State.

Production in Tennessee came from 14 open-cut mines. Dragline excavators were used at most of these mines to remove both overburden and matrix. The matrix is transported to a washing plant by rail or truck and sent from there to the drier. One Tennessee operation reported the production of sintered matrix in 1939. Production in Idaho and Montana came from three underground mines.

Until recently, a large portion of the fine phosphate-rock particles in the matrix mined was lost in the washing process. Recent developments in flotation-concentration and other selective-concentration processes, however, permit recovery of a substantial portion of the rock formerly lost in washing. In 1939 approximately 980,000 tons of phosphate rock were recovered at Florida land-pebble and Tennessee operations by such processes. Moreover, the adoption of electric furnaces in the production of phosphoric acid or phosphorus has permitted the use of larger quantities of lower-grade rock. Phosphate rock is graded and sold according to its content of tricalcium phosphate, $\text{Ca}_3(\text{PO}_4)_2$, generally known as bone phosphate of

lime, or B.P.L. Over half of the phosphate rock sold in 1939 had a B.P.L. content of 72 to 75 percent, according to information reported by the United States Bureau of Mines.

OUTPUT PER MAN

The average output of phosphate rock per man-hour for the industry as a whole was 0.59 long ton.¹ At Florida land-pebble operations, where large-scale open-cut mining methods are employed, an average of 0.81 ton was produced per man-hour compared with 0.29 ton at Florida soft-rock and hard-rock mines, 0.37 ton at Tennessee mines, and 0.60 ton at Idaho and Montana mines.

A comparison of these figures with similar statistics for previous years as reported by the WPA National Research Project and the United States Bureau of Mines² indicates that output per man-hour in 1939 for the industry as a whole was about one and a half times that in 1929 and three and a half times that in 1919. Output per man-hour at all Florida mines in 1939 was about one and a half and four times the average output per man-hour at Florida mines in 1929 and 1919, respectively.

POWER EQUIPMENT AND CONSUMPTION OF ELECTRIC ENERGY

Power equipment in use or available for use by the industry at the end of the year had a total rating of 112,531 horsepower. The available horsepower per wage earner in 1939 was about 33. The available horsepower per wage earner at Florida land-pebble operations was over 51, or twice that at Florida soft-rock and hard-rock mines, over three and a half times that at Tennessee operations, and about four times that at Idaho and Montana mines.

¹For method used in computing output per man-hour see table 3, footnote 6.

²See A. Porter Haskell, Jr., and O. E. Kiessling, *Technology, Employment, and Output per Man in Phosphate-Rock Mining, 1880-1937* (WPA National Research Project in cooperation with U.S. Dept. Int., Bur. Mines, Report No. E-7, Nov. 1938), p. 99.

About 82 percent of the total horsepower in 1939 represented the rating of engines and motors used for driving fixed or stationary equipment such as pumps, electric generators at power plants, rotary kilns in drying plants, machinery in washing and flotation plants, grinders, and crushers. The remaining horsepower represented that used for driving mobile equipment such as clamshell loaders, dragline excavators, power shovels, locomotives, tractors, and trucks.

Of the 113 pumps reported, nearly all were used in hydraulic-mining operations at Florida land-pebble mines, and all were electrically driven. Of the 68 dragline excavators, 24 (principally the larger machines used at the Florida land-pebble mines) were electrically driven, 20 were driven by steam, and 24 by gasoline or Diesel engines. Eleven of the dragline excavators had bucket capacities of more than 5 cubic yards, 9 had capacities of 3 to 5 cubic yards, and 48 had capacities of less than 3 cubic yards. Most of the power shovels in use were driven by gasoline or Diesel engines. Of the 23 clamshell or orange-peel loaders, 17 were driven by steam engines, and the remainder by electric motors or by gasoline or Diesel engines. All of the scraper loaders reported were driven by electric energy.

The total consumption of electric energy at phosphate-rock operations in 1939 was 146,770,000 kilowatt-hours. Most of the energy generated by reporting companies for their own use was that generated at Florida land-pebble operations.

The statistics summarized in this report cover mines and associated preparation plants such as those engaged in washing, drying, sintering, calcining, and other concentrating activities. Statistics for the manufacture of elemental phosphorus, phosphoric acid, superphosphate, and mixed fertilizers are excluded. A relatively small amount of apatite concentrates, valued chiefly for their phosphorus content, was recovered as a byproduct in the milling of titanium-bearing nelsonite ore in Virginia. Statistics for this apatite are not included in this report but are covered in statistics for titanium-ore production.

TABLE 1.—PRINCIPAL STATISTICS FOR THE PHOSPHATE-ROCK INDUSTRY IN THE UNITED STATES: 1939, 1935, 1929, 1919, 1909, 1902, 1889, AND 1880¹

(For producing operations only)

ITEM	1939	1935	1929	1919	1909	1902	1889	1880
Number of operating companies ²	33	(³)	(³)	(³)	51	87	(³)	(³)
Number of mines	40	(³)	33	69	153	115	(³)	421
Production of phosphate rock (tons of 2,240 pounds) ⁴	3,957,884	(³)	3,828,623	1,988,975	(³)	1,548,720	550,245	211,377
Value of products, total	\$12,286,471	\$11,423,286	\$13,043,769	\$10,300,198	\$10,781,192	\$4,922,943	\$2,937,776	\$1,123,823
Phosphate rock produced ⁷	\$12,286,114	\$11,420,170	\$13,043,769	\$10,292,990	(³)	\$4,922,943	\$2,937,776	\$1,123,823
Other products and services rendered	\$557	\$3,116		\$7,208	(³)	(³)	(³)	(³)
Number of persons engaged, total	3,766	2,912	3,508	4,761	8,260	6,362	5,011	2,475
Wage earners (average for the year, including inactive periods)	3,372	2,658	3,201	4,373	7,873	5,971	4,901	2,475
Salaried employees	582	274	305	574	370	391	1,110	
Proprietors and firm members	12	(³)	2	14	17	(³)	(³)	(³)
Performing manual labor		(³)	(³)			(³)	(³)	(³)
Principal expenses designated below, total	\$7,012,180	\$5,436,869	\$7,629,242	\$8,806,887	\$6,317,525	\$3,242,113	\$1,642,240	(³)
Wages	\$2,870,800	\$1,806,716	\$3,303,940	\$3,900,968	\$3,215,661	\$1,930,093	\$1,209,151	\$490,047
Salaries	\$658,202	\$649,649	\$778,057	\$761,423	\$590,990	\$555,204		
Supplies and materials	\$1,503,429	\$1,519,507	\$1,542,887	\$2,161,501	\$898,657			(³)
Fuel	\$826,032	\$740,255	\$891,358	\$1,739,833	\$1,360,368	\$799,414	\$317,159	(³)
Purchased electric energy	\$950,585	\$720,742	\$1,092,064	\$1,794,468	\$251,849	\$157,402	\$115,930	(³)
Contract work	\$20,132	(³)	\$163,696					(³)
Cost of machinery and equipment erected or installed during year	\$470,410	(³)	\$805,128	(³)	(³)	(³)	(³)	(³)
Horsepower rating of prime movers and electric motors driven by purchased energy, total	112,531	(³)	104,146	49,639	50,526	14,229	650	(³)
Per wage earner	33.4	(³)	32.5	11.4	6.4	2.4	(³)	(³)
Prime movers	35,510	(³)	46,518	46,976	50,426	14,229	1350	(³)
Electric motors driven by purchased energy	77,021	(³)	57,628	2,663	100		(³)	(³)
Horsepower rating of electric motors driven by energy generated by reporting companies	33,341	(³)	30,966	33,107	21,388	500	(³)	(³)
Fuels consumed:								
Anthracite (tons of 2,000 pounds)		(³)		\$1	(³)	(³)	(³)	(³)
Bituminous coal (tons of 2,000 pounds)	84,142	(³)	71,979	121,273	(³)	(³)	(³)	(³)
Fuel oils (barrels of 42 gallons)	438,586	(³)	575,201	657,284	(³)	(³)	(³)	(³)
Gasoline and kerosene (gallons)	270,963	(³)	102,294	456,582	(³)	(³)	(³)	(³)
Natural gas (thousands of cubic feet)		(³)			(³)	(³)	(³)	(³)
Electric energy consumed (thousands of kw.-hrs.), total	146,770	(³)	160,695	(³)	(³)	(³)	(³)	(³)
Purchased	114,441	(³)	109,903	(³)	(³)	(³)	(³)	(³)
Generated by reporting companies	32,329	(³)	50,792	(³)	(³)	(³)	(³)	(³)

¹Statistics cover mines producing phosphate rock and the preparation plants, principally washing and drying plants, associated with these mines. Figures for 1939 cover those operations whose total value of products; designated principal expenses; or cost of buildings, machinery, and equipment erected or installed during the year amounted to \$2,500 or more. Figures for 1929 cover only those producing operations for which the reported value of products or cost of development work amounted to at least \$2,500; the corresponding minimum for 1919 was \$500 for value of products and \$5,000 for cost of development work. No minimum was placed on the size of operations included for 1935, 1909, 1902, 1889, and 1880. In 1939, 2,630 long tons of phosphate rock, with a total mine value of \$4,100, were reported produced at five small mines the statistics for which are not included in this table. Figures for 1939 also exclude statistics for a small quantity of apatite concentrates recovered as a byproduct of milling nelsonite ore in Virginia. Statistics for mines without products are excluded; only one such mining property at which the designated principal expenses amounted to \$2,500 or more was reported for 1939.

²For 1939 and 1909, companies that submitted more than 1 report are counted only once in the totals.

³Not available.

⁴Represents number of "establishments."

⁵For 1939, operators were requested to report separately on a dry basis the output of the washer, the output of the drier, and the output of tailings operations. At mines where phosphate rock is produced (a) by mining and washing matrix (mixed clay, sand, gravel, and phosphate rock) and (b) by recovering phosphate rock, as from tailings, by means of selective-concentration methods, the reported output of the washer and of the concentrating plant was selected as representing the quantity of phosphate rock mined during the year rather than the output at the end of such further processing as drying and calcining. This method of measuring production was adopted for two reasons: first, much of the dried product is obtained from phosphate rock mined in previous years; second, most of the labor at such operations is engaged in mining and washing phosphate rock, although the product is generally dried later. For mines where other types of mining and preparation are employed and the time interval between mining and preparation of phosphate rock is unimportant, the figures for production represent (a) the quantity of crude phosphate rock mined but not prepared during 1939 and (b) phosphate rock prepared during the year. Thus, for 1939, the total quantity of phosphate rock produced in 1939, as given in this table, consists essentially of the following: For Florida land-pebble and hard-rock mines and Tennessee phosphate-rock mines, the quantity of phosphate rock obtained by washing and of phosphate rock recovered by selective-concentration methods such as flotation and tabling; for Florida soft-rock mines, the quantity of phosphate rock that was crushed, ground, and screened; and for Idaho and Montana phosphate-rock mines, the quantity of phosphate rock that was dried, crushed, and pulverized. Quantities of crude phosphate rock mined but not prepared in 1939 are also included.

⁶Excludes statistics for items for which information was not available as indicated by footnotes.

⁷Figure for 1939 represents the value of rock mined and washed and that recovered by selective-concentration methods in 1939 plus the value added during the year by preparation processes such as drying, calcining, sintering, and grinding. The figure for value added was computed by subtracting from the value of dried, calcined, sintered, and ground phosphate rock produced in 1939 the value of washed or other material subjected during the year to drying, calcining, sintering, or grinding processes. The values of phosphate rock produced in 1929 and 1919 are essentially comparable and were estimated on the basis of the average selling value of the phosphate rock shipped.

⁸On schedules for the 1902 census, concerns were instructed that "The average number employed during the year is the number that would be required, at continuous employment for the twelve months, to produce the quantity of product reported." "In editing the schedules ... the figures for the average number of employees were reduced to a 500-day basis whenever the schedule showed them to be the average number for a shorter period; when it was evident that the employees had worked more than 300 days, the average number for the longer period was allowed to stand."

⁹The 1889 census schedules called for "average number employed," presumably an average for active periods; and requested that figures for wage earners include those employed by contractors and subcontractors.

¹⁰Excludes statistics for number and compensation of persons engaged at central administrative offices not connected with producing operations.

¹¹Represents foremen only.

¹²For 1919 and 1909 statistics include amounts paid for purchased power other than electric. Statistics for cost of purchased power for 1902 and 1889 were not explicitly requested but probably are included in part in the figures reported for supplies and materials.

¹³Represents horsepower of steam boilers.

TABLE 2.—COMPARATIVE STATISTICS FOR THE PHOSPHATE-ROCK INDUSTRY IN THE UNITED STATES, BY STATE: 1939, 1929, AND 1919¹

(For producing operations only)

STATE	Census year	Number of mines	Number of wage earners (average for the year)	Number of salaried employees	Production of phosphate rock (tons of 2,240 pounds)	Value of all products	PRINCIPAL EXPENSES DESIGNATED BELOW							Aggregate horsepower rating of power equipment
							Total	Wages	Salaries	Supplies and materials	Fuel	Purchased electric energy	Contract work	
United States—	1939	40	3,372	382	3,957,884	\$12,286,471	\$7,012,180	\$2,870,800	\$858,202	\$1,505,429	\$328,032	\$950,585	\$23,132	112,531
	1929	33	3,201	305	5,828,623	13,045,769	7,829,242	5,303,940	3,778,057	1,542,867	891,558	1,092,064	20,936	104,146
	1919	69	4,375	374	1,988,975	10,300,198	8,806,887	5,900,966	761,425	2,161,501	1,759,635	79,468	163,696	49,653
Florida—	1939	23	1,943	249	2,796,904	7,975,071	4,582,746	1,658,353	528,965	1,112,957	547,537	715,959	20,995	92,694
	1929	18	1,936	225	3,139,842	9,714,645	5,804,608	2,180,750	553,071	1,231,363	664,135	956,561	18,728	91,268
	1919	40	2,330	250	1,404,299	6,678,888	5,840,529	2,372,141	549,971	1,455,370	1,277,999	69,786	115,262	40,996
Tennessee—	1939	14	1,308	76	1,020,480	3,753,327	1,900,561	1,035,272	154,161	265,361	268,386	198,703	458	18,511
	1929	12	1,189	46	645,804	5,128,760	1,724,835	1,010,322	122,276	248,450	222,688	118,909	2,208	11,611
	1919	23	1,588	101	489,639	3,159,671	2,404,448	1,174,759	174,803	658,533	579,182	1,750	55,421	7,168
Other States ⁴ —	1939	3	121	19	140,520	558,073	375,911	179,175	41,914	125,091	10,109	17,943	1,679	1,526
	1929	5	76	16	42,977	200,364	229,763	112,888	32,672	63,094	4,555	16,594	—	1,067
	1919	6	475	23	95,037	481,659	561,910	354,066	36,649	87,598	82,652	7,932	13,015	1,475

¹ For definition of the industry see table 1, footnote 1.² Includes statistics for central-office employees in Georgia, Illinois, Maryland, New York, and Virginia.³ Includes statistics for central-office employees for which figures were not tabulated separately by State.⁴ For 1939, Idaho and Montana; for 1929, Idaho and Wyoming; for 1919, Idaho, Kentucky, South Carolina, and Utah.TABLE 3.—PRINCIPAL STATISTICS FOR THE PHOSPHATE-ROCK INDUSTRY IN THE UNITED STATES, BY STATE: 1939¹

(For producing operations only)

ITEM	United States	FLORIDA			Tennessee	Idaho and Montana ²
		Total	Land pebble	Soft rock and hard rock ³		
Number of operating companies ⁴ —	33	19	8	11	12	5
Number of mines—	40	23	12	11	14	5
Number of preparation plants—	50	54	24	10	15	1
Number of persons engaged, total—	55,766	2,199	1,902	297	1,588	141
Wage earners (average for the year)—	3,372	1,943	1,669	254	1,508	121
Salaried employees—	382	249	213	36	76	19
Proprietors and firm members—	12	7	—	7	4	1
Production of phosphate rock:						
Tons of 2,240 pounds—	3,957,884	2,796,904	2,679,966	116,938	1,020,480	140,520
Value at mines or plants—	\$12,286,114	\$7,974,714	\$7,560,837	\$413,877	\$3,753,327	\$558,073
Value of all products—	\$12,286,471	\$7,975,071	\$7,561,194	\$413,877	\$3,753,327	\$558,073
Principal expenses designated below, total—	\$7,012,180	\$4,582,746	\$4,305,344	\$277,402	\$1,900,561	\$375,911
Wages—	\$2,870,800	\$1,658,353	\$1,537,792	\$120,561	\$1,035,272	\$179,175
Salaries—	\$858,202	\$528,965	\$468,071	\$80,894	\$154,161	\$41,914
Supplies and materials—	\$1,505,429	\$1,112,957	\$1,058,801	\$54,156	\$265,361	\$125,091
Fuel—	\$328,032	\$547,537	\$529,500	\$18,037	\$268,386	\$10,109
Purchased electric energy—	\$950,585	\$713,959	\$690,185	\$23,754	\$186,703	\$17,943
Contract work—	\$23,132	\$20,995	\$20,995	—	\$458	\$1,679
Cost of buildings, machinery, and equipment erected or installed during year—	\$79,287	\$291,082	\$247,565	\$45,517	\$254,804	\$35,381
Buildings—	\$108,857	\$74,601	\$71,124	\$3,477	\$30,695	\$5,561
Machinery and equipment, total—	\$470,410	\$216,481	\$176,441	\$40,040	\$224,109	\$29,620
Purchased in new condition—	\$424,601	\$212,022	\$174,817	\$37,205	\$205,877	\$6,702
Purchased in used condition—	\$45,809	\$4,459	\$1,624	\$2,835	\$18,232	\$23,118
Total number of man-shifts worked by wage earners—	826,921	455,472	407,736	47,735	340,884	30,565
Total number of man-hours worked by wage earners—	6,680,259	3,716,271	3,314,637	401,654	2,750,248	233,740
Average number of hours worked per shift—	8.1	8.2	8.1	8.4	8.0	7.6
Average hourly earning of wage earners—	\$0.43	\$0.45	\$0.46	\$0.30	\$0.58	\$0.77
Tons of phosphate rock produced per man-hour ⁷ —	0.592	0.753	0.809	0.291	0.374	0.601
Average number of equivalent full days operations were active—	250	258	251	165	270	232
Horsepower rating of power equipment, total—	112,531	92,694	86,216	6,478	18,311	1,526
Per wage earner—	33.4	47.7	51.1	25.4	14.0	12.6
Stationary equipment—	92,175	79,245	74,400	4,845	11,527	1,403
Mobile equipment—	20,356	13,449	11,816	1,633	6,784	123
Electric energy consumed (thousands of kw.-hrs.), total—	146,770	120,543	118,593	1,950	24,618	1,405
Purchased—	114,441	88,218	86,268	—	4	—
Generated by reporting companies—	32,329	32,325	32,325	—	—	—

¹ For definition of the industry see table 1, footnote 1.² Idaho, 1 mine and 1 plant; Montana, 2 mines.³ Figures for soft rock represent statistics for 2 mines and 2 plants including statistics for waste-pond operations.⁴ Companies with operations in more than 1 State are counted only once in the totals. Figure for Florida land pebble includes one company that sintered matrix but did not mine in 1939.⁵ Includes statistics for 36 employees at central and branch offices in Georgia, Illinois, Maryland, New York, and Virginia who received a total of \$153,162.⁶ Includes, in addition to the value of phosphate rock, the value of electric energy sold and amounts received or due for services performed for other concerns.⁷ The numbers of man-hours used in computing these figures include man-hours worked during the year by wage earners engaged in drying, calcining, sintering, and grinding phosphate rock in addition to man-hours worked by wage earners engaged in mining, washing, and recovering phosphate rock by selective-concentration methods. The production used in computing these figures is that given in this table and represents principally rock mined and washed during the year as determined on a dry basis.

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TABLE 4.—NUMBER OF WAGE EARNERS IN THE PHOSPHATE-ROCK INDUSTRY IN THE UNITED STATES, BY STATE AND BY MONTH: 1939¹

(For producing operations only)

STATE	Average for the 12 months	NUMBER RECEIVING PAY DURING PAY-ROLL PERIOD ENDING NEAREST THE 15TH OF THE MONTH											
		January	February	March	April	May	June	July	August	September	October	November	December
United States, total	3,372	3,452	3,486	3,421	3,512	3,403	3,417	3,282	3,386	3,314	3,192	3,256	3,337
Florida, total	1,943	2,007	2,011	1,956	2,021	2,020	2,028	1,904	1,986	1,879	1,765	1,840	1,885
Land pebble	1,689	1,708	1,689	1,597	1,710	1,718	1,744	1,650	1,713	1,639	1,634	1,696	1,773
Soft rock and hard rock	254	299	342	359	311	302	284	244	273	240	131	144	122
Tennessee	1,308	1,341	1,362	1,352	1,364	1,256	1,261	1,244	1,267	1,295	1,310	1,307	1,340
Idaho and Montana	121	104	113	113	127	127	128	134	133	140	117	109	102

¹ For definition of the industry see table 1, footnote 1.TABLE 5.—EMPLOYMENT AND WORKING TIME IN THE PHOSPHATE-ROCK INDUSTRY IN THE UNITED STATES, BY DEPARTMENT AND BY STATE: 1939¹

(For producing operations only)

DEPARTMENT	United States	Florida	Tennessee	Idaho and Montana
Average number of wage earners on active days, total	3,256	1,874	1,253	129
At mines, total	2,101	1,247	730	124
Underground	95			95
Open-pit	1,021	623	398	
Surface shops and yards	985	624	332	29
At preparation plants	1,155	627	525	5
Average number of equivalent full days operations were active	250	238	270	232
At mines, total	249	248	253	232
Underground	224			224
Open-pit	230	217	251	
Surface shops and yards	270	278	255	261
At preparation plants	253	220	293	230
Number of man-shifts worked by wage earners, total	826,921	455,472	340,884	30,585
On active days, total	814,505	446,537	338,016	29,952
At mines, total	522,369	308,778	184,787	28,804
Underground	21,243			21,243
Open-pit	235,235	135,147	100,088	
Surface shops and yards	285,891	173,631	84,699	7,581
At preparation plants	292,136	137,759	153,229	1,148
On inactive days	12,416	8,935	2,668	613
Number of man-hours worked by wage earners, total	6,680,259	3,716,271	2,730,248	233,740
On active days, total	6,576,328	3,643,357	2,704,135	228,836
At mines, total	4,202,834	2,504,861	1,478,301	219,652
Underground	161,702			161,702
Open-pit	1,912,852	1,112,139	800,713	
Surface shops and yards	2,128,280	1,392,742	677,588	57,950
At preparation plants	2,373,494	1,138,476	1,225,834	9,184
On inactive days	105,931	72,914	26,113	4,904

¹ For definition of the industry see table 1, footnote 1.

TABLE 6.—NUMBER OF MAN-SHIFTS WORKED BY WAGE EARNERS ON ACTIVE DAYS AT MINES AND AT PREPARATION PLANTS IN THE PHOSPHATE-ROCK INDUSTRY IN THE UNITED STATES, BY SHIFT AND BY STATE: 1939¹

(For producing operations only)

SHIFT AND DEPARTMENT	UNITED STATES		FLORIDA			Tennessee	Idaho and Montana
	Number	Percent of total	Total	Land pebble	Soft rock and hard rock		
Number of man-shifts worked by wage earners on active days, total-----	814,505	100.0	446,537	399,880	46,657	336,016	29,952
During first shift-----	514,905	75.5	339,913	295,258	46,657	253,336	21,656
During second shift-----	123,777	15.2	65,558	65,558	-----	50,145	8,296
During third shift-----	75,823	9.3	41,288	41,288	-----	34,535	-----
At mines, total-----	622,569	100.0	308,778	279,780	28,998	184,787	28,504
During first shift-----	431,417	82.6	239,109	210,111	28,998	171,463	20,845
During second shift-----	58,077	11.1	41,420	41,420	-----	8,698	7,959
During third shift-----	32,875	6.3	28,249	28,249	-----	4,626	-----
At preparation plants, total-----	292,136	100.0	137,759	120,100	17,659	153,229	1,146
During first shift-----	183,488	62.8	100,804	83,145	17,659	81,873	811
During second shift-----	65,700	22.5	23,918	23,918	-----	41,447	337
During third shift-----	42,948	14.7	13,039	13,039	-----	29,909	-----

¹For definition of the industry see table 1, footnote 1. Figures refer only to man-shifts worked by wage earners on active days; they exclude statistics for inactive days, when only maintenance work was carried on.

TABLE 7.—QUANTITY OF FUEL AND ELECTRIC ENERGY CONSUMED IN THE PHOSPHATE-ROCK INDUSTRY IN THE UNITED STATES, BY STATE AND BY KIND: 1939¹

(For producing operations only)

STATE	FUEL ²			ELECTRIC ENERGY (thousands of kilowatt-hours)		
	Bituminous coal (tons of 2,000 pounds)	Fuel oils (barrels of 42 gallons)	Gasoline and kerosene (gallons)	Total	Purchased	Generated by reporting companies
United States, total-----	84,142	436,386	270,963	146,770	114,441	32,329
Florida-----	4,468	431,226	203,437	120,543	88,218	32,325
Tennessee-----	78,850	4,521	51,727	24,822	24,818	4
Idaho and Montana-----	824	639	15,799	1,405	1,405	-----

¹For definition of the industry see table 1, footnote 1.

²No anthracite or natural gas was reported consumed.

TABLE 8.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE PHOSPHATE-ROCK INDUSTRY IN THE UNITED STATES, BY TYPE AND BY STATE: 1939¹

(For producing operations only)

STATE AND TYPE OF EQUIPMENT	PRIME MOVERS AND ELECTRIC MOTORS DRIVEN BY PURCHASED ENERGY											ELECTRIC MOTORS DRIVEN BY ENERGY GENERATED BY REPORTING COMPANIES	
	Aggregate horsepower	Prime movers								Electric motors driven by purchased energy			
		Total		Driving generators		Not driving generators		Ordinarily idle (included in pre- ceding columns)					
										Number	Horsepower	Number	Horsepower
United States, total-----	112,531	179	35,510	23	23,826	156	11,684	8	7,445	1,832	77,021	723	33,341
Stationary ² -----	92,175	20	24,920	7	23,800	13	1,120	6	7,396	1,656	67,255	682	26,551
Mobile ³ -----	20,356	159	10,590	16	26	143	10,564	2	47	176	9,766	41	6,790
Florida, total-----	92,594	98	28,539	6	22,975	92	5,564	5	6,571	1,316	64,155	723	33,341
Stationary ² -----	79,245	17	23,870	6	22,975	11	895	5	6,571	1,169	55,375	682	26,551
Mobile ³ -----	13,449	81	4,669	-----	-----	81	4,669	-----	-----	147	8,780	41	6,790
Tennessee, total-----	18,311	79	6,746	17	851	62	5,895	3	872	447	11,565	-----	-----
Stationary ² -----	11,527	1	825	1	825	-----	-----	1	825	425	10,702	-----	-----
Mobile ³ -----	6,784	78	5,921	16	26	62	5,895	2	47	22	863	-----	-----
Idaho and Montana, total-----	1,526	2	225	-----	-----	2	225	-----	-----	69	1,301	-----	-----
Stationary ² -----	1,403	2	225	-----	-----	2	225	-----	-----	62	1,178	-----	-----
Mobile ³ -----	123	-----	-----	-----	-----	-----	-----	-----	-----	7	123	-----	-----

¹For definition of the industry see table 1, footnote 1.

²Horsepower rating of engines, motors, etc., used for driving stationary or fixed equipment such as pumps, electric generators at power plants, rotary kilns in drying plants, machinery in washing and flotation plants, grinders, crushers, etc.

³Horsepower rating of engines, motors, etc., used for driving mobile equipment such as clamshell loaders, dragline excavators, locomotives, power shovels, tractors, trucks, etc.

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TABLE 9.—NUMBER OF POWER-LOADING MACHINES IN THE PHOSPHATE-ROCK INDUSTRY IN THE UNITED STATES, BY TYPE, BY KIND OF POWER USED, BY SIZE, AND BY STATE: 1939¹

(For producing operations only)

TYPE OF MACHINE, KIND OF POWER USED, AND SIZE	United States	Florida	Tennessee	Idaho and Montana	TYPE OF MACHINE, KIND OF POWER USED, AND SIZE	United States	Florida	Tennessee	Idaho and Montana
Surface:					Surface—Continued:				
Power shovels, total ² -----	7	4	3	-----	Scraper loaders ³ -----	4	3	1	-----
Kind of power used:					Clamshells and orange-peel loaders, total-----	23	15	8	-----
Electric-----	1	1	-----	-----	Kind of power used:				
Internal-combustion engine-----	6	3	3	-----	Steam-----	17	12	5	-----
Dragline excavators, total-----	68	33	35	-----	Electric-----	3	-----	3	-----
Kind of power used:					Internal-combustion engine-----	3	3	-----	-----
Steam-----	20	2	18	-----	Pumps (matrix, sand, and gravel) ⁴ -----	113	104	9	-----
Electric-----	24	20	4	-----	Other types ⁴ -----	3	2	1	-----
Internal-combustion engine-----	24	11	13	-----	Underground:				
Bucket capacity (cu. yds.):					Shovel loaders ⁵ -----	1	-----	-----	1
Less than 3-----	48	17	31	-----	Scraper loaders (including slushers) ⁶ -----	7	-----	-----	7
3 - 5-----	9	5	4	-----					
More than 5-----	11	11	-----	-----					

¹ For definition of the industry see table 1, footnote 1.² All had dipper capacities of less than 3 cubic yards.³ All were driven by electric hoists with ratings of 26 - 100 horsepower.⁴ All were driven by electric power.⁵ Driven by electric power and required a minimum working height of 8 feet or less.⁶ All were driven by electric hoists with ratings of 10 - 25 horsepower.TABLE 10.—SELECTED STATISTICS FOR INCORPORATED AND FOR UNINCORPORATED OPERATING COMPANIES IN THE PHOSPHATE-ROCK INDUSTRY IN THE UNITED STATES, BY STATE: 1939¹

(For producing operations only)

STATE AND TYPE OF OWNERSHIP	Number of operating companies	Number of mines	Number of preparation plants	Production of phosphate rock (tons of 2,240 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
						Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total-----	33	40	50	3,957,884	\$12,286,471	² 3,766	3,372	² 382	12	\$2,870,800	² \$858,202
Incorporated-----	24	30	46	3,822,709	12,023,752	² 3,572	3,200	² 372	-----	2,737,615	² 841,526
Unincorporated-----	9	10	4	135,175	262,719	194	172	10	12	133,185	16,676
Florida, total-----	19	23	34	2,796,904	7,975,071	2,199	1,943	249	7	1,658,353	528,965
Incorporated-----	16	19	31	2,776,368	7,927,067	2,144	1,898	246	-----	1,641,748	525,775
Unincorporated-----	3	4	3	20,536	48,004	55	45	3	7	16,605	3,190
Tennessee, total-----	12	14	15	1,020,460	3,753,327	1,388	1,308	76	4	1,033,272	134,161
Incorporated-----	7	9	14	1,020,460	3,753,327	1,388	1,308	76	4	1,033,272	134,161
Unincorporated-----	5	5	1								
Idaho and Montana, total-----	3	3	1	140,520	558,073	141	121	19	1	179,175	41,914
Incorporated-----	2	2	1	140,520	558,073	141	121	19	1	179,175	41,914
Unincorporated-----	1	1	-----								

¹ For definition of the industry see table 1, footnote 1.² Includes statistics for central-office employees in Georgia, Illinois, Maryland, New York, and Virginia.

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TABLE 11.—SELECTED STATISTICS FOR PHOSPHATE-ROCK OPERATIONS IN THE UNITED STATES, CLASSIFIED BY VALUE OF PRODUCTS
AND BY STATE: 1939¹

(For producing operations only)

STATE AND VALUE OF PRODUCTS	Number of mines	Number of preparation plants	Production of phosphate rock (ton of 2,240 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total	40	50	3,957,884	\$12,286,471	² 5,766	3,372	² 382	12	\$2,870,800	² \$858,202
\$1 - \$19,999	6	5	22,166	66,897	55	47	7	1	15,393	14,806
\$20,000 - \$49,999	8	3	99,014	202,554	152	134	12	6	72,446	19,476
\$50,000 - \$99,999	1	1	142,978	485,832	273	250	22	1	180,055	56,205
\$100,000 - \$249,999	2	3	898,827	3,256,859	1,013	941	72	—	806,238	168,825
\$250,000 - \$499,999	8	15	1,111,791	3,480,762	1,037	974	63	—	653,672	151,645
\$500,000 - \$999,999	2	4	1,683,408	4,795,787	² 1,236	1,026	² 206	4	942,796	² 447,445
\$1,000,000 - \$2,499,999	2	16								
Unclassified	11	16								
Florida, total	23	34	2,796,904	7,975,071	2,199	1,943	249	7	1,658,353	528,965
\$1 - \$19,999	4	4	15,247	42,609	48	42	5	1	11,131	10,166
\$20,000 - \$49,999	3	3	125,873	462,992	284	253	29	2	151,005	66,635
\$50,000 - \$99,999	2	5	821,994	1,900,398	523	466	57	—	425,408	166,382
\$100,000 - \$249,999	1	2	2,035,790	5,569,072	1,344	1,182	158	4	1,090,811	285,782
\$250,000 - \$499,999	1	2								
\$500,000 - \$999,999	1	2								
\$1,000,000 - \$2,499,999	1	2								
Unclassified	9	14								
Tennessee, total	14	15	1,020,460	3,753,327	1,388	1,308	76	4	1,033,272	134,161
\$1 - \$19,999	1	1	78,655	140,565	102	92	6	4	55,899	9,759
\$20,000 - \$49,999	5	8	634,195	2,305,295	840	803	37	—	629,137	53,032
\$50,000 - \$99,999	1	2	307,610	1,307,467	446	413	33	—	346,256	71,370
\$100,000 - \$249,999	1	2								
\$250,000 - \$499,999	1	2								
\$500,000 - \$999,999	1	2								
\$1,000,000 - \$2,499,999	1	2								
Unclassified	2	2								
Idaho and Montana, total	3	1	140,520	558,073	141	121	19	1	179,175	41,914
\$1 - \$19,999	1	—								
\$20,000 - \$49,999	1	—	140,520	558,073	137	121	15	1	179,175	38,014
\$50,000 - \$99,999	1	—								
\$250,000 - \$499,999	1	1								
\$500,000 - \$999,999	1	—								
\$1,000,000 - \$2,499,999	1	—								
Unclassified	—	—			4	—	4	—	—	3,900

¹For definition of the industry see table 1, footnote 1. Reports classified by value of products represent a single mine, a single preparation plant, or a single mine and its related preparation plants (washing, drying, etc.) reported together. Statistics shown for "Unclassified" represent reports for more than one mine and reports for central offices reported separately from their associated phosphate-rock operations.

²Includes statistics for central-office employees in Georgia, Illinois, Maryland, New York, and Virginia.

TABLE 12.—SELECTED STATISTICS FOR PHOSPHATE-ROCK OPERATIONS IN THE UNITED STATES, CLASSIFIED BY QUANTITY OF PRODUCT
AND BY STATE: 1939¹

(For producing operations only)

STATE AND QUANTITY OF PRODUCT (tons of 2,240 pounds)	Number of mines	Number of preparation plants	Production of phosphate rock (tons of 2,240 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total	40	50	3,957,884	\$12,286,471	² 5,766	3,372	² 382	12	\$2,870,800	² \$858,202
1,000 - 4,999	6	5	22,166	66,897	55	47	7	1	15,393	14,806
5,000 - 9,999	3	2	20,811	75,038	40	32	8	—	14,758	14,157
10,000 - 24,999	6	2	103,158	297,256	166	152	8	6	90,457	13,175
25,000 - 49,999	2	2	372,252	1,447,613	563	516	46	1	443,578	106,134
50,000 - 99,999	3	5	800,050	2,797,517	899	844	55	—	882,742	125,008
100,000 - 199,999	6	12	958,279	2,810,363	807	755	52	—	661,098	137,677
200,000 - 299,999	2	4	1,683,408	4,795,787	² 1,236	1,026	² 206	4	942,796	² 447,445
300,000 and over	1	2								
Unclassified	11	16								
Florida, total	23	34	2,796,904	7,975,071	2,199	1,943	249	7	1,658,353	528,965
1,000 - 4,999	4	4	29,398	91,747	80	66	13	1	19,404	24,323
5,000 - 9,999	2	2	188,061	748,753	318	287	27	2	169,282	65,548
10,000 - 24,999	1	2	951,738	2,808,184	734	668	66	—	601,197	190,900
25,000 - 49,999	1	2	1,627,709	4,526,367	1,069	922	143	4	868,490	248,594
50,000 - 99,999	1	2	1,020,460	3,753,327	1,388	1,308	76	4	1,033,272	134,161
100,000 - 199,999	1	1	78,655	140,565	103	93	6	4	55,899	9,759
200,000 - 299,999	4	8	634,195	2,305,295	840	803	37	—	629,137	53,032
300,000 and over	1	2	307,610	1,307,467	445	413	33	—	346,256	71,370
Unclassified	2	2								
Tennessee, total	14	15	1,020,460	3,753,327	1,388	1,308	76	4	1,033,272	134,161
1,000 - 4,999	1	1	78,655	140,565	103	93	6	4	55,899	9,759
5,000 - 9,999	4	8	634,195	2,305,295	840	803	37	—	629,137	53,032
10,000 - 24,999	1	2	307,610	1,307,467	445	413	33	—	346,256	71,370
25,000 - 49,999	1	2								
50,000 - 99,999	1	2								
100,000 - 199,999	1	2								
200,000 - 299,999	1	2								
300,000 and over	1	2								
Unclassified	2	2								
Idaho and Montana, total	3	1	140,520	558,073	141	121	19	1	179,175	41,914
1,000 - 4,999	1	—								
5,000 - 9,999	1	—	140,520	558,073	141	121	19	1	179,175	41,914
10,000 - 24,999	1	—								
25,000 - 49,999	1	—								
50,000 - 99,999	1	1								
100,000 - 199,999	1	—								
200,000 - 299,999	1	—								
300,000 and over	1	—								
Unclassified	—	—								

¹For definition of the industry see table 1, footnote 1. Reports classified by quantity of product represent a single mine, a single preparation plant, or a single mine and its related preparation plants (washing, drying, etc.) reported together. Statistics shown for "Unclassified" represent reports for more than one mine and reports for central offices reported separately from their associated phosphate-rock operations.

²Includes statistics for central-office employees in Georgia, Illinois, Maryland, New York, and Virginia.

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TABLE 13.—SELECTED STATISTICS FOR PHOSPHATE-ROCK OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF WAGE EARNERS AND BY STATE: 1939¹

(For producing operations only)

STATE AND NUMBER OF WAGE EARNERS	Number of mines	Number of preparation plants	Production of phosphate rock (tons of 2,240 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total	40	50	3,957,884	\$12,286,471	² 3,766	3,372	² 382	12	\$2,870,800	² \$858,202
1 - 5	2	1	51,847	137,967	106	88	16	2	29,668	29,963
6 - 20	7	6								
21 - 50	5	2	114,261	353,222	171	158	8	5	140,379	15,702
51 - 100	4	8	500,857	1,703,880	383	345	38		327,571	107,469
101 - 250	7	13	1,585,258	5,253,563	1,841	1,727	114		1,412,703	257,623
251 - 500	2	4								
Unclassified	13	16	1,705,661	4,837,839	² 1,285	1,054	² 206	5	960,479	² 447,445
Florida, total	23	34	2,796,904	7,975,071	2,199	1,943	249	7	1,658,353	528,985
6 - 20	6	6	29,396	91,747	80	66	13	1	19,404	24,323
21 - 50	2	2	275,601	991,413	315	286	27	2	205,913	78,182
51 - 100	2	5								
101 - 250	3	5	864,198	2,365,524	735	669	66		584,546	178,086
251 - 500	1	2								
Unclassified	9	14	1,627,709	4,526,387	1,069	922	143	4	868,490	248,394
Tennessee, total	14	15	1,020,460	3,753,327	1,388	1,308	76	4	1,033,272	134,161
1 - 5	1	1								
6 - 20	1		221,448	553,836	128	118	7	3	93,126	12,635
21 - 50	2									
51 - 100	1	2								
101 - 250	4	8	721,080	2,888,059	1,106	1,058	48		848,157	79,537
251 - 500	1	2								
Unclassified	4	2	77,952	311,452	154	132	21	1	91,989	41,989
Idaho and Montana, total	3	1	140,520	558,073	141	121	19	1	179,175	41,914
1 - 5	1									
21 - 50	1		140,520	558,073	137	121	15	1	179,175	38,014
51 - 100	1	1								
Unclassified					4		4			3,900

¹ For definition of the industry see table 1, footnote 1. Reports classified by average number of wage earners employed during the year represent a single mine, a single preparation plant, or a single mine and its related preparation plants (washing, drying, etc.) reported together. Statistics shown for "Unclassified" represent: Reports for more than one mine; reports on which number of wage earners, by month, was not adequately reported; and reports for central offices reported separately from their associated phosphate-rock operations.

² Includes statistics for central-office employees in Georgia, Illinois, Maryland, New York, and Virginia.

TABLE 14.—SELECTED STATISTICS FOR PHOSPHATE-ROCK OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF HOURS PER WAGE EARNER IN THE FULL-TIME WORKWEEK AND BY STATE: 1939¹

(For producing operations only)

STATE AND HOURS PER WEEK	Number of mines	Number of preparation plants	Production of phosphate rock (tons of 2,240 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total	40	50	3,957,884	\$12,286,471	² 3,766	3,372	² 382	12	\$2,870,800	² \$858,202
1 - 34	1	1								
35 - 39	1	1	3,144,240	9,829,305	2,831	2,592	237	2	2,227,114	450,593
40	20	32								
41 - 42	10	12	764,599	2,352,694	796	715	76	5	601,010	205,055
43 - 44	2	2								
Unclassified	6	2	49,045	104,472	² 139	65	² 69	5	42,678	² 202,556
Florida, total	23	34	2,796,904	7,975,071	2,199	1,943	249	7	1,658,353	528,985
35 - 39	1	1	2,067,896	5,703,854	1,417	1,258	161		1,120,280	309,991
40	9	17								
41 - 42	9	12	651,888	1,972,216	591	522	65	4	447,239	181,770
43 - 44	2	2								
Unclassified	2	2	77,120	299,001	191	165	23	3	90,834	37,204
Tennessee, total	14	15	1,020,460	3,753,327	1,388	1,308	76	4	1,033,272	134,161
1 - 34	1	1								
40	10	14	1,020,460	3,753,327	1,388	1,308	76	4	1,033,272	134,161
Unclassified	3									
Idaho and Montana, total	3	1	140,520	558,073	141	121	19	1	179,175	41,914
40	1	1								
41 - 42	1		140,520	558,073	141	121	19	1	179,175	41,914
Unclassified	1									

¹ For definition of the industry see table 1, footnote 1. Reports were classified by number of hours in the full-time workweek reported for wage earners in that department of the operation for which the largest number of man-hours worked was reported. Statistics shown for "Unclassified" represent reports on which number of hours was not reported and reports for central offices reported separately from their associated phosphate-rock operations.

² Includes statistics for central-office employees in Georgia, Illinois, Maryland, New York, and Virginia.

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TABLE 15.—SELECTED STATISTICS FOR PHOSPHATE-ROCK OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF DAYS ACTIVE DURING THE YEAR: 1939¹

(For producing operations only)

NUMBER OF DAYS ACTIVE DURING THE YEAR	Number of mines	Number of preparation plants	Production of phosphate rock (tons of 2,240 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total-----	40	50	3,957,884	\$12,286,471	3,766	3,372	382	12	\$2,870,800	\$658,202
1 - 49-----	1	1	15,996	62,271	53	45	8	-----	13,193	15,285
50 - 99-----	3	2	-----	-----	-----	-----	-----	-----	-----	-----
100 - 149-----	2	3	96,116	273,586	209	184	24	1	90,637	58,100
150 - 199-----	3	3	-----	-----	-----	-----	-----	-----	-----	-----
200 - 249-----	4	7	363,974	1,362,679	384	346	37	1	279,310	104,530
250 - 299-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----
300 - 349-----	6	9	655,274	2,408,485	763	720	42	1	604,325	75,532
350 - 399-----	4	5	1,122,863	3,313,611	1,069	1,002	64	3	904,767	155,791
400 - 449-----	2	4	-----	-----	-----	-----	-----	-----	-----	-----
Unclassified-----	14	16	1,723,661	4,870,839	1,288	1,075	207	6	978,548	448,984

¹For definition of the industry see table 1, footnote 1. Reports classified by number of days active represent a single mine, a single preparation plant, or a single mine and its related preparation plants (washing, drying, etc.) reported together; such reports for a single mine or a single preparation plant were classified by number of days the mine or preparation plant was in operation for production or development purposes during the year; such reports for a single mine and its related plants reported together were classified by number of days the mine was in operation during the year. Statistics shown for "Unclassified" represent: Reports for more than one mine; reports on which number of days active was not reported; and reports for central offices reported separately from their associated phosphate-rock operations.

TABLE 16.—SELECTED STATISTICS FOR PHOSPHATE-ROCK OPERATIONS IN THE UNITED STATES, CLASSIFIED BY OUTPUT PER MAN-HOUR AND BY STATE: 1939¹

(For producing operations only)

STATE AND TONS (2,240 POUNDS) OF PHOSPHATE ROCK PRODUCED PER MAN-HOUR	Number of mines	Number of preparation plants	Production of phosphate rock (tons of 2,240 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total-----	40	50	3,957,884	\$12,286,471	3,766	3,372	382	12	\$2,870,800	\$658,202
0.200 - 0.299-----	6	8	320,445	1,274,620	655	618	37	-----	448,083	60,233
0.300 - 0.399-----	8	8	572,809	2,255,667	810	772	34	4	800,731	61,191
0.400 - 0.599-----	7	6	180,865	640,668	242	212	26	4	189,965	71,983
0.600 - 0.799-----	8	11	1,004,956	3,084,603	872	749	122	1	676,469	257,042
0.800 - 0.999-----	6	11	-----	-----	-----	-----	-----	-----	-----	-----
1.000 - 1.499-----	2	4	1,691,530	4,529,518	1,035	959	96	-----	880,959	207,023
1.500 and over-----	1	2	-----	-----	-----	-----	-----	-----	-----	-----
Unclassified-----	2	-----	187,299	501,375	2152	82	267	3	72,593	200,750
Florida, total-----	23	34	2,796,904	7,975,071	2,199	1,943	249	7	1,658,353	528,985
0.200 - 0.299-----	2	2	-----	-----	-----	-----	-----	-----	-----	-----
0.300 - 0.399-----	3	2	217,089	845,499	394	352	37	5	215,786	90,362
0.400 - 0.599-----	5	6	-----	-----	-----	-----	-----	-----	-----	-----
0.600 - 0.799-----	6	10	693,267	2,613,495	763	656	107	-----	563,152	221,555
0.800 - 0.999-----	5	10	1,686,548	4,516,077	1,029	935	94	-----	879,414	202,583
1.000 - 1.499-----	2	4	-----	-----	-----	-----	-----	-----	-----	-----
Unclassified-----	-----	-----	-----	-----	13	-----	11	2	-----	14,465
Tennessee, total-----	14	15	1,020,460	3,753,327	1,388	1,308	76	4	1,033,272	134,161
0.200 - 0.299-----	4	6	812,647	3,216,579	1,267	1,206	59	2	953,132	99,318
0.300 - 0.399-----	5	6	-----	-----	-----	-----	-----	-----	-----	-----
0.400 - 0.599-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----
0.600 - 0.799-----	1	1	207,813	536,748	121	102	17	2	80,140	34,843
0.800 - 0.999-----	1	2	-----	-----	-----	-----	-----	-----	-----	-----
1.500 and over-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----
Unclassified-----	2	-----	-----	-----	-----	-----	-----	-----	-----	-----
Idaho and Montana, total-----	3	1	140,520	558,073	141	121	19	1	179,175	41,914
0.400 - 0.599-----	2	-----	-----	-----	-----	-----	-----	-----	-----	-----
0.600 - 0.799-----	1	1	140,520	558,073	137	121	15	1	179,175	38,014
Unclassified-----	-----	-----	-----	-----	4	-----	4	-----	-----	3,900

¹For definition of the industry see table 1, footnote 1. Reports classified by output per man-hour represent a single mine, a single preparation plant, or a mine (or mines) and related preparation plants (washing, drying, etc.) reported together. Statistics shown for "Unclassified" represent reports on which man-hours were not adequately reported for classification and reports for central offices reported separately from their associated phosphate-rock operations.

²Includes statistics for central-office employees in Georgia, Illinois, Maryland, New York, and Virginia.

POTASH

The potash industry in the United States in 1939 produced 532,000 short tons of prepared potassium salts with a value of \$10,039,000 at points of production. These prepared salts--representing prepared muriate, sulfate of potash, and manure salts--contained an equivalent in K_2O of 312,000 short tons. When the value of other products, mostly natural sodium compounds, is included the total value of the industry's products was \$13,964,000.

Potash is used principally as a fertilizer and is also important in the manufacture of black powder for explosives.

A decade ago the United States was largely dependent upon imports of potash that originated largely in Germany and France. In 1939 there existed a domestic potash industry of a size adequate to meet anticipated requirements in the near future.

The domestic potash industry is an outgrowth of deliberate encouragement by the Federal Government. Over a 20-year period various Federal agencies spent about \$2,000,000 searching for domestic sources from which our needs could be economically supplied. The success of this Government work inspired private efforts that led to the founding of a new major domestic industry.

Potash-mining operations employed an average of 1,516 wage earners during 1939. In addition to wage earners, the companies producing potash reported the employment of 284 salaried workers.

The amount paid to wage earners, who worked a total of 3,318,000 man-hours, was \$2,666,000, or an average of about 80 cents per man-hour. Payments to salaried employees amounted \$997,000. Supplies and materials used during 1939 cost \$1,607,000; fuel, \$1,174,000; and the amount paid for work done on contract by other concerns, \$18,000. The cost

of buildings, machinery, and equipment erected or installed during the year was \$791,000.

Production of potassium salts and alunite was reported by five companies, operating five mines. Potash was recovered from natural brine at one large operation in California, from bedded saline deposits mined at two underground mines in New Mexico, and from brine at one mine in Utah. Another mine in Utah reported production of crude alunite which is valued partly for its potash content. The mines in California and New Mexico accounted for 98 percent of the total production of prepared salts. Another large mine in New Mexico was reported in the process of development and had no output.

Power equipment at potash operations in use or available for use at the end of the year had an aggregate rated capacity of 44,600 horsepower, an average of 29 horsepower per wage earner. Of the total horsepower rating reported, nearly 41,000 represented engines or turbines used for driving stationary or fixed equipment such as pumps, compressors, and electrical-generating equipment. All of the electric energy consumed by the industry, amounting to 104,873,000 kilowatt-hours, was reported generated by the consuming companies.

Potash mines and preparation plants operated almost uninterruptedly during 1939, averaging 355 full working days. Operation on a 3-shift basis, 8 hours per shift, was characteristic of the industry. The calculated number of man-shifts worked by wage earners on the first shift at all operations was 229,000; on the second shift, 103,000; and on the third shift, 81,000.

For distribution of potash operations by value of products, number of wage earners, number of days active, number of hours per wage earner in the full-time workweek, and by type of ownership, see General Summary tables 8, 15, 17, 18, and 26, respectively.

TABLE 1.—PRINCIPAL STATISTICS FOR THE POTASH INDUSTRY IN THE UNITED STATES: 1939¹

(For producing operations only)

Number of operating companies-----	5	Cost of buildings, machinery, and equipment erected or installed during year-----	\$791,233
Number of mines-----	25	Buildings-----	\$246,104
Number of preparation plants-----	24	Machinery and equipment, total-----	\$545,129
Number of persons engaged, total-----	1,801	Purchased in new condition-----	\$544,129
Wage earners (average for the year)-----	1,516	Purchased in used condition-----	\$1,000
Salaried employees ² -----	284	Total number of man-shifts worked by wage earners-----	414,482
Proprietors and firm members-----	1	Total number of man-hours worked by wage earners-----	3,317,856
Performing manual labor-----	1	Average number of hours worked per shift-----	8.0
Production of prepared potassium salts:		Average hourly earning of wage earners-----	\$0.80
Tons of 2,000 pounds ³ -----	531,621	Average number of equivalent full days operations were active-----	355
Equivalent K_2O content (tons of 2,000 pounds)-----	311,718	Horsepower rating of power equipment, total-----	44,600
Value at mines or plants ⁴ -----	\$10,138,451	Per wage earner-----	29.4
Value of all products ⁵ -----	\$13,963,561	Stationary equipment-----	40,766
Principal expenses designated below, total ⁷ -----	\$6,462,252	Mobile equipment-----	3,812
Wages-----	\$2,666,378	Electric energy consumed (thousands of kw.-hrs.), total ⁷ -----	104,873
Salaries ⁶ -----	\$997,132		
Supplies and materials-----	\$1,606,669		
Fuel-----	\$1,174,005		
Contract work-----	\$18,068		

¹ Figures cover only those producing operations at which the reported value of products, reported principal expenses, or cost of buildings, machinery, and equipment erected or installed during the year amounted to at least \$2,500. Statistics are excluded for 1 nonproducing operation. Statistics are for mines and plants engaged primarily in the production of potash from bedded saline deposits and natural brines, including one mine engaged in the production of alunite. They do not include operations that produced potash from sources such as cement-kiln and blast-furnace flue dust, molasses-distillery and sugar-refinery waste, kelp, and wood ashes; potash produced from such sources, however, accounted for an unimportant proportion of the total potash output in 1939.

² California, 1 mine and 1 plant; New Mexico, 2 mines and 2 plants; and Utah, 2 mines and 1 plant.

³ Includes statistics for central-office employees in New York.

⁴ Prepared muriate, sulfate of potash, and manure salts.

⁵ Includes \$99,662 representing the value of a small amount of crude alunite (less than 500 tons) and crude salts not prepared for which data are excluded from the figure for quantity.

⁶ Includes, in addition to the value of prepared salts, the value of natural sodium compounds, lithium minerals, and salt ($NaCl$) obtained as secondary products; the value of a small amount of crude alunite and crude salts not prepared; and the value of electric energy generated and sold.

⁷ Figure for quantity of electric energy represents energy generated by the reporting companies; no purchased electric energy was reported.

TABLE 2.—NUMBER OF WAGE EARNERS IN THE POTASH INDUSTRY IN THE UNITED STATES, BY MONTH: 1939¹

(For producing operations only)

MONTH	Number	MONTH	Number	MONTH	Number
Average-----	1,516	April-----	1,378	September-----	1,537
January-----	1,413	May-----	1,388	October-----	1,685
February-----	1,840	June-----	1,431	November-----	1,846
March-----	1,372	July-----	1,486	December-----	1,823
		August-----	1,497		

¹ For definition of the industry see table 1, footnote 1.TABLE 3.—EMPLOYMENT AND WORKING TIME IN THE POTASH INDUSTRY IN THE UNITED STATES, BY DEPARTMENT: 1939¹

(For producing operations only)

Average number of wage earners on active days, total-----	1,167	Number of man-shifts worked by wage earners, total-----	414,482
At mines, total-----	257	On active days, total-----	414,268
Underground-----	158	At mines, total-----	87,850
Well operations and open pits-----	11	Underground-----	54,353
Surface shops and yards-----	88	Well operations and open pits-----	2,060
At preparation plants-----	910	Surface shops and yards-----	30,937
		At preparation plants-----	326,913
		On inactive days-----	219
Average number of equivalent full days operations were active-----	355	Number of man-hours worked by wage earners, total-----	3,317,856
At mines-----	340	On active days, total-----	3,316,104
Underground-----	344	At mines, total-----	698,795
Well operations and open pits-----	187	Underground-----	434,820
Surface shops and yards-----	352	Well operations and open pits-----	16,480
At preparation plants-----	359	Surface shops and yards-----	247,496
		At preparation plants-----	2,617,308
		On inactive days-----	1,752

¹ For definition of the industry see table 1, footnote 1.TABLE 4.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE POTASH INDUSTRY IN THE UNITED STATES, BY TYPE: 1939¹

(For producing operations only)

TYPE OF EQUIPMENT	PRIME MOVERS								ELECTRIC MOTORS DRIVEN BY ENERGY GENERATED BY REPORTING COMPANIES	
	Total		Driving generators		Not driving generators		Ordinarily idle (included in pre- ceding columns)			
	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower
United States, total-----	92	44,600	21	36,052	71	8,548	17	10,272	2,054	31,220
Stationary ² -----	52	40,788	18	36,050	34	4,738	14	10,230	1,946	29,819
Mobile ³ -----	40	3,812	3	2	37	3,810	3	42	108	1,401

¹ For definition of the industry see table 1, footnote 1. No electric motors were reported driven by purchased electric energy.² Horsepower rating of engines used for driving stationary or fixed equipment such as pumps, compressors, electric-generating equipment at power plants, etc.³ Horsepower rating of engines used for driving mobile or portable equipment such as locomotives, shovel loaders, trucks, etc.

PYRITES

The total production of pyrites in the United States in 1939 was 516,409 long tons valued at about \$1,325,000 at points of production. Of the total tonnage, about 67 percent was produced as secondary products of operations classified in the bituminous-coal, copper, gold, and zinc industries. Operations classified in the pyrites industry (those producing pyrites as their principal mineral product) produced 169,760 long tons of pyrites, or 33 percent of the total tonnage of pyrites obtained from all sources. The industry had a total value of products amounting to \$602,000, of which over 95 percent represented the value of pyrites ores and concentrates produced and less than 5 percent the value of secondary products.

Pyrites is valued chiefly as a source of sulfur for the manufacture of sulfuric acid used in the fertilizer, petroleum-refining, chemicals, coal-products, iron-and-steel, paints-and-pigments, explosives, rayon, textiles, and other industries.

The six companies reporting pyrites as their principal mineral product had operations in California, Kansas, Missouri, and Virginia. Three-fourths of the total output of the pyrites industry in 1939 came from three underground mines in California, Missouri, and Virginia. Secondary production of pyrites was reported by bituminous-coal, copper, gold, and zinc operations in Colorado, Illinois, Indiana, Montana, New York, Tennessee, and Wisconsin. The sulfur content of pyrites produced in 1939 from all sources was 214,053 tons, of which 67,078 tons represented the content of pyrites produced in the pyrites industry.

PRINCIPAL EXPENSES

The pyrites industry paid \$204,000 in wages—an average of 59 cents per man-hour worked by wage earners. Salaried employees were paid \$37,000. Supplies and materials consumed during the year cost \$95,000; fuel, \$7,000; purchased electric energy, \$34,000; and work done on contract by other concerns, \$8,000. Buildings, machinery, and equipment costing \$18,000 were erected or installed during the year.

EMPLOYMENT AND WORKING TIME

The number of wage earners employed by the industry averaged 189, ranging from a low of 173 in March to a peak of 209

in January. In addition, 15 salaried employees were reported for October. For the industry as a whole, wage earners worked a total of 348,000 man-hours, working an average of 7.8 hours per shift. Operations were active the equivalent of 246 full days during the year, with only one operation working more than one shift per day.

POWER EQUIPMENT

Power equipment in use or available for use by pyrites operations at the end of 1939 had an aggregate rating of 2,525 horsepower—an average of about 13 per wage earner. Of the total, 279 represented the rating of prime movers such as gasoline, Diesel, and steam engines; 2,246, that of electric motors driven by purchased energy. About 88 percent of the total horsepower represented the rating of power units for driving stationary or fixed equipment such as mine hoists and milling equipment; the remaining 12 percent was for driving mobile equipment such as power shovels and trucks.

The industry consumed 2,794,000 kilowatt-hours of electricity in 1939, all of which was purchased. The total consumption of gasoline and kerosene was 27,563 gallons; fuel oils, 278 barrels; and coal, 756 short tons.

At the end of the year operations in the industry were equipped with five underground scraper loaders, three of which were driven by electricity and two by compressed air. Two of these scraper loaders were driven by hoists rated at less than 10 horsepower and three by hoists rated at 10 to 25 horsepower. Other equipment included one power shovel and one crane hoist, both driven by internal-combustion engines.

OTHER STATISTICS

For distribution of pyrites operations by value of products, number of wage earners, number of days active, number of hours per wage earner in the full-time workweek, and by type of ownership, see General Summary tables 8, 15, 17, 18, and 26, respectively.

TABLE 1.—PRINCIPAL STATISTICS FOR THE PYRITES INDUSTRY IN THE UNITED STATES: 1939, 1919, 1909, 1902, 1889, AND 1880¹

(For producing operations only)

ITEM	1939	1919	1909	1902 ²	1889	1880
Number of operating companies ³ -----	6	(⁴)	11	18	(⁴)	1
Number of mines-----	5	18	12	23	(⁴)	1
Production of pyrites (tons of 2,240 pounds) ⁵ -----	169,760	(⁴)	(⁴)	⁶ 207,874	93,705	2,240
Value of all products, total-----	\$601,588	\$2,408,648	\$676,984	⁶ 7\$947,089	⁷ \$202,119	⁷ \$5,000
Pyrites produced-----	\$575,670	\$2,215,139	(⁴)	⁶ \$947,089	\$202,119	\$5,000
Other products and services rendered-----	\$25,918	\$193,509	(⁴)	(⁴)	(⁴)	(⁴)
Number of persons engaged, total-----	209	1,268	1,185	⁷ 1,024	⁷ 237	⁷ 6
Wage earners (average for the year, including inactive periods)-----	189	1,172	1,086	⁸ 970	⁹ 230	6
Salaried employees-----	15	96	45	54	(⁴)	(⁴)
Proprietors and firm members-----	5	-----	4	(⁴)	(⁴)	(⁴)
Performing manual labor-----	1	-----	-----	(⁴)	(⁴)	(⁴)
Principal expenses designated below, total-----	\$384,294	\$2,494,423	\$689,731	⁷ \$669,609	⁷ \$132,994	⁷ \$1,565
Wages-----	\$203,760	\$1,384,735	\$408,419	\$398,870	\$57,525	\$1,200
Salaries-----	\$36,938	\$185,060	\$54,902	\$49,890	\$10,366	-----
Supplies and materials-----	\$95,434	\$615,725	\$152,143	-----	-----	-----
Fuel-----	\$6,752	\$163,039	¹¹ \$71,537	¹¹ \$217,262	¹¹ \$42,000	¹¹ \$365
Purchased electric energy-----	\$33,846	\$58,802	-----	-----	-----	-----
Contract work-----	\$7,564	\$87,061	\$2,730	\$3,587	\$23,103	(⁴)
Cost of machinery and equipment erected or installed during year-----	\$14,634	(⁴)	(⁴)	(⁴)	(⁴)	(⁴)
Horsepower rating of prime movers and electric motors driven by purchased energy, total-----	2,525	7,336	5,758	6,305	(⁴)	(⁴)
Per wage earner-----	13.4	6.3	5.3	6.5	(⁴)	(⁴)
Prime movers-----	279	3,224	4,850	6,255	(⁴)	(⁴)
Electric motors driven by purchased energy-----	2,246	4,114	908	50	(⁴)	(⁴)
Horsepower rating of electric motors driven by energy generated by reporting companies-----	-----	3,696	20	80	(⁴)	(⁴)
Fuel consumed:	-----	-----	(⁴)	(⁴)	(⁴)	(⁴)
Anthracite (tons of 2,000 pounds)-----	-----	-----	(⁴)	(⁴)	(⁴)	(⁴)
Bituminous coal (tons of 2,000 pounds)-----	756	31,661	(⁴)	(⁴)	(⁴)	(⁴)
Fuel oils (barrels of 42 gallons)-----	278	-----	(⁴)	(⁴)	(⁴)	(⁴)
Gasoline and kerosene (gallons)-----	27,568	16,296	(⁴)	(⁴)	(⁴)	(⁴)
Natural gas (thousands of cubic feet)-----	-----	-----	(⁴)	(⁴)	(⁴)	(⁴)
Electric energy consumed (thousands of kw.-hrs.), total-----	2,794	(⁴)	(⁴)	(⁴)	(⁴)	(⁴)
Purchased-----	2,794	(⁴)	(⁴)	(⁴)	(⁴)	(⁴)
Generated by reporting companies-----	-----	(⁴)	(⁴)	(⁴)	(⁴)	(⁴)

¹ The pyrites industry includes only those operations producing pyrites as their principal mineral product. Statistics are excluded for the production of pyrites as secondary products in other mineral industries (see footnote 5 for quantity and value of pyrites thus excluded for 1939). Statistics cover the mine production of crude pyrites ore and associated preparation-plant activities such as the crushing and concentration of pyrites. Figures for 1939 cover only those producing operations (mines, preparation plants, or mines and plants operated together) for which the value of products, reported principal expenses, or cost of buildings, machinery, and equipment erected or installed during the year amounted to at least \$2,500. The corresponding minimum for 1919 was \$500 for value of products and \$5,000 for cost of development work. No nonproducing operations were reported for 1939. Comparable census statistics for 1929 are not available; statistics for pyrites were included with those for sulfur for that year.

² The 1902 census statistics for pyrites include figures for one sulfur operation.

³ For 1939 and 1909, companies that submitted more than one report are counted only once in the totals.

⁴ Not available.

⁵ Statistics are excluded for the production in 1939 of 346,649 long tons of pyrites valued at \$749,584 and containing 145,975 long tons of sulfur obtained as secondary products of bituminous-coal, copper, gold, and zinc operations (in Colorado, Illinois, Indiana, Montana, New York, Tennessee, and Wisconsin).

⁶ Includes statistics for 11,483 long tons valued at \$29,420 produced as a byproduct of coal mining.

⁷ Excludes statistics for items for which information was not available as indicated by footnotes.

⁸ On schedules for the 1902 census, concerns were instructed that "The average number employed during the year is the number that would be required, at continuous employment for the twelve months, to produce the quantity of products reported." "In editing the schedules ... the figures for the average number of employees were reduced to a 300-day basis whenever the schedules showed them to be the average number for a shorter period; when it was evident that the employees had worked more than 300 days, the average number for the longer period was allowed to stand."

⁹ The 1889 census schedules called for "average number employed," presumably an average for active periods; and requested that figures for wage earners "include those employed by contractors and subcontractors."

¹⁰ Represents foremen only.

¹¹ For 1919 and 1909 statistics include amounts paid for purchased power other than electric. Statistics for cost of purchased power for 1902, 1889, and 1880 were not explicitly requested but probably are included in part in the figures reported for supplies and materials.

TABLE 2.—PRINCIPAL STATISTICS FOR THE PYRITES INDUSTRY IN THE UNITED STATES: 1939¹

ITEM	United States	Missouri	California, Kansas, and Virginia ²	ITEM	United States	Missouri	California, Kansas, and Virginia ²
Number of operating companies-----	6	3	3	Cost of buildings, machinery, and equipment erected or installed during year-----	\$17,615	\$575	\$17,040
Number of mines-----	5	3	2	Buildings-----	\$2,981	-----	\$2,981
Number of preparation plants-----	4	1	3	Machinery and equipment ³ -----	\$14,634	\$575	\$14,059
Number of persons engaged, total-----	⁴ 209	33	172	Total number of man-shifts worked by wage earners-----	44,677	5,685	38,992
Wage earners (average for the year)-----	189	28	161	Total number of man-hours worked by wage earners-----	347,832	45,290	302,542
Salaries-----	⁵ 15	-----	11	Average number of hours worked per shift-----	7.8	8.0	7.8
Proprietors and firm members-----	5	5	-----	Average hourly earning of wage earners-----	\$0.59	\$0.36	\$0.62
Performing manual labor-----	1	1	-----	Tons of pyrites produced per man-hour-----	0.488	0.717	0.454
Production of pyrites:-----				Average number of equivalent full days operations were active-----	246	169	264
Tons of 2,240 pounds ⁴ -----	169,760	32,495	137,265	Horsepower rating of power equipment, total-----	2,525	279	2,246
Sulfur content (tons of 2,240 pounds)-----	67,078	11,189	55,889	Per wage earner-----	13.4	10.0	14.0
Value at mines or plants-----	\$575,670	\$70,185	\$505,485	Stationary equipment ⁷ -----	2,231	60	2,171
Value of all products-----	⁶ \$601,588	\$71,985	\$529,603	Mobile equipment ⁸ -----	294	219	75
Principal expenses designated below, total-----	⁹ \$384,294	\$31,877	\$328,904	Electric energy consumed (thousands of kw.-hrs.)-----	2,794	-----	2,794
Wages-----	\$203,760	\$16,224	\$187,536				
Salaries-----	⁵ \$35,938	-----	\$13,425				
Supplies and materials-----	\$95,434	\$4,977	\$90,457				
Fuel-----	\$6,752	\$3,112	\$3,640				
Purchased electric energy-----	\$33,846	-----	\$33,846				
Contract work-----	\$7,564	\$7,564	-----				

¹For definition of the industry see table 1, footnote 1.²California, 1 mine and 1 plant; Kansas, 1 plant; and Virginia, 1 mine and 1 plant.³Includes statistics for central-office employees in New York.⁴Represents ores and concentrates.⁵Includes, in addition to the value of pyrites, the value of bituminous coal, cement copper (from mine water), and iron ore obtained as secondary products.⁶Purchased in new condition; no expenditures for machinery and equipment purchased in used condition were reported.⁷Aggregate horsepower rating of engines, motors, etc. used for driving stationary or fixed equipment such as mine hoists, ventilating fans, milling equipment, etc.⁸Aggregate horsepower rating of engines, motors, etc. used for driving mobile equipment such as power shovels, trucks, etc.⁹Represents purchased energy. No electric energy was reported generated and consumed by reporting companies.TABLE 3.—NUMBER OF WAGE EARNERS IN THE PYRITES INDUSTRY IN THE UNITED STATES, BY STATE AND BY MONTH: 1939¹

STATE	Average for the 12 months	NUMBER RECEIVING PAY DURING PAY-ROLL PERIOD ENDING NEAREST THE 15TH OF THE MONTH											
		January	February	March	April	May	June	July	August	September	October	November	December
United States-----	189	209	178	173	183	181	185	197	188	196	183	203	196
Missouri-----	28	22	22	22	22	31	31	31	31	34	36	36	23
California, Kansas, and Virginia-----	161	187	156	151	161	150	154	166	157	162	147	167	173

¹For definition of the industry see table 1, footnote 1.TABLE 4.—EMPLOYMENT AND WORKING TIME IN THE PYRITES INDUSTRY IN THE UNITED STATES, BY DEPARTMENT AND BY STATE: 1939¹

DEPARTMENT	United States	Missouri	California, Kansas, and Virginia	DEPARTMENT	United States	Missouri	California, Kansas, and Virginia
Average number of wage earners on active days, total-----	178	33	145	Number of man-shifts worked by wage earners, total-----	44,677	5,685	38,992
At mines, total-----	144	31	113	On active days, total-----	43,852	5,590	38,262
Underground-----	78	11	67	At mines, total-----	35,949	5,050	30,899
Open-pit-----	20	20	-----	Underground-----	18,770	1,100	17,670
Surface shops and yards-----	46	-----	46	Open-pit-----	8,950	3,950	-----
At preparation plants-----	34	2	32	Surface shops and yards-----	13,229	-----	13,229
				At preparation plants-----	7,303	540	7,353
				On inactive days-----	825	95	730
Average number of equivalent full days operations were active-----	246	169	264	Number of man-hours worked by wage earners, total-----	347,832	45,290	302,542
At mines-----	250	163	273	On active days, total-----	342,882	44,720	298,162
Underground-----	241	100	264	At mines, total-----	280,165	40,400	239,765
Open-pit-----	198	198	-----	Underground-----	147,801	8,800	139,001
Surface shops and yards-----	288	-----	288	Open-pit-----	31,600	31,600	-----
At preparation plants-----	232	270	230	Surface shops and yards-----	100,764	-----	100,764
				At preparation plants-----	62,717	4,320	58,397
				On inactive days-----	4,950	570	4,380

¹For definition of the industry see table 1, footnote 1.

ROCK SALT

The rock-salt mining industry in the United States produced 2,047,000 short tons of rock salt in 1939, and the total mine value of the industry's products, including the value of 44,000 tons of pressed blocks from rock salt and a small quantity of calcium chloride obtained as a secondary product, was \$6,896,000.

Salt, of which there are plentiful deposits in the United States, is an important substance for human and animal consumption and serves as a raw material for many industries. The largest part of all salt produced is consumed by the chemical industries, principally for making soda ash, bicarbonate of soda, caustic soda, hydrochloric acid, and other products. Salt is used in many food industries as an ingredient of foods and for packing, curing, canning and preserving, pickling, refrigerating, and other purposes. It is also used in the manufacture of soap, glass, ceramics, paper and pulp, dyes, steel, rayon, and textiles; for conditioning stock and making fertilizers and weed exterminators; and for numerous other uses.

Rock salt was produced in 1939 in 8 States by 17 companies operating 17 mines (14 underground mines and 3 open pits) and 1 plant that recovered rock salt from potash dumps. Five States accounted for 99 percent of the total output of rock salt. These States, in the order of their importance, were New York, Louisiana, Kansas, Michigan, and Texas. According to the statistics compiled by the United States Bureau of Mines, rock salt sold or used by producers in the United States in 1939 represented over one-fifth of the total quantity and over one-fourth of the total mine value of salt obtained from all sources, including salt in brines produced for use as such, salt recovered from brines by evaporation, and salt mined in the solid state as rock salt.

The rock-salt mining industry paid \$1,434,000 in wages--an average of 55 cents per man-hour worked by wage earners. Salaried employees were paid a total of \$540,000. Supplies and materials consumed during the year cost \$868,000; fuel, \$153,000; purchased electric energy, \$151,000; and work done on contract by other concerns, \$3,000. The cost of buildings, machinery, and equipment erected or installed during the year was \$362,000.

The number of wage earners employed by the industry during the year averaged 1,380, fluctuating from a minimum of 1,210 in June to a maximum of 1,534 in September. In addition, 181 salaried employees were reported for the month of October. The wage earners worked a total of 2,608,000 man-hours, an average of 7.8 hours per shift. The average number of equivalent full days operations were active, which indicates approximately the number of full days worked per wage earner, was 247 for the industry as a whole. Most mines worked only one shift per day, but for a part of the year three mines were reported operating two shifts per day.

The output of rock salt per man-hour worked by wage earners averaged .078 short ton for the industry as a whole. The average output per man-hour varied from 0.46 ton at operations in California, New Mexico, and Utah and 0.48 ton in Louisiana to 0.83 ton in Kansas and 1.08 tons at operations in Michigan, New York, and Texas. These differences are partly due to the variations among the areas in the proportion of the total labor that was engaged in preparing salt, for the numbers of man-hours used in computing output per man-hour include, in addition to the man-hours worked in mining, the man-hours that were devoted to crushing and screening salt and to making pressed blocks from rock salt. The number of man-hours devoted to such preparation activities represented, for the industry as a whole, approximately 43 percent of the total number of man-hours worked. Such activities required 59 percent of the total man-hours worked in California, New Mexico, and Utah, 62 percent in Louisiana, 36 percent in Kansas, and 26 percent in Michigan, New York, and Texas.

Power equipment in use or available for use by the industry at the end of the year had an aggregate rating of 23,002 horsepower, representing an average of about 17 horsepower per wage earner. About 78 percent of the total horsepower represented the rating of power units used for driving stationary or fixed equipment such as mine hoists, ventilating fans, electric generators, and crushing and screening equipment. The remaining horsepower was used for driving mobile equipment such as shovel loaders, dragline excavators, and trucks. The industry consumed 18,762,000 kilowatt-hours of electric energy during 1939, of which 60 percent was purchased and the remainder generated by the reporting companies. Electric motors driven by purchased energy had an aggregate rating of 13,611 horsepower.

Underground rock-salt mines were equipped, at the end of the year, with 25 electric shovel loaders and 11 electrically driven scraper hoists. Seven of the shovel loaders required headroom of more than 8 feet, and 18 required 8 feet or less. Power-loading equipment reported at surface operations included one steam-driven dragline excavator and one dragline excavator and four scraper loaders driven by internal-combustion engines.

The rock-salt industry, as constituted for census purposes, includes operations engaged in mining rock salt (sodium chloride) in the form of blocks or other solid fragments and includes the crushing and screening of rock salt and the preparation of pressed blocks from rock salt. It does not cover the production of salt in brine or of salt obtained from brine by evaporation and hence excludes statistics for salt produced by introducing water into rock-salt beds and evaporating the resulting artificial brine.

TABLE 5.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE ROCK-SALT INDUSTRY IN THE UNITED STATES, BY TYPE AND BY STATE: 1939¹

STATE AND TYPE OF EQUIPMENT	PRIME MOVERS AND ELECTRIC MOTORS DRIVEN BY PURCHASED ENERGY											ELECTRIC MOTORS DRIVEN BY ENERGY GENERATED BY REPORTING COMPANIES	
	Aggregate horsepower	Prime movers								Electric motors driven by purchased energy			
		Total		Driving generators		Not driving generators		Ordinarily idle (included in pre- ceding columns)					
		Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower
United States, total	23,002	48	9,391	20	6,587	28	2,804	7	2,227	844	13,611	500	7,741
Stationary ²	17,993	34	8,592	19	6,462	15	2,130	6	2,102	662	9,401	437	6,376
Mobile ³	5,009	14	799	1	125	13	674	1	125	182	4,210	63	1,365
Kansas, total	3,687	10	2,388	5	913	5	1,475	1	125	38	1,279	93	1,802
Stationary ²	2,741	7	1,948	4	788	3	1,160			17	793	77	1,255
Mobile ³	926	3	440	1	125	2	315	1	125	21	486	16	547
Louisiana, total	8,367	20	5,302	11	4,474	9	828	5	2,062	252	3,065	326	4,155
Stationary ²	8,114	19	5,224	11	4,474	8	750	5	2,062	249	2,890	295	3,607
Mobile ³	253	1	78			1	76			3	175	31	548
Michigan, New York, and Texas, total	10,460	5	1,248	4	1,200	1	48			552	9,212	81	1,784
Stationary ²	6,863	4	1,200	4	1,200					394	5,663	85	1,514
Mobile ³	3,597	1	48			1	48			158	3,549	16	270
California, New Mexico, and Utah, total	508	13	453			13	453	1	40	2	55		
Stationary ²	275	4	220			4	220	1	40	2	55		
Mobile ³	233	9	233			9	233						

¹For definition of the industry see table 1, footnote 1.²Horsepower rating of engines, motors, etc. used for driving stationary or fixed equipment such as mine hoists, ventilating fans, electric generators at power plants, crushing and screening equipment, etc.³Horsepower rating of engines, motors, etc. used for driving mobile equipment such as dragline excavators, shovel loaders, trucks, etc.TABLE 6.—NUMBER OF POWER-LOADING MACHINES IN THE ROCK-SALT INDUSTRY IN THE UNITED STATES, BY TYPE: 1939¹

TYPE OF EQUIPMENT	Total number of units	NUMBER OF UNITS CLASSIFIED BY KIND OF POWER USED		
		Steam	Electric	Internal- combustion engine
Underground shovel loaders, total	25	—	25	—
Requiring headroom of over 8 feet	7	—	7	—
Requiring headroom of 8 feet or less	18	—	18	—
Dragline excavators	2	1	—	1
Scraper loaders, total ²	15	—	11	4
At surface operations	4	—	—	4
At underground operations	11	—	11	—

¹For definition of the industry see table 1, footnote 1.²Of the total, 8 were driven by hoists with ratings of 10 to 25 horsepower, 6 by hoists with ratings of 26 to 100 horsepower, and 1 by a hoist with a rating of more than 100 horsepower.TABLE 7.—SELECTED STATISTICS FOR ROCK-SALT OPERATIONS IN THE UNITED STATES, CLASSIFIED BY VALUE OF PRODUCTS: 1939¹

VALUE OF PRODUCTS	Number of mines	Number of prepa- ration plants	Production of rock salt (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED					Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members			
								Total	Performing manual labor		
United States, total-----	17	17	2,046,880	\$6,896,271	1,565	1,580	181	4	4	\$1,434,485	\$539,624
\$1 - \$19,999-----	2	1	114,005	256,033	116	104	8	4	4	92,037	17,953
\$20,000 - \$49,999-----	1	2									
\$50,000 - \$99,999-----	2	2	209,861	574,507	154	138	16	-----	-----	137,550	34,153
\$100,000 - \$249,999-----	3	3									
\$250,000 - \$499,999-----	4	4	474,725	1,390,815	359	330	29	-----	-----	352,661	84,390
\$500,000 - \$999,999-----	5	5	1,248,495	4,674,916	890	808	82	-----	-----	852,215	228,434
\$1,000,000 - \$2,499,999-----	2	2									
Unclassified-----	-----	-----	-----	-----	46	-----	46	-----	-----	-----	174,894

¹For definition of the industry see table 1, footnote 1. Reports classified by value of products represent a single mine, a single preparation plant, or a single mine and a single preparation plant reported together. Statistics shown for "Unclassified" represent reports for central offices reported separately from their associated rock-salt operations.

TABLE 8.—SELECTED STATISTICS FOR ROCK-SALT OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF WAGE EARNERS: 1939¹

NUMBER OF WAGE EARNERS	Number of mines	Number of preparation plants	Production of rock salt (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED					Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members			
								Total	Performing manual labor		
United States, total-----	17	17	2,046,860	\$6,896,271	1,555	1,380	181	4	4	\$1,434,483	\$539,824
1 - 5-----	1	1	21,018	76,857	29	23	2	4	4	21,043	7,102
6 - 20-----	2	2									
21 - 50-----	4	4	223,082	561,912	166	150	16	-----	-----	136,025	33,023
51 - 100-----	5	5	554,287	1,582,586	434	399	35	-----	-----	425,200	96,371
101 - 250-----	5	5	1,246,493	4,674,916	890	808	82	-----	-----	852,215	228,434
Unclassified-----					46		46	-----	-----		174,894

¹For definition of the industry see table 1, footnote 1. Reports classified by average number of wage earners employed during the year represent a single mine, a single preparation plant, or a single mine and a single preparation plant reported together. Statistics shown for "Unclassified" represent reports for central offices reported separately from their associated rock-salt operations.

TABLE 9.—SELECTED STATISTICS FOR ROCK-SALT OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF HOURS PER WAGE EARNER IN THE FULL-TIME WORKWEEK: 1939¹

HOURS PER WEEK	Number of mines	Number of preparation plants	Production of rock salt (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED					Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members			
								Total	Performing manual labor		
United States, total-----	17	17	2,046,880	\$6,896,271	1,565	1,380	181	4	4	\$1,434,463	\$539,824
1 - 34-----	1	1	822,015	2,533,986	634	586	47	1	1	698,046	128,451
35-----	6	6									
40-----	6	6	1,036,532	3,595,669	683	620	63	-----	-----	541,292	162,188
41 - 42-----	5	6									
43 - 44-----	2	2	188,333	766,596	248	174	71	3	3	195,145	249,185
48-----	1	1									
Unclassified-----	1	1									

¹For definition of the industry see table 1, footnote 1. Reports were classified by number of hours in the full-time workweek reported for wage earners in that department of the operation for which the largest number of man-hours worked was reported. Statistics for "Unclassified" represent reports on which number of hours was not reported and reports for central offices reported separately from their associated rock-salt operations.

TABLE 10.—SELECTED STATISTICS FOR ROCK-SALT OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF DAYS ACTIVE DURING THE YEAR: 1939¹

NUMBER OF DAYS ACTIVE DURING THE YEAR	Number of mines	Number of preparation plants	Production of rock salt (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED					Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members			
								Total	Performing manual labor		
United States, total-----	17	17	2,046,860	\$6,896,271	1,565	1,380	181	4	4	\$1,434,483	\$539,824
150 - 199-----	2	2	546,220	2,228,041	635	601	33	1	1	573,816	104,909
200 - 224-----	5	4									
225 - 249-----	3	3	755,621	2,505,034	617	552	65	-----	-----	604,608	163,137
250 - 274-----	3	3	745,039	2,163,196	267	227	37	3	3	256,059	96,684
275 - 299-----	2	2									
300 - 324-----	2	3			46		46	-----	-----		174,894
Unclassified-----											

¹For definition of the industry see table 1, footnote 1. Reports classified by number of days active represent a single mine, a single preparation plant, or a single mine and a single preparation plant reported together; such reports for a single mine or a single preparation plant were classified by number of days the mine or preparation plant was in operation for production or development purposes during the year; such reports for a single mine and a single preparation plant reported together were classified by number of days the mine was in operation during the year. Statistics shown for "Unclassified" represent reports for central offices reported separately from their associated rock-salt operations.

SULFUR

The sulfur industry in the United States produced 2,091,000 long tons of sulfur with a mine value of \$31,802,000 in 1939.

The United States ranks as the foremost producer of sulfur in the world, with large domestic reserves and production capacity. Sulfur is used principally in the making of sulfuric acid.

The sulfur industry paid \$2,545,000 in wages--an average of 84 cents per man-hour. Salaried employees were paid \$1,911,000. Supplies and materials consumed during the year cost \$1,690,000; fuel, \$1,128,000; purchased electric energy, \$15,000; and work done on contract by other concerns, \$116,000. Buildings, machinery, and equipment costing about \$381,000 were erected or installed during the year.

The number of wage earners employed by the industry averaged 1,517. In addition, 507 salaried employees were reported for October. Wage earners worked a total of 3,031,000 man-hours, working an average of 7.4 hours per shift.

The average output of sulfur per man-hour worked by wage earners was about 0.7 ton.

Over 99 percent of the native sulfur produced in 1939 was obtained from operations in Louisiana and Texas, mines in Texas accounting for about 80 percent of the total production of the industry. Sulfur in these 2 States was recovered by the Frasch process, in which wells are drilled into the underground sulfur deposits, casing is inserted, and large quantities of superheated water are pumped underground. The resulting molten sulfur is raised to the surface by means of compressed air and allowed to cool and solidify in large bins. The product so obtained is practically pure sulfur.

The Frasch method is characterized by continuous operation--365 days per year and 24 hours per day. Of the six large mines in Louisiana and Texas, five operated 3 shifts per day and the remaining mine operated on a 4-shift basis for at least part of the year.

Sulfur production by the Frasch process requires large quantities of energy for such operations as pumping, heating water, and compressing air. The sulfur industry is accordingly a large consumer of fuel, and its expenditures for fuel in 1939, principally for natural gas, represented 15 percent of the reported principal expenses. The total horsepower rating of prime movers and of electric motors driven by purchased electric energy was 45,135, representing an average of 30 horsepower per wage earner. Of the total horsepower rating reported, over 80 percent represented equipment such as engines and motors used for driving stationary or fixed equipment such as pumps, compressors, and electric-generating equipment at power plants. Of the electric energy consumed by the industry, 92 percent was generated by the reporting companies; about 13 kilowatt-hours were consumed per ton of sulfur produced.

The total number of pumps in use or available for use at the end of the year at well operations was 559, most of which were driven by electricity. Of these, 349 were reported as water pumps, and the remainder as slush or mud, chemical, sulfur, gasoline, and oil pumps.

For distribution of sulfur operations by value of products, number of wage earners, number of days active, number of hours per wage earner in the full-time workweek, and by type of ownership, see General Summary tables 8, 15, 17, 18, and 26, respectively.

The statistics summarized in this report are those for mines engaged primarily in the production of sulfur or sulfur ore. They do not include operations that produced sulfur or sulfur compounds as byproducts such as those recovered in copper- and zinc-ore milling and smelting and those obtained from fuel gases. Statistics for operations producing pyrites valued for their sulfur content are also excluded except for 1929; census statistics covering the production of sulfur and pyrites were combined for that year.

TABLE 1.—PRINCIPAL STATISTICS FOR THE SULFUR INDUSTRY IN THE UNITED STATES, 1939, 1929, 1919, 1909, AND 1889¹

(For producing operations only)

ITEM	1939	1929 ²	1919	1909	1889
Number of operating companies ³	8	(*)	(*)	4	(*)
Number of mines	10	10	4	4	2
Production of sulfur (tons of 2,240 pounds)	2,091,179	2,328,458	(*)	(*)	1,027
Value of all products, total	\$31,812,230	\$37,126,148	\$17,935,882	\$4,432,066	\$7,850
Sulfur produced	\$31,802,311	\$37,031,993	\$17,934,268	(*)	\$7,850
Other products and services rendered	\$9,919	\$94,155	\$1,614	(*)	(*)
Number of persons engaged, total	2,025	2,505	1,273	418	⁵ 12
Wage earners (average for the year, including inactive periods)	1,517	2,199	1,129	366	⁶ 10
Salaried employees	507	305	144	52	⁷ 2
Proprietors and firm members	1	1	—	—	(*)
Performing manual labor	1	(*)	—	—	(*)
Principal expenses designated below, total	\$7,405,636	\$12,261,745	\$6,311,519	\$1,592,015	\$4,110
Wages	\$2,545,274	\$3,482,606	\$1,682,174	\$324,538	\$1,690
Salaries	\$1,910,635	\$954,998	\$413,015	\$110,549	\$720
Supplies and materials	\$1,690,210	\$3,359,859	\$1,452,136	\$248,585	
Fuel	\$1,128,351	\$4,435,427	\$2,764,194	\$708,384	⁸ \$1,700
Purchased electric energy	\$15,375	\$40,586	—	—	(*)
Contract work	\$116,011	\$10,269	—	\$361	(*)
Cost of machinery and equipment erected or installed during year	\$296,711	\$1,653,726	(*)	(*)	(*)
Horsepower rating of prime movers and electric motors driven by purchased energy, total	45,135	33,932	15,291	3,114	(*)
Per wage earner	29.8	15.4	13.5	8.5	(*)
Prime movers	44,700	31,643	15,291	3,114	(*)
Electric motors driven by purchased energy	435	2,289	—	—	(*)
Horsepower rating of electric motors driven by energy generated by reporting companies	18,103	15,526	1,284	—	(*)
Fuels consumed:					
Anthracite (tons of 2,000 pounds)	—	328	308	(*)	(*)
Bituminous coal (tons of 2,000 pounds)	10,990	121,640	1,087,756	(*)	(*)
Fuel oils (barrels of 42 gallons)	272,152	19,894	31,080	(*)	(*)
Gasoline and kerosene (gallons)	13,305,556	25,072,773	—	(*)	(*)
Natural gas (thousands of cubic feet)	27,508	18,129	(*)	(*)	(*)
Electric energy consumed (thousands of kw.-hrs.), total	2,199	2,735	—	(*)	(*)
Purchased	25,309	15,454	(*)	(*)	(*)
Generated by reporting companies	—	—	—	—	—

¹ The sulfur industry covers mines engaged primarily in producing crude sulfur (including sulfur ore). Figures for 1939 cover only those producing operations (mines, or mines and plants operated together) for which the value of products, reported principal expenses, or cost of buildings, machinery, and equipment erected or installed during the year amounted to at least \$2,500. Figures for 1929 cover only "enterprises" for which the value of products or cost of development work amounted to at least \$2,500; the corresponding minimum for 1919 was \$500 for value of products and \$5,000 for cost of development work. No minimum was placed on the size of operations included for 1909 and 1889. In 1939 smaller sulfur operations (in Colorado and Nevada), statistics for which are thus excluded, reported the production of less than 100 long tons of sulfur ore or concentrates valued at less than \$2,000. Statistics for mines without products are excluded; only 3 such mining properties were reported at which the reported principal expenses or cost of buildings, machinery, and equipment in 1939 amounted to \$2,500 or more. In 1902 only one mine was reported producing sulfur and statistics were not shown separately.

² Includes statistics for pyrites. Pyrites, however, represented less than 2 percent of the value of all products shown.

³ Companies that submitted more than one report are counted only once in the totals.

⁴ Not available.

⁵ Excludes statistics for items for which information was not available as indicated by footnotes.

⁶ The 1889 census schedule called for "average number employed," presumably an average for active periods; and requested that figures for wage earners "include those employed by contractors and subcontractors."

⁷ Represents statistics for foremen only.

⁸ For 1909 statistics include amounts paid for purchased power other than electric. Statistics for cost of purchased power for 1889 were not explicitly requested but probably are included in part in the figures reported for supplies and materials.

MINERAL INDUSTRIES

TABLE 2.—PRINCIPAL STATISTICS FOR THE SULFUR INDUSTRY IN THE UNITED STATES, BY STATE: 1939¹

(For producing operations only)

ITEM	United States	Texas	California, Louisiana, and Utah ²
Number of operating companies ³ -----	8	4	5
Number of mines-----	10	5	5
Number of preparation plants-----	2	-----	2
Number of persons engaged, total-----	⁴ 2,025	1,496	422
Wage earners (average for the year)-----	1,517	1,241	276
Salaried employees-----	⁴ 507	255	145
Proprietors and firm members-----	1	-----	1
Performing manual labor-----	1	-----	1
Production of crude sulfur:			
Tons of 2,240 pounds-----	2,091,179	1,665,400	425,779
Value at mines or plants-----	\$31,802,311	\$24,984,529	\$6,817,782
Value of all products-----	⁵ \$31,812,230	\$24,989,760	\$6,822,470
Principal expenses designated below, total-----	⁴ \$7,405,836	\$5,325,250	\$1,468,655
Wages-----	\$2,545,274	\$2,081,440	\$463,834
Salaries-----	⁴ \$1,910,635	\$848,428	\$450,276
Supplies and materials-----	\$1,690,210	\$1,375,229	\$314,981
Fuel-----	\$1,128,331	\$897,109	\$231,222
Purchased electric energy-----	\$15,375	\$11,805	\$3,570
Contract work-----	\$116,011	\$111,239	\$4,772
Cost of buildings, machinery, and equipment erected or installed during year-----	\$380,964	\$231,272	\$149,692
Buildings-----	\$84,253	\$19,663	\$64,590
Machinery and equipment, total-----	\$296,711	\$211,609	\$85,102
Purchased in new condition-----	\$252,367	\$168,249	\$84,118
Purchased in used condition-----	\$44,344	\$43,360	\$984
Total number of man-shifts worked by wage earners-----	407,281	337,732	63,549
Total number of man-hours worked by wage earners-----	3,031,195	2,474,807	556,388
Average number of hours worked per shift-----	7.4	7.3	8.0
Average hourly earning of wage earners-----	\$0.84	\$0.84	\$0.83
Tons of crude sulfur produced per man-hour-----	0.69	0.67	0.77
Average number of equivalent full days operations were active-----	359	365	334
Horsepower rating of power equipment, total-----	45,135	35,751	9,384
Per wage earner-----	29.8	28.8	34.0
Stationary equipment-----	36,441	27,452	8,989
Mobile equipment-----	8,594	8,299	395
Electric energy consumed (thousands of kw.-hrs.), total-----	27,508	19,851	7,657
Purchased-----	2,199	1,989	210
Generated by reporting companies-----	25,309	17,862	7,447

¹For definition of the industry see table 1, footnote 1.²California, 3 mines and 1 plant; Louisiana, 1 mine; and Utah, 1 mine and 1 plant.³Companies with operations in more than 1 State are counted only once in the totals.⁴Includes statistics for central-office employees in New York.⁵Includes, in addition to the value of sulfur, the value of electric energy generated and sold.TABLE 3.—NUMBER OF WAGE EARNERS IN THE SULFUR INDUSTRY IN THE UNITED STATES, BY STATE AND BY MONTH: 1939¹

(For producing operations only)

STATE	Average for the 12 months	NUMBER RECEIVING PAY DURING PAY-ROLL PERIOD ENDING NEAREST THE 15TH OF THE MONTH											
		January	February	March	April	May	June	July	August	September	October	November	December
United States-----	1,517	1,557	1,557	1,574	1,464	1,450	1,488	1,485	1,484	1,488	1,532	1,569	1,559
Texas-----	1,241	1,279	1,280	1,296	1,189	1,180	1,226	1,222	1,220	1,217	1,258	1,271	1,251
California, Louisiana, and Utah-----	276	278	277	278	275	270	262	263	264	271	274	298	308

¹For definition of the industry see table 1, footnote 1.

TABLE 4—EMPLOYMENT AND WORKING TIME IN THE SULFUR INDUSTRY IN THE UNITED STATES, BY DEPARTMENT AND BY STATE: 1939¹

(For producing operations only)

DEPARTMENT	United States	Texas	California, Louisiana, and Utah
Average number of wage earners on active days, total	1,134	926	208
At mines, total	1,129	926	203
Well operations and open pits	402	364	88
Surface shops and yards	727	562	165
At preparation plants	5		5
Average number of equivalent full days operations were active	359	365	334
At mines	360	365	342
Well operations and open pits	353	365	294
Surface shops and yards	364	364	363
At preparation plants	112		112
Number of man-shifts worked by wage earners, total	407,291	337,732	69,549
On active days, total	407,141	337,732	69,409
At mines, total	406,561	337,732	68,849
Well operations and open pits	141,899	133,023	8,876
Surface shops and yards	264,682	204,709	59,973
At preparation plants	560		560
On inactive days	140		140
Number of man-hours worked by wage earners, total	3,031,195	2,474,807	556,388
On active days, total	3,030,075	2,474,807	555,268
At mines, total	3,025,595	2,474,807	550,786
Well operations and open pits	1,035,945	965,937	71,008
Surface shops and yards	1,988,650	1,508,870	479,780
At preparation plants	4,480		4,480
On inactive days	1,120		1,120

¹ For definition of the industry see table 1, footnote 1. No underground operations were reported.TABLE 5.—QUANTITY OF FUEL AND ELECTRIC ENERGY CONSUMED IN THE SULFUR INDUSTRY IN THE UNITED STATES, BY STATE AND BY KIND: 1939¹

(For producing operations only)

STATE	FUEL ²			ELECTRIC ENERGY (thousands of kilowatt-hours)		
	Fuel oils (barrels or 42 gallons)	Gasoline and kerosene (gallons)	Natural gas (thousands of cubic feet)	Total	Purchased	Generated by reporting companies
United States, total	10,990	272,152	13,305,556	27,508	2,199	25,309
Texas	7,645	244,955	11,109,850	19,851	1,989	17,862
Other States	3,345	27,197	2,195,706	7,657	210	7,447

¹ For definition of the industry see table 1, footnote 1.² No anthracite or bituminous coal was reported consumed.

TABLE 6.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE SULFUR INDUSTRY IN THE UNITED STATES,
BY TYPE AND BY STATE: 1939¹
(For producing operations only)

STATE AND TYPE OF EQUIPMENT	PRIME MOVERS AND ELECTRIC MOTORS DRIVEN BY PURCHASED ENERGY										ELECTRIC MOTORS DRIVEN BY ENERGY GENERATED BY REPORTING COMPANIES		
	Aggre- gate horse- power	Prime movers								Electric motors driven by pur- chased energy		Number	Horsepower
		Total		Driving generators		Not driving generators		Ordinarily idle (included in pre- ceding columns)		Number	Horse- power		
		Number	Horse- power	Number	Horse- power	Number	Horse- power	Number	Horse- power				
United States, total-----	45,135	480	44,700	31	15,805	449	28,895	85	9,625	20	435	757	18,103
Stationary ² -----	36,441	313	36,041	26	15,780	287	20,261	71	8,700	19	400	714	16,244
Mobile ³ -----	8,694	167	8,659	5	25	162	8,634	14	925	1	35	43	1,859
Texas, total-----	35,751	424	35,516	20	11,565	404	23,951	59	5,249	12	235	613	13,042
Stationary ² -----	27,452	267	27,217	20	11,565	247	15,652	45	4,324	12	235	576	11,663
Mobile ³ -----	8,299	157	8,299	-----	-----	157	8,299	14	925	-----	-----	37	1,379
California, Louisiana, and Utah, total----	9,384	56	9,184	11	4,240	45	4,944	26	4,376	8	200	144	5,061
Stationary ² -----	8,989	46	8,824	6	4,215	40	4,609	26	4,376	7	165	138	4,581
Mobile ³ -----	395	10	360	5	25	5	335	-----	-----	1	35	6	480

¹For definition of the industry see table 1, footnote 1.

²Horsepower rating of engines, motors, etc., used for driving stationary or fixed equipment such as pumps, compressors, electric-generating equipment at power plants, etc.

³Horsepower rating of engines, motors, etc., used for driving mobile or portable equipment such as clamshell loaders, power shovels, trucks, etc.

TABLE 7.—PUMPS AND OTHER POWER-LOADING EQUIPMENT IN THE SULFUR INDUSTRY IN THE UNITED STATES: 1939¹

(For producing operations only)

TYPE OF EQUIPMENT	Total number of units	NUMBER OF UNITS CLASSIFIED BY KIND OF POWER USED			
		Steam	Electric	Compressed air	Gas, gasoline, or Diesel
Pumps, total ² -----	559	174	339	3	43
Water-----	349	159	177	---	13
Slush or mud-----	68	9	31	---	28
Chemical ³ -----	77	6	66	3	2
Sulfur-----	65	---	65	---	---
Power shovels ⁴ -----	3	---	2	---	1
Dragline excavators ⁴ -----	9	---	1	---	8
Scraper loaders ⁵ -----	1	---	1	---	---
Clamshell or orange-peel loaders-----	12	11	1	---	---
Other types-----	5	---	5	---	---

¹For definition of the industry see table 1, footnote 1.

²Pumps reported by mines employing the Frasch process of mining.

³Includes 10 oil pumps and 1 gasoline pump.

⁴All had dipper or bucket capacities of less than 3 cubic yards.

⁵Driven by a hoist rated at 25-100 horsepower.

TALC AND SOAPSTONE

The talc and soapstone industry in the United States in 1939 produced 254,000 short tons of talc, pyrophyllite, and soapstone, valued at \$3,088,000. Of this value, talc accounted for 67 percent, soapstone for 24 percent, and pyrophyllite for 9 percent. In addition, the industry had secondary products and did other work valued at \$181,000.

The wages paid to an average of 970 wage earners in the industry totaled \$807,000 for 2,068,000 man-hours of labor--an average of 39 cents per man-hour. Payments to salaried employees, of whom there were 167 in October 1939, amounted to \$382,000. Supplies and materials consumed during the year cost \$619,000; fuel, \$45,000. These expenses, the cost of purchased electric energy, and a small amount paid for work done on contract aggregated \$2,017,000. Buildings erected and machinery and equipment installed during 1939 cost \$164,000.

Talc is a hydrous magnesium silicate; soapstone is a massive rock, the chief mineral component of which is talc; and pyrophyllite is a hydrous aluminum silicate. The three materials have similar physical properties (especially apparent is their softness and soapy feel), and in ground form they are used for similar purposes. Most of the industry's product is ground before marketing. The entire 1939 output of pyrophyllite, over 90 percent of the talc, and about 75 percent of the soapstone were ground by the industry.

Almost four-fifths of the ground or powdered products of the industry is consumed, in approximate order of importance, in the paint, ceramics, rubber, roofing-material, and paper industries. It is used as an inert extender in paint; chiefly as filler in rubber, prepared roofing, paper, textiles, and soap; and as an important ingredient in wall tile and other ceramic products, in toilet powder, wire-insulating compounds,

plaster, bleaching powders, insecticides, gas-burner tips, refractory materials, etc. Because of their softness, soapstone and talc can easily be sawed or carved. Crayons for marking metal, cloth, and glass are cut from massive talc; massive soapstone is used for acid-resisting laboratory tanks and table tops, electrical switchboards, cores for electric heating elements, fireless cookers, sanitary appliances, and such building materials as baseboards, shelving, and stair treads. Talc, pyrophyllite, and soapstone are seldom used in the crude state; the small quantities of crude materials sold by the industry are generally processed by the consuming industries.

Talc, pyrophyllite, and soapstone were the major products in 1939 of 38 mines and 26 associated primary-preparation plants operated by 29 companies. These operations were scattered over 10 States, the more important ones being California, Georgia, New York, North Carolina, Vermont, and Virginia. The major part of the crude materials was mined from open pits, where the output per man-hour was 0.11 ton, compared with 0.15 ton at underground mines. Operations were active, on the average, the equivalent of 249 full working days during the year, and wage earners worked an average of 8 hours per day. Operation for one shift per day was characteristic of the industry.

Power equipment in use or available for use by the industry at the end of 1939 had a total rated horsepower of 12,049. Power equipment used to drive stationary or fixed equipment such as hoists, crushing and grinding equipment, and electric generators had a horsepower rating of 10,547; the remainder was used for driving mobile equipment such as power shovels and trucks. Consumption of electric energy amounted to 18,788,000 kilowatt-hours, of which less than 20 percent was generated by the reporting companies for their own use.

MINERAL INDUSTRIES

TABLE 1.—PRINCIPAL STATISTICS FOR THE TALC, SOAPSTONE, AND PYROPHYLLITE INDUSTRY IN THE UNITED STATES: 1939, 1929, 1919, 1909, 1902, 1889, AND 1880¹

(For producing operations only)

ITEM	1939	1929	1919	1909	1902	1889 ²	1880
Number of operating companies ³	29	(⁴)	(⁴)	39	20	(⁴)	(⁴)
Number of quarries and mines	38	28	30	46	20	(⁴)	14
Production of talc, soapstone, and pyrophyllite (tons of 2,000 pounds)	253,992	243,075	(⁴)	(⁴)	97,563	36,461	12,651
Value of products, total	\$3,269,087	\$2,687,953	\$2,302,393	\$1,174,516	\$1,138,167	\$475,878	\$121,395
Talc, soapstone, and pyrophyllite	\$3,088,264	\$2,624,968	\$2,296,374	(⁴)	\$1,138,167	\$475,878	\$121,395
Other products and services rendered	\$180,823	\$62,985	\$6,019	(⁴)	(⁴)	(⁴)	(⁴)
Number of persons engaged, total	1,154	632	1,069	1,372	846	280	178
Wage earners (average for the year, including inactive periods)	970	550	958	1,256	771	720	178
Salariat employees	167	82	103	100	75	20	
Proprietors and firm members	17		8	16	(⁴)	(⁴)	(⁴)
Performing manual labor	10		2	2	(⁴)	(⁴)	(⁴)
Principal expenses designated below, total	\$2,017,286	\$1,508,082	\$1,603,475	\$873,071	\$468,728	\$155,098	\$75,746
Wages	\$806,675	\$615,355	\$835,413	\$504,116	\$279,083	\$100,957	\$57,545
Salaries	\$381,695	\$216,917	\$214,575	\$103,012	\$63,713	\$14,664	
Supplies and materials	\$619,303	\$530,717	\$345,166	\$196,054			
Fuel	\$44,802	\$28,939	\$109,080	\$56,339	\$125,932	\$35,454	\$16,201
Purchased electric energy	\$162,446	\$99,339	\$46,474				
Contract work	\$2,365	\$16,795	\$52,757	\$3,550		\$4,023	(⁴)
Cost of machinery and equipment erected or installed during year	\$102,251	\$35,399	(⁴)	(⁴)	(⁴)	(⁴)	(⁴)
Horsepower rating of power equipment, total	12,049	10,530	7,053	9,433	3,945	(⁴)	(⁴)
Per wage earner	12.4	19.1	7.4	7.5	5.1	(⁴)	(⁴)
Prime movers	5,181	3,937	4,057	9,298	3,945	(⁴)	(⁴)
Electric motors driven by purchased energy	6,868	6,583	2,996	135		(⁴)	(⁴)
Horsepower rating of electric motors driven by energy generated by reporting companies	2,382	750	1,078	430	225	(⁴)	(⁴)
Fuels consumed:							
Anthracite (tons of 2,000 pounds)	480	59	477	(⁴)	(⁴)	(⁴)	(⁴)
Bituminous coal (tons of 2,000 pounds)	3,342	5,717	12,976	(⁴)	(⁴)	(⁴)	(⁴)
Fuel oils (barrels of 42 gallons)	5,248	129		(⁴)	(⁴)	(⁴)	(⁴)
Gasoline and kerosene (gallons)	108,738	54,644	10,794	(⁴)	(⁴)	(⁴)	(⁴)
Natural gas (thousands of cubic feet)	1,470		395	(⁴)	(⁴)	(⁴)	(⁴)
Electric energy consumed (thousands of kw.-hrs.), total	18,788	9,368	(⁴)	(⁴)	(⁴)	(⁴)	(⁴)
Purchased	15,744	8,468	(⁴)	(⁴)	(⁴)	(⁴)	(⁴)
Generated by reporting companies	3,044	900	(⁴)	(⁴)	(⁴)	(⁴)	(⁴)

¹ Figures for 1939 cover only those operations (mines, plants, or mines and plants operated together) producing talc, soapstone, and pyrophyllite for which the value of products, designated principal expenses, or cost of buildings, machinery, and equipment erected or installed during the year amounted to at least \$2,500. Figures for 1929 cover only "enterprises" for which the value of products or cost of development work amounted to at least \$2,500; the corresponding minimum for 1919 was \$500 for value of products and \$5,000 for cost of development work. No minimum was placed on the size of operations included for 1909, 1902, 1889, and 1880. In 1939, 2,327 short tons of talc and soapstone, valued at \$9,679, were reported produced at eight operations that were too small to come within the scope of the census canvass. No nonproducing operations were reported for 1939.

² Except for quantity and value, all statistics represent soapstone only.

³ For 1939 and 1909, companies that submitted more than one report are counted only once in the totals.

⁴ Not available.

⁵ Excludes statistics for items for which information was not available as indicated by footnotes.

⁶ On schedules for the 1902 census, concerns were instructed that "The average number employed during the year is the number that would be required, at continuous employment for the twelve months, to produce the quantity of products reported." "In editing the schedules ... the figures for the average number of employees were reduced to a 300-day basis whenever the schedules showed them to be the average number for a shorter period; when it was evident that the employees had worked more than 300 days, the average number for the longer period was allowed to stand."

⁷ The 1889 census schedule called for "average number employed," presumably an average for active periods; and requested that figures for wage earners include those employed by contractors and subcontractors.

⁸ Represents statistics for foremen only.

⁹ For 1919 and 1909, statistics include amounts paid for purchased power other than electric. Statistics for cost of purchased power for 1902, 1889, and 1880 were not explicitly requested but probably are included in part in the figures reported for supplies and materials.

TALC AND SOAPSTONE

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TABLE 2.—PRINCIPAL STATISTICS FOR THE TALC AND SOAPSTONE INDUSTRY IN THE UNITED STATES, BY STATE: 1939¹

ITEM	United States	California	Georgia	Maryland	Nevada and Washington ²	New York, Pennsylvania, and Virginia ³	North Carolina	Vermont
Number of operating companies ⁴	29	7	4	3	3	5	5	3
Number of quarries and mines	38	10	5	5	3	8	5	4
Number of preparation plants	26	5	3	2	1	6	5	4
Production of talc, soapstone, and pyrophyllite:								
Tons of 2,000 pounds, total	253,992	29,323	19,347	8,016	5,999	114,216	38,173	36,918
From underground mines ⁵	207,987	29,323	19,347	—	5,999	(⁶)	(⁶)	(⁶)
From open pits	46,005	—	—	8,016	—	(⁶)	(⁶)	(⁶)
Value at mines and plants	\$3,088,264	\$342,113	\$168,026	\$52,934	\$39,874	\$1,786,336	\$321,782	\$377,199
Value of all products	\$3,269,087	\$514,286	\$168,026	\$61,134	\$39,874	\$1,786,336	\$321,782	\$377,649
Number of persons engaged, total	1,154	130	104	29	27	596	153	115
Wage earners (average for the year)	970	98	86	26	23	508	136	95
Salaried employees	167	23	13	2	2	88	17	22
Proprietors and firm members	17	9	5	1	2	—	—	—
Performing manual labor	10	2	5	1	2	—	—	—
Principal expenses designated below, total	\$2,017,286	\$322,572	\$112,940	\$37,775	\$23,354	\$1,079,915	\$208,618	\$232,014
Wages	\$806,875	\$126,791	\$50,972	\$19,666	\$19,522	\$399,650	\$89,061	\$101,013
Salaries	\$361,695	\$51,835	\$17,906	\$4,085	\$2,220	\$208,886	\$30,333	\$66,430
Supplies and materials	\$619,303	\$124,508	\$30,501	\$7,013	\$335	\$368,596	\$57,799	\$30,351
Fuel	\$44,802	\$7,712	\$5,008	\$2,667	\$630	\$16,159	\$6,282	\$8,314
Purchased electric energy	\$152,446	\$12,026	\$8,588	\$4,322	\$47	\$86,624	\$25,133	\$28,906
Contract work	\$2,565	—	—	—	—	—	—	—
Cost of buildings, machinery, and equipment erected or installed during year	\$164,051	\$6,110	\$695	\$4,476	\$100	\$103,803	\$10,482	\$38,567
Buildings	\$61,780	\$3,512	—	\$428	—	\$32,243	\$1,122	\$24,475
Machinery and equipment, total	\$102,251	\$2,598	\$695	\$4,048	\$100	\$71,560	\$9,360	\$13,892
Purchased in new condition	\$64,524	\$1,520	\$695	\$4,048	—	\$38,500	\$5,971	\$13,782
Purchased in used condition	\$37,727	\$1,078	—	—	\$100	\$33,060	\$3,389	\$100
Total number of man-shifts worked by wage earners	258,334	28,086	21,613	5,856	3,951	144,557	28,464	25,807
Total number of man-hours worked by wage earners	2,068,209	224,688	174,676	47,068	31,610	1,157,279	227,712	203,156
Average number of hours worked per shift	8.0	8.0	8.1	8.0	8.0	8.0	8.0	7.9
Average hourly earning of wage earners	\$0.39	\$0.56	\$0.29	\$0.42	\$0.62	\$0.55	\$0.39	\$0.49
Tons of talc, soapstone, and pyrophyllite produced per man-hour, all mines	0.12	0.13	0.11	0.17	0.19	0.10	0.17	0.19
At underground mines ⁵	0.16	0.13	0.11	—	0.19	(⁶)	(⁶)	(⁶)
At open pits	0.06	—	—	0.17	—	(⁶)	(⁶)	(⁶)
Average number of equivalent full days operations were active, all mines	249	261	208	225	165	270	200	244
Underground mines ⁵	248	261	208	—	165	295	192	246
Open pits	250	—	—	225	—	255	225	218
Horsepower rating of power equipment, total	12,049	1,595	952	546	302	5,549	1,511	1,594
Per wage earner	12.4	16.3	11.1	21.0	13.1	10.9	11.1	17.1
Stationary equipment ⁷	10,547	1,029	712	374	242	5,527	1,257	1,406
Mobile equipment ⁸	1,502	566	240	172	60	22	254	188
Electric energy consumed (thousands of kw.-hrs.), total	18,788	950	428	177	9	12,710	1,908	2,606
Purchased	15,744	950	428	177	2	9,684	1,897	2,606
Generated by reporting companies	3,044	—	—	—	7	3,026	11	—

¹For definition of the industry see table 1, footnote 1.²Nevada, 2 mines; Washington, 1 mine and 1 plant.³New York, 5 mines and 3 plants; Pennsylvania, 1 mine and 1 plant; and Virginia, 2 mines and 2 plants.⁴Companies with operations in more than 1 State are counted only once in the table.⁵Statistics for 1 combination mine (using both underground and open-pit methods) and its associated plant in California are included with statistics for underground mines in that State.⁶Not shown separately.⁷Aggregate horsepower rating of engines, motors, etc. used for driving stationary or fixed equipment such as hoists, crushing and grinding equipment, electric generators, etc.⁸Aggregate horsepower rating of engines, motors, etc. used for driving mobile equipment such as power shovels, trucks, tractors, etc.TABLE 3.—QUANTITY AND VALUE OF PRODUCTS OF THE TALC AND SOAPSTONE INDUSTRY IN THE UNITED STATES, BY CLASS OF PRODUCT: 1939¹

CLASS OF PRODUCT	Quantity (tons of 2,000 pounds)	Value
Total	(²)	\$3,269,087
Primary products, total ³	253,992	3,088,264
Crude (talc and soapstone)	14,521	80,756
Ground (talc, pyrophyllite, and soapstone)	230,724	2,349,301
Sawed and manufactured (soapstone and talc)	8,747	658,207
Secondary products and other work ⁴	(²)	180,823

¹For definition of the industry see table 1, footnote 1.²Not significant.³Talc represents 72 percent of the quantity and 67 percent of the value; pyrophyllite, 15 percent of the quantity and 9 percent of the value; soapstone, 13 percent of the quantity and 24 percent of the value.⁴Includes secondary products (ground limestone, sandstone, magnesite) and value added by milling for others.

TABLE 4.—NUMBER OF WAGE EARNERS IN THE TALC AND SOAPSTONE INDUSTRY IN THE UNITED STATES, BY STATE AND BY MONTH: 1939¹

STATE	Average for the 12 months	NUMBER RECEIVING PAY DURING PAY-ROLL PERIOD ENDING NEAREST THE 15TH OF THE MONTH											
		January	February	March	April	May	June	July	August	September	October	November	December
United States, total	970	871	868	894	866	996	1,008	1,029	1,028	1,035	1,070	991	980
California	98	93	86	93	82	91	91	106	96	96	115	114	106
Georgia	86	75	66	71	70	86	83	89	94	103	97	98	98
Maryland	26	21	23	23	23	23	23	28	30	30	30	29	29
Nevada and Washington	23	31	30	22	22	24	26	29	30	27	14	12	9
New York, Pennsylvania, and Virginia	508	477	480	482	482	533	524	544	535	532	541	480	482
North Carolina	136	98	108	120	102	121	143	146	151	159	176	157	155
Vermont	93	76	75	83	85	118	118	87	92	88	97	101	101

¹For definition of the industry see table 1, footnote 1.TABLE 5.—EMPLOYMENT AND WORKING TIME IN THE TALC AND SOAPSTONE INDUSTRY IN THE UNITED STATES, BY DEPARTMENT AND BY STATE: 1939¹

DEPARTMENT	United States	California	Georgia	Maryland	Nevada and Washington	New York, Pennsylvania, and Virginia	North Carolina	Vermont
Average number of wage earners on active days, total	1,025	100	104	26	24	534	137	100
At mines, total	419	66	60	13	24	156	66	34
Underground	309	60	47	—	24	102	44	32
Open-pit	85	5	—	13	—	47	16	2
Surface shops and yards	27	1	13	—	—	7	6	—
At preparation plants	606	34	44	13	—	378	71	66
Average number of equivalent full days operations were active	249	281	208	225	165	270	200	244
At mines	234	268	162	210	165	277	222	182
Underground	241	276	189	—	165	291	220	182
Open-pit	231	161	—	210	—	251	217	183
Surface shops and yards	164	300	64	—	—	251	255	—
At preparation plants	259	306	270	240	—	266	178	276
Number of man-shifts worked by wage earners, total	258,334	28,086	21,613	5,656	3,951	144,557	28,464	25,807
On active days, total	255,242	28,086	21,613	5,656	3,951	143,977	27,341	24,418
At mines, total	98,210	17,680	9,726	2,731	3,951	43,264	14,668	6,190
Underground	74,609	16,577	8,896	—	3,951	29,694	9,667	5,824
Open-pit	19,183	803	—	2,731	—	11,813	5,470	366
Surface shops and yards	4,418	300	830	—	—	1,757	1,531	—
At preparation plants	157,032	10,406	11,887	3,125	—	100,713	12,675	18,228
On inactive days	3,092	—	—	—	—	580	1,273	1,389
Number of man-hours worked by wage earners, total	2,068,209	224,688	174,676	47,088	31,610	1,157,279	227,712	205,156
On active days, total	2,043,453	224,688	174,676	47,088	31,610	1,151,319	218,728	195,344
At mines, total	785,910	141,440	78,183	22,088	31,610	345,724	117,345	49,520
Underground	597,249	132,616	71,543	—	31,610	237,552	77,336	46,592
Open-pit	153,317	6,424	—	22,088	—	94,116	27,761	2,928
Surface shops and yards	35,344	2,400	6,640	—	—	14,056	12,248	—
At preparation plants	1,257,543	85,248	96,493	25,000	—	805,595	101,383	145,624
On inactive days	24,756	—	—	—	—	5,960	8,984	9,812

¹For definition of the industry see table 1, footnote 1.TABLE 6.—NUMBER OF TALC AND SOAPSTONE OPERATIONS IN THE UNITED STATES WORKING ONE, TWO, OR THREE SHIFTS AND NUMBER OF MAN-SHIFTS WORKED, BY SHIFT: 1939¹

SHIFT	UNITED STATES	
	Number	Percent of total
Number of operations, total	239	100.0
Working 1 shift per day	33	84.6
Working 2 shifts per day	2	5.1
Working 3 shifts per day	4	10.3
Number of man-shifts worked by wage earners on active days, total	255,242	100.0
During first shift	241,857	94.8
During second shift	10,236	4.0
During third shift	3,149	1.2
At mines, total	98,210	100.0
During first shift	91,504	93.2
During second shift	6,230	6.3
During third shift	476	0.5
At preparation plants, total	157,032	100.0
During first shift	150,353	95.7
During second shift	4,006	2.6
During third shift	2,673	1.7

¹For definition of the industry see table 1, footnote 1.²Includes one preparation plant not operated in conjunction with a mine.

TABLE 7.—QUANTITY OF FUEL AND ELECTRIC ENERGY CONSUMED IN THE TALC AND SOAPSTONE INDUSTRY IN THE UNITED STATES, 1939 AND 1929, AND BY STATE, 1939¹

STATE AND CENSUS YEAR	FUEL					ELECTRIC ENERGY (thousands of kilowatt-hours)		
	Anthracite (tons of 2,000 pounds)	Bituminous coal (tons of 2,000 pounds)	Fuel oils (barrels of 42 gallons)	Gasoline and kerosene (gallons)	Natural gas (thousands of cubic feet)	Total	Purchased	Generated by reporting companies
United States, total—1939	480	3,342	5,248	106,738	1,470	18,788	15,744	3,044
1929	59	5,717	129	54,644	-----	9,368	8,468	900
STATE: 1939								
California—	-----	-----	-----	52,798	1,470	950	950	-----
Georgia—	-----	-----	-----	26,694	-----	428	428	-----
Maryland—	-----	143	138	12,430	-----	177	177	-----
Nevada and Washington—	-----	-----	100	2,450	-----	9	2	7
New York, Pennsylvania, and Virginia—	-----	3,192	-----	555	-----	12,710	9,684	3,026
North Carolina—	480	-----	4,370	11,870	-----	1,808	1,897	11
Vermont—	-----	7	640	1,941	-----	2,606	2,606	-----

¹For definition of the industry see table 1, footnoteTABLE 8.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE TALC AND SOAPSTONE INDUSTRY IN THE UNITED STATES, 1939 AND 1929, AND BY STATE, 1939¹

STATE, TYPE OF EQUIPMENT, AND CENSUS YEAR	PRIME MOVERS AND ELECTRIC MOTORS DRIVEN BY PURCHASED ENERGY										ELECTRIC MOTORS DRIVEN BY ENERGY GENERATED BY REPORTING COMPANIES	
	Aggregate horsepower	Prime movers						Electric motors driven by purchased energy				
		Total		Driving generators		Not driving generators						
		Number	Horsepower	Number	Horsepower	Number	Horsepower			Number		
United States, total:												
1939	12,049	67	5,181	11	2,580	56	2,601	363	6,868	75	2,382	
1929	10,530	42	3,937	(2)	(2)	(2)	(2)	192	6,593	4	750	
Stationary:												
1939	10,547	40	3,694	11	2,580	29	1,114	362	6,853	75	2,382	
1929	10,100	41	3,922	(2)	(2)	(2)	(2)	176	6,178	4	750	
Mobile:												
1939	1,502	27	1,487			27	1,487	1	15			
1929	430	1	15	(2)	(2)	(2)	(2)	16	415			
STATE: 1939												
California, total	1,595	20	988			20	988	37	607			
Stationary	1,029	12	422			12	422	37	607			
Mobile	566	8	566			8	566					
Georgia, total	952	10	380			10	380	36	572			
Stationary	712	4	140			4	140	36	572			
Mobile	240	6	240			6	240					
Maryland, total	546	8	288			8	288	14	258			
Stationary	374	5	116			5	116	14	258			
Mobile	172	3	172			3	172					
Nevada and Washington, total	302	5	255	1	135	4	120	1	47	3	63	
Stationary	242	3	195	1	135	2	60	1	47	3	63	
Mobile	60	2	60			2	60					
New York, Pennsylvania, and Virginia, total	5,549	11	2,590	9	2,295	2	295	87	2,959	67	2,169	
Stationary	5,527	10	2,568	9	2,295	1	273	87	2,959	67	2,169	
Mobile	22	1	22			1	22					
North Carolina, total	1,511	8	479	1	150	7	329	72	1,032	5	150	
Stationary	1,257	4	225	1	150	3	75	72	1,032	5	150	
Mobile	254	4	254			4	254					
Vermont, total	1,594	5	201			5	201	116	1,393			
Stationary	1,406	2	28			2	28	115	1,378			
Mobile	188	3	173			3	173	1	15			

¹For definition of the industry see table 1, footnote 1. For definition of the terms "Stationary" and "Mobile" see table 2, footnotes 7 and 8.²Not available.

TABLE 12.—SELECTED STATISTICS FOR TALC AND SOAPSTONE OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF WAGE EARNERS AND BY STATE: 1939¹

STATE AND NUMBER OF WAGE EARNERS	Number of quarries and mines	Number of preparation plants	Production of talc, soapstone, and pyrophyllite (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages [*]	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total—	38	26	253,992	\$5,269,087	1,154	970	167	17	\$806,675	\$381,695
1 - 5—	10	2	13,769	99,079	51	33	3	15	28,681	5,845
6 - 20—	16	14	85,553	774,439	243	204	37	2	202,578	63,482
21 - 50—	4	4	24,968	274,268	138	123	15	—	79,773	28,948
51 - 100—	2	2	—	—	—	—	—	—	—	—
251 - 500—	1	1	149,699	2,121,501	722	610	112	—	495,643	283,420
Unclassified—	5	3	—	—	—	—	—	—	—	—
California, total—	10	5	29,323	514,286	130	98	23	9	126,791	51,835
1 - 5—	4	—	2,433	22,622	17	10	—	7	10,689	—
6 - 20—	6	5	26,890	491,664	113	88	23	2	116,102	51,835
Georgia, total—	5	3	19,347	168,026	104	86	13	5	50,972	17,906
1 - 5—	2	—	—	—	—	—	—	—	—	—
6 - 20—	1	1	19,347	168,026	104	86	13	5	50,972	17,906
21 - 50—	2	2	—	—	—	—	—	—	—	—
Maryland, total—	3	2	8,016	61,134	29	26	2	1	19,666	4,085
1 - 5—	1	—	—	—	—	—	—	—	—	—
6 - 20—	2	2	8,016	61,134	29	26	2	1	19,666	4,085
Nevada and Washington, total—	3	1	5,999	39,874	27	23	2	2	19,522	2,220
1 - 5—	1	—	—	—	—	—	—	—	—	—
6 - 20—	2	1	5,999	39,874	27	23	2	2	19,522	2,220
New York, Pennsylvania, and Virginia, total—	8	6	114,216	1,786,336	596	508	88	—	399,650	208,886
1 - 5—	1	1	—	—	—	—	—	—	—	—
6 - 20—	1	1	—	—	—	—	—	—	—	—
251 - 500—	1	1	114,216	1,786,336	596	508	88	—	399,650	208,886
Unclassified—	5	3	—	—	—	—	—	—	—	—
North Carolina, total—	5	5	38,173	321,782	153	136	17	—	89,061	30,333
6 - 20—	3	3	—	—	—	—	—	—	—	—
21 - 50—	1	1	38,173	321,782	153	136	17	—	89,061	30,333
51 - 100—	1	1	—	—	—	—	—	—	—	—
Vermont, total—	4	4	38,918	377,649	115	93	22	—	101,013	66,450
1 - 5—	1	1	—	—	—	—	—	—	—	—
6 - 20—	1	1	—	—	—	—	—	—	—	—
21 - 50—	1	1	38,918	377,649	115	93	22	—	101,013	66,450
51 - 100—	1	1	—	—	—	—	—	—	—	—

¹For definition of the industry see table 1, footnote 1. Reports classified by average number of wage earners employed during the year represent a single quarry or mine, a single preparation plant, or a single quarry or mine and a single preparation plant reported together. Statistics shown for "Unclassified" represent: Reports for more than one quarry, mine, or preparation plant; reports on which number of wage earners, by month, was not adequately reported; and reports for central offices reported separately from their associated quarries, mines, or plants.

TABLE 13.—SELECTED STATISTICS FOR TALC AND SOAPSTONE OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF HOURS PER WAGE EARNER IN THE FULL-TIME WORKWEEK AND BY STATE: 1939¹

STATE AND HOURS PER WEEK	Number of mines	Number of preparation plants	Production of talc, soapstone, and pyrophyllite (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total-----	38	26	253,992	\$3,269,087	1,154	970	167	17	\$806,675	\$381,695
1 - 34-----	1	1	48,028	916,424	450	395	49	6	285,563	85,401
40-----	9	7								
41 - 42-----	9	6								
43 - 44-----	10	6								
48-----	3	2	54,545	670,513	159	131	27	1	158,825	69,275
49 - 53-----	1	1	12,771	244,320	131	82	46	3	61,032	131,801
Unclassified-----	5	3								
California, total-----	10	5	29,323	514,286	130	98	23	9	128,791	51,835
40-----	2	1	14,324	158,786	37	30	1	6	48,195	2,375
41 - 42-----	1	1								
43 - 44-----	3	2								
48-----	1	1								
49 - 53-----	1	1	10,516	207,546	61	48	10	3	53,234	22,353
Unclassified-----	2	1	4,483	149,954	32	20	12	—	25,362	27,107
Georgia, total-----	5	3	19,347	168,026	104	86	13	5	50,972	17,906
41 - 42-----	4	2	19,347	168,026	104	86	13	5	50,972	17,906
43 - 44-----	1	1								
Maryland, total-----	3	2	8,016	61,134	29	26	2	1	19,666	4,065
43 - 44-----	2	2	8,016	61,134	29	26	2	1	19,666	4,065
Unclassified-----	1	—								
Nevada and Washington, total-----	3	1	5,999	39,874	27	23	2	2	19,522	2,220
40-----	2	1	5,999	39,874	27	23	2	2	19,522	2,220
43 - 44-----	1	—								
New York, Pennsylvania, and Virginia, total-----	8	6	114,216	1,786,336	596	508	88	—	399,650	208,886
40-----	2	2	114,216	1,786,336	596	508	88	—	399,650	208,886
41 - 42-----	1	1								
43 - 44-----	3	1								
48-----	2	2								
North Carolina, total-----	5	5	38,173	321,782	153	136	17	—	89,061	30,333
1 - 34-----	1	1	38,173	321,782	153	136	17	—	89,061	30,333
40-----	1	1								
41 - 42-----	1	1								
Unclassified-----	2	2								
Vermont, total-----	4	4	38,918	377,649	115	93	22	—	101,013	66,430
40-----	2	2	38,918	377,649	115	93	22	—	101,013	66,430
41 - 42-----	2	2								

¹For definition of the industry see table 1, footnote 1. Reports were classified by number of hours in the full-time workweek reported for wage earners in that department of the operation for which the largest number of man-hours worked was reported. Statistics shown for "Unclassified" represent reports on which number of hours was not reported and reports for central offices reported separately from their associated quarries, mines, or plants.

TABLE 14.—SELECTED STATISTICS FOR TALC AND SOAPSTONE OPERATIONS IN THE UNITED STATES, CLASSIFIED BY NUMBER OF DAYS ACTIVE DURING THE YEAR: 1939¹

NUMBER OF DAYS ACTIVE	Number of mines	Number of preparation plants	Production of talc, soapstone, and pyrophyllite (tons of 2,000 pounds)	Value of all products	NUMBER OF PERSONS ENGAGED				Wages	Salaries
					Total	Wage earners (average for the year)	Salaried employees	Proprietors and firm members		
United States, total-----	38	26	253,992	\$3,269,087	1,154	970	167	17	\$806,675	\$381,695
50 - 99-----	3	—	2,980	13,623	16	10	—	6	5,985	—
100 - 149-----	4	3	10,435	82,747	30	23	6	1	16,795	6,762
150 - 199-----	4	2	9,425	120,154	43	36	5	2	37,039	12,665
200 - 224-----	3	3	10,710	72,139	44	37	7	—	28,885	7,320
225 - 249-----	4	3	30,722	286,274	104	88	10	6	78,465	18,207
250 - 274-----	2	2	40,340	800,320	422	381	41	—	259,576	81,218
275 - 299-----	1	1								
300 - 324-----	8	7								
325 and over-----	1	1								
Unclassified-----	8	4	96,583	1,202,073	297	227	70	—	212,152	201,757

¹For definition of the industry see table 1, footnote 1. Reports classified by number of days active represent a single quarry or mine, a single preparation plant, or a single quarry or mine and a single preparation plant reported together; such reports for a single quarry or mine or a single preparation plant were classified by number of days the quarry or mine or preparation plant was in operation for production or development purposes during the year; such reports for a single quarry or mine and a single preparation plant reported together were classified by number of days the quarry or mine was in operation during the year. Statistics shown for "Unclassified" represent: Reports for more than one quarry, mine, or preparation plant; reports on which number of days active was not reported; and reports for central offices reported separately from their associated quarries, mines, or plants.

TRIPOLI

The tripoli industry in the United States produced 29,000 short tons of tripoli in 1939. Virtually all of the product was ground by the industry in 1939 and had a value of \$420,000. The value of secondary products and receipts for custom milling amounted to \$7,000.

The industry employed an average of 139 wage earners to whom \$116,000 was paid in wages. Salaried employees, of whom there were 20 in October 1939, were paid a total of \$34,000 during the year. Supplies and materials cost \$46,000; fuels, \$16,000; and purchased electric energy, \$8,000. These expenses aggregated \$220,000. The industry expended \$55,000 for buildings, machinery, and equipment erected or installed during the year.

"Tripoli" is a general term applied to a number of relatively soft, porous, and friable silicas. It is found in loosely coherent to fairly compact masses; in either form the ultimate individual grains are very hard, although the massive material is generally soft. Tripoli is quarried mainly in the Missouri-Oklahoma area and in Illinois, which accounted for 50 and 38 percent, respectively, of the total production of the industry. The remainder was mined in Arkansas, California, and Tennessee.¹ The Missouri-Oklahoma type of tripoli is an extremely porous, absorbent, lightweight material; that quarried in Illinois, often referred to as soft silica, is more compact, dense, and less absorbent. Tripoli is used chiefly

¹Statistics are excluded for tripoli produced in Texas as a secondary product of the fuller's earth industry.

for abrasive purposes and as a filler but finds other uses such as for concrete admixtures, foundry facing, and oil-well drilling mud.

Tripoli was produced as the major product in 1939 of twelve mines and eight mills operated by nine companies. Two of the mines used underground mining methods; the others were open quarries. The mines and mills were active, on the average, the equivalent of 237 8-hour shifts during the year, operating one shift per day.

Wage earners employed by tripoli mines and mills worked 284,000 man-hours during the year and received an average of 41 cents per man-hour. Production per man-hour was 0.1 ton, and the average value per ton of tripoli was \$14.47. Employment was fairly stable during the year, fluctuating between 126 in February and 148 in September.

Power equipment in use or available for use at the end of the year had an aggregate rated capacity of 1,595 horsepower, or 11-1/2 per wage earner. Four-fifths of the total horsepower represented equipment used for driving stationary or fixed equipment such as hoists, crushing and grinding equipment, and electric generators; the remaining fifth represented equipment used for driving mobile equipment such as power shovels and trucks. The industry consumed 520,000 kilowatt-hours of electric energy, nearly half of which was generated by tripoli producers for their own use.

The statistics presented for the tripoli industry include statistics for one operator in Pennsylvania who milled rottenstone produced before 1939.

TABLE 1.—PRINCIPAL STATISTICS FOR THE TRIPOLI INDUSTRY IN THE UNITED STATES: 1939, 1935, AND 1909¹

(For producing operations only)

ITEM	1939	1935	1909	ITEM	1939	1935	1909
Number of operating companies ² -----	9	(³)	4	Principal expenses designated below, total-----	\$220,222	\$257,156	\$88,910
Number of mines-----	12	4 ⁹	7	Wages-----	\$116,288	\$92,677	\$22,657
Production of tripoli (tons of 2,000 pounds)-----	28,995	(³)	(³)	Salaries-----	\$34,146	\$32,127	\$6,840
Value of products, total-----	\$426,761	\$374,273	\$66,557	Supplies and materials-----	\$45,756	\$103,902	\$7,407
Tripoli-----	\$419,618	(³)	(³)	Fuel-----	\$15,906	\$20,136	\$2,006
Other products and services rendered-----	\$7,143	(³)	(³)	Purchased electric energy-----	\$8,126	\$8,314	-----
Number of persons engaged, total-----	159	132 ⁴	70	Contract work-----	-----	(³)	-----
Wage earners (average for the year, including inactive periods)-----	139	116 ⁵	57	Cost of machinery and equipment erected or installed during the year-----	\$33,760	(³)	(³)
Salaried employees-----	20	16 ⁶	9	Horsepower rating of power equipment, total-----	1,595	(³)	265
Proprietors and firm members-----	-----	(³)	4	Per wage earner-----	11.5	(³)	4.6
				Prime movers-----	892	(³)	265
				Electric motors driven by purchased energy-----	703	(³)	-----
				Horsepower rating of electric motors driven by energy generated by reporting companies-----	589	(³)	-----

¹Figures for 1939 cover those producing operations (mines, mills, or mines and mills operated together) engaged primarily in producing tripoli, whose reported value of products, designated principal expenses, or cost of buildings, machinery, and equipment erected or installed during the year amounted to at least \$2,500. No minimum was placed on the size of operations included for 1935 and 1909. In 1939, figures include statistics for one rottenstone producer. No nonproducing operations were reported for 1939.

²Companies that submitted more than one report are counted only once in the totals.

³Not available.

⁴Represents number of operations.

⁵Mine value of crude tripoli mined and value added by milling in 1939.

⁶Excludes statistics for items for which information was not available as indicated by footnotes.

⁷Excludes statistics for persons engaged at central administrative offices not connected with producing operations.

⁸For 1909, statistics include amounts paid for purchased power other than electric.

TABLE 2.—PRINCIPAL STATISTICS FOR THE TRIPOLI INDUSTRY IN THE UNITED STATES, BY STATE AND BY TYPE OF OPERATION: 1939¹

ITEM	United States	STATE		TYPE OF OPERATION	
		Arkansas, Kansas, Missouri, and Oklahoma	California, Illinois, Pennsylvania, and Tennessee	Open pit	Underground mine ²
Number of operating companies-----	9	4	5	6	3
Number of mines ³ -----	12	6	6	10	2
Number of mills ³ -----	8	4	4	6	2
Production of tripoli:					
Tons of 2,000 pounds, total ⁴ -----	28,995	17,080	11,915	20,714	8,281
From open pits-----	20,714	17,080	3,634	20,714	-----
From underground mines ⁵ -----	8,281	-----	8,281	-----	8,281
Value at mines ⁶ -----	\$419,618	\$264,861	\$154,757	\$310,694	\$108,924
Value of all products ⁶ -----	\$426,761	\$266,461	\$160,800	\$312,294	\$114,467
Number of persons engaged, total-----	159	84	75	113	46
Wage earners, average for the year-----	139	69	70	96	43
Salaried employees-----	20	15	5	17	3
Principal expenses designated below, total-----	\$220,222	\$136,111	\$84,111	\$171,658	\$48,564
Wages-----	\$116,288	\$67,376	\$48,912	\$83,147	\$33,141
Salaries-----	\$34,146	\$27,986	\$6,160	\$30,825	\$3,320
Supplies and materials-----	\$45,756	\$29,764	\$15,992	\$40,116	\$5,640
Fuel-----	\$15,906	\$3,958	\$11,948	\$9,643	\$6,263
Purchased electric energy-----	\$8,126	\$7,027	\$1,099	\$7,926	\$200
Cost of buildings, machinery, and equipment erected or installed during year-----	\$55,284	\$54,812	\$472	\$55,284	-----
Buildings-----	\$21,524	\$21,347	\$177	\$21,524	-----
Machinery and equipment, total-----	\$33,760	\$33,465	\$295	\$33,760	-----
Purchased in new condition-----	\$32,701	\$32,551	\$150	\$32,701	-----
Purchased in used condition-----	\$1,059	\$914	\$145	\$1,059	-----
Total number of man-shifts worked by wage earners-----	35,428	14,945	20,483	22,469	12,959
Total number of man-hours worked by wage earners-----	284,380	120,518	163,862	180,710	103,670
Average number of hours worked per shift-----	8.0	8.1	8.0	8.0	8.0
Average hourly earning of wage earners-----	\$0.41	\$0.56	\$0.30	\$0.46	\$0.32
Tons of tripoli produced per man-hour-----	0.10	0.14	0.07	0.11	0.08
Average number of equivalent full days operations were active-----	237	197	277	219	276
Horsepower rating of power equipment, total-----	1,595	902	693	1,190	405
Per wage earner-----	11.5	13.1	9.9	12.4	9.4
Stationary equipment ⁷ -----	1,288	670	618	958	330
Mobile equipment ⁷ -----	307	232	75	232	75
Electric energy consumed (thousands of kw.-hrs.), total-----	520	372	148	515	5
Purchased-----	270	247	23	265	5
Generated by reporting companies-----	250	125	125	250	-----

¹ For definition of the industry see table 1, footnote 1.² Includes statistics for 1 mill not operated in conjunction with a mine.³ Represents 1 mine and 1 mill in Arkansas; 1 mine in California; 4 mines and 2 mills in Illinois; 1 mill in Kansas; 3 mines and 2 mills in Missouri; 2 mines in Oklahoma; 1 mill in Pennsylvania; and 1 mine and 1 mill in Tennessee.⁴ Of the total for the United States, over 99 percent represented milled tripoli.⁵ Value of tripoli produced represents value of crude tripoli mined but not milled by the industry in 1939, and mill value of tripoli both mined and milled by the industry in 1939; value of all products includes \$7,143 representing value of secondary products and receipts for custom milling of materials other than tripoli.⁶ Aggregate horsepower rating of engines, motors, etc., used for driving stationary or fixed equipment such as hoists, crushing and grinding equipment, electric generators, etc.⁷ Aggregate horsepower rating of engines, motors, etc., used for driving mobile equipment such as power shovels, trucks, etc.TABLE 3.—NUMBER OF WAGE EARNERS IN THE TRIPOLI INDUSTRY IN THE UNITED STATES, BY STATE, BY TYPE OF OPERATION, AND BY MONTH: 1939¹

STATE AND TYPE OF OPERATION	Average for the 12 months	NUMBER RECEIVING PAY DURING PAY-ROLL PERIOD ENDING NEAREST THE 15TH OF THE MONTH											
		January	February	March	April	May	June	July	August	September	October	November	December
United States, total-----	139	129	126	136	135	140	146	145	141	148	143	139	144
STATE													
Arkansas, Kansas, Missouri, and Oklahoma-----	69	61	58	64	65	68	71	75	72	74	73	72	72
California, Illinois, Pennsylvania, and Tennessee-----	70	68	68	72	70	72	75	70	69	74	70	67	72
TYPE OF OPERATION													
Open-pit-----	96	88	84	91	93	97	98	102	99	101	101	98	98
Underground mine ² -----	43	41	42	45	42	43	48	43	42	47	42	41	46

¹ For definition of the industry see table 1, footnote 1.² Includes statistics for 1 mill not operated in conjunction with a mine.

TABLE 4.—EMPLOYMENT AND WORKING TIME AT TRIPOLI OPERATIONS IN THE UNITED STATES, BY DEPARTMENT, BY STATE, AND BY TYPE OF OPERATION: 1939¹

DEPARTMENT	United States	STATE		TYPE OF OPERATION		DEPARTMENT	United States	STATE		TYPE OF OPERATION	
		Arkansas, Kansas, Missouri, and Oklahoma	California, Illinois, Pennsylvania, and Tennessee	Open pit	Underground mine ²			Arkansas, Kansas, Missouri, and Oklahoma	California, Illinois, Pennsylvania, and Tennessee	Open pit	Underground mine ²
Average number of wage earners on active days, total-----	148	74	74	101	47	Number of man-shifts worked by wage earners, total ³ -----	35,428	14,945	20,483	22,469	12,959
At mines, total-----	41	25	16	31	10	On active days, total-----	35,063	14,580	20,483	22,104	12,959
Underground-----	10		10		10	At mines, total-----	8,839	4,700	4,139	6,080	2,759
Open-pit-----	31	25	6	31		Underground-----	2,759		2,759		2,759
At preparation plants-----	107	49	58	70	37	Open-pit-----	6,080	4,700	1,380	6,080	
Average number of equivalent full days operations were active, all mines-----	237	197	277	219	276	At preparation plants-----	26,224	9,880	16,344	16,024	10,200
At mines-----	216	188	259	196	276	On inactive days-----	365	365		365	
Underground-----	276		276		276	Number of man-hours worked by wage earners, total-----	284,380	120,518	163,862	180,710	103,670
Open-pit-----	196	188	230	196		On active days, total-----	280,730	116,868	163,862	177,060	103,670
At preparation plants-----	245	202	282	229	276	At mines, total-----	70,938	37,828	33,110	48,868	22,070
						Underground-----	22,070		22,070		22,070
						Open-pit-----	48,868	37,828	11,040	48,868	
						At preparation plants-----	209,792	79,040	130,752	128,192	81,600
						On inactive days-----	3,650	3,650		3,650	

¹ For definition of the industry see table 1, footnote 1.² Includes statistics for 1 mill not operated in conjunction with a mine.³ All companies operated only 1 shift per day.TABLE 5.—QUANTITY OF FUEL AND ELECTRIC ENERGY CONSUMED IN THE TRIPOLI INDUSTRY IN THE UNITED STATES, BY STATE AND BY TYPE OF OPERATION: 1939¹

STATE AND TYPE OF OPERATION	FUEL ²				ELECTRIC ENERGY (thousands of kilowatt-hours)		
	Bituminous coal (tons of 2,000 pounds)	Fuel oils (barrels of 42 gallons)	Gasoline and kerosene (gallons)	Natural gas (thousands of cubic feet)	Total	Purchased	Generated by reporting companies
United States, total-----	7,963	1,119	21,700	4,850	520	270	250
STATE							
Arkansas, Kansas, Missouri, and Oklahoma-----	305	1,119	2,000	4,850	372	247	125
California, Illinois, Pennsylvania, and Tennessee-----	7,658		19,700		148	23	125
TYPE OF OPERATION							
Open pit-----	4,125	1,119	15,000	4,850	515	265	250
Underground mine ³ -----	3,838		6,700		5	5	

¹ For definition of the industry see table 1, footnote 1.² No anthracite was reported consumed.³ Includes statistics for 1 mill not operated in conjunction with a mine.

TABLE 6.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE TRIPOLI INDUSTRY IN THE UNITED STATES, BY STATE AND BY TYPE OF OPERATION: 1939 ¹

STATE AND TYPE OF OPERATION	PRIME MOVERS AND ELECTRIC MOTORS DRIVEN BY PURCHASED ENERGY										ELECTRIC MOTORS DRIVEN BY ENERGY GENERATED BY REPORTING COMPANIES	
	Aggregate horsepower	Prime Movers ²						Electric motors driven by pur- chased energy				
		Total		Driving generators		Not driving generators						
		Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number		
United States, total-----	1,595	12	892	2	300	10	592	59	703	32	589	
Stationary-----	1,288	5	585	2	300	3	285	59	703	32	589	
Mobile-----	307	7	307			7	307					
STATE												
Arkansas, Kansas, Missouri, and Oklahoma, total-----	1,187	9	642	1	125	8	517	45	545	20	400	
Stationary-----	955	4	410	1	125	3	285	45	545	20	400	
Mobile-----	232	5	232			5	232					
California, Illinois, Pennsylvania and Tennessee, total-----	408	3	250	1	175	2	75	14	158	12	189	
Stationary-----	343	1	175	1	175			14	158	12	189	
Mobile-----	75	2	75			2	75					
TYPE OF OPERATION												
Open-pit, total-----	1,190	8	592	2	300	6	292	51	598	32	589	
Stationary-----	958	3	360	2	300	1	60	51	598	32	589	
Mobile-----	232	5	232			5	232					
Underground mine, total ³ -----	405	4	300			4	300	8	105			
Stationary-----	330	2	225			2	225	8	105			
Mobile-----	75	2	75			2	75					

¹ For definition of the industry see table 1, footnote 1. For definition of terms "Stationary" and "Mobile" see table 2, footnotes 6 and 7. Power-loading machines reported included three power shovels and one crane or hoist.

² No prime movers were reported as ordinarily idle.

³ Includes statistics for 1 mill not operated in conjunction with a mine.

VERMICULITE

In 1939 the vermiculite industry in the United States produced over 22,600 short tons of vermiculite valued at \$150,000 at points of production.¹

Vermiculite was produced in 1939 at seven mines in Colorado, Montana, North Carolina, and Wyoming, and was recovered principally by open-cut mining methods. Vermiculite expands considerably upon heat treatment and is valued for its heat- and sound-insulation qualities. It is used as an insulation material, in plasters, for special refractories, and for other purposes.

PRINCIPAL EXPENSES

The industry paid \$54,000 in wages—an average of 60 cents per man-hour worked by wage earners. Salaried employees were paid \$11,000. Supplies and materials consumed during the year cost \$10,000; fuel, \$16,000; and work done on contract by other concerns, \$4,000. These reported principal expenses amounted to \$95,000. Buildings, machinery, and equipment costing \$11,000 were erected or installed during the year.

EMPLOYMENT AND WORKING TIME

The number of wage earners employed by the industry averaged 56 and ranged from a low of 38 in February to a peak of 69 in November. Wage earners worked a total of almost 91,000 man-hours, averaging 8 hours per shift. Operations were active the equivalent of 160 full days during the year; only one

¹ These statistics do not include 304 tons of vermiculite valued at \$2,271 reported by small operations for which neither the value of products, nor reported principal expenses, nor cost of buildings, machinery, and equipment during the year amounted to \$2,500 (see table 1, footnote 1).

operation reported working more than one shift per day at any time during 1939.

POWER EQUIPMENT

Power equipment in use or available for use at the end of 1939 had an aggregate rating of 1,048 horsepower, representing the rating of prime movers such as gasoline, Diesel, or steam engines. Of the total horsepower, 58 percent was for driving stationary equipment such as electric generators and preparation-plant equipment; the remaining 42 percent was for driving mobile equipment such as power shovels, tractors, and trucks. The average horsepower rating of power equipment per wage earner was about 19.

At the end of the year operations in the industry were equipped with four power shovels and one dragline excavator, all of which were driven by internal-combustion engines and had dipper or bucket capacities of less than 3 cubic yards. In addition, three tractor-drawn scrapers or bulldozers powered by internal-combustion engines were reported.

The industry consumed 505,000 kilowatt-hours of electricity, all of which was generated by the reporting companies for their own use. Fuels consumed by the industry comprised 27,342 gallons of gasoline and kerosene and 3,714 barrels of fuel oil.

OTHER STATISTICS

For distribution of vermiculite operations by value of products, number of wage earners, number of days active, number of hours per wage earner in the full-time workweek, and by type of ownership, see General Summary tables 8, 15, 17, 18, and 26, respectively.

TABLE 1.—PRINCIPAL STATISTICS FOR THE VERMICULITE INDUSTRY IN THE UNITED STATES: 1939¹

Number of operating companies-----	7	Cost of buildings, machinery, and equipment erected or installed during year-----	\$11,057
Number of mines-----	27	Buildings-----	\$5,254
Number of preparation plants-----	25	Machinery and equipment ² -----	\$5,803
Number of persons engaged, total ³ -----	64	Total number of man-shifts worked by wage earners-----	11,354
Wage earners (average for the year)-----	56	Total number of man-hours worked by wage earners-----	90,892
Salaried employees ⁴ -----	8	Average number of hours worked per shift-----	8.0
Production of vermiculite (tons of 2,000 pounds) ⁵ -----	22,638	Average hourly earning of wage earners-----	\$0.60
Value of all products ⁶ -----	\$149,883	Tons of vermiculite produced per man-hour-----	0.249
Principal expenses designated below, total ⁷ -----	\$95,163	Average number of equivalent full days operations were active-----	160
Wages-----	\$54,156	Horsepower rating of power equipment, total-----	1,048
Salaries ⁸ -----	\$10,775	Per wage earner-----	18.7
Supplies and materials-----	\$10,217	Stationary equipment ⁹ -----	606
Fuel-----	\$15,719	Mobile equipment ¹⁰ -----	439
Contract work-----	\$4,296	Electric energy consumed (thousands of kw.-hrs.) ⁷ -----	505

¹ The industry includes mines producing crude vermiculite and associated preparation plants engaged in preparing vermiculite (as by screening); statistics for the production of heat-treated or exfoliated vermiculite at expanding plants are excluded. Figures cover only those producing operations (mines or mines and plants operated together) for which the value of products, reported principal expenses, or cost of buildings, machinery, and equipment during the year amounted to \$2,500 or more. Smaller operations (located in North Carolina and Wyoming) reported the production of 304 tons of vermiculite valued at \$2,271. No nonproducing operations were reported.

² Colorado, 2 mines and 2 plants; Montana, 1 mine and 1 plant; North Carolina, 2 mines and 2 plants; and Wyoming, 2 mines.

³ No proprietors or firm members of unincorporated concerns were reported.

⁴ Includes statistics for central-office employees in Kansas and Minnesota.

⁵ Crude and prepared vermiculite produced during the year.

⁶ Total value of vermiculite at points of production. No secondary products or amounts received or due for services performed for others were reported.

⁷ Figure for quantity of electric energy represents energy generated by reporting companies; no purchased electric energy was reported.

⁸ Purchased in new condition; none was reported purchased in used condition.

⁹ Aggregate horsepower rating of engines for driving stationary or fixed equipment such as screening equipment and electric generators.

¹⁰ Aggregate horsepower rating of engines for driving mobile equipment such as power shovels, tractors, and trucks.

TABLE 2.—NUMBER OF WAGE EARNERS IN THE VERMICULITE INDUSTRY IN THE UNITED STATES, BY MONTH: 1939¹

MONTH	Number	MONTH	Number
April-----	56	September-----	66
May-----	43	October-----	64
June-----	38	November-----	69
July-----	52	December-----	68
August-----	47		

¹ For definition of the industry see table 1, footnote 1.

TABLE 3.—EMPLOYMENT AND WORKING TIME IN THE VERMICULITE INDUSTRY IN THE UNITED STATES, BY DEPARTMENT: 1939¹

Average number of wage earners on active days, total-----	70	Number of man-shifts worked by wage earners, total-----	11,854
At mines, total-----	35	On active days, total-----	11,190
Underground-----	1	At mines, total-----	4,905
Open-pit-----	34	Underground-----	50
At preparation plants-----	35	Open-pit-----	4,855
		At preparation plants-----	6,285
		On inactive days-----	164
Average number of equivalent full days operations were active-----	160	Number of man-hours worked by wage earners, total-----	90,832
At mines-----	140	On active days, total-----	89,520
Underground-----	50	At mines, total-----	39,240
Open-pit-----	148	Underground-----	400
At preparation plants-----	180	Open-pit-----	38,840
		At preparation plants-----	50,280
		On inactive days-----	1,312

¹ For definition of the industry see table 1, footnote 1.

² No employment was reported for surface shops and yards.

TABLE 4.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS IN THE VERMICULITE INDUSTRY IN THE UNITED STATES, BY TYPE: 1939¹

TYPE OF EQUIPMENT	PRIME MOVERS								ELECTRIC MOTORS DRIVEN BY ENERGY GENERATED BY REPORTING COMPANIES	
	Total		Driving generators		Not driving generators		Ordinarily idle (included in pre- ceding columns)			
	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower
United States, total	17	1,048	3	415	14	633	1	74	60	235
Illinois	9	609	3	415	6	194			60	235
Michigan	8	439			8	439	1	74		

¹ For definition of the industry see table 1, footnote 1. No electric motors driven by purchased electric energy were reported.

GENERAL CONTRACT SERVICES

Contracting concerns in the United States performing services closely related to the production of minerals or to the development of mineral properties reported a total of \$4,488,000 received or due for work done during 1939.¹ Statistics covering activities of general contractors engaged in work for the mineral industries were reported to the Bureau of the Census for the first time in the 1939 survey.

SERVICES PERFORMED

Of the total amount received by or due general contractors, 37 percent was reported by 73 companies engaged principally in loading and hauling activities at mines and quarries; 34 percent, by 46 companies engaged principally in drilling activities, chiefly prospect and test drilling; 11 percent, by 34 companies engaged principally in stripping overburden from mineral deposits; 10 percent, by 16 companies engaged principally in sinking mine shafts and driving mine tunnels and drifts; and the remaining 8 percent, by 10 companies engaged principally in miscellaneous maintenance and development work.

Contractors reported work done during 1939 for practically all mineral industries. Those working principally for the metal-mining industries reported \$2,368,000 received or due for work done during the year, or about 53 percent of the total for general contractors in all mineral industries. Next in rank, on the basis of amount received or due, were general contractors engaged principally in work for the coal industries; these reported about \$1,153,000, or 26 percent of the total. Contractors engaged principally in work for the stone and clay industries accounted for about 12 percent of the total, and those doing work principally for other mineral industries, for the remaining 9 percent.

About 53 percent of the total amount received by or due all general contractors was reported by those working chiefly in five States: California, Michigan, Nevada, Pennsylvania, and Utah. In California, contractors performed services for clay, glass-sand, gold (lode and placer), limestone, silver-ore, and tungsten-ore operations; in Michigan, for copper-ore, iron-ore, and sand-and-gravel operations; in Nevada, for barite, brucite, copper-ore, gold (lode and placer), lead-ore, mercury, molybdenum-ore, tungsten-ore, and zinc-ore operations; in Pennsylvania, for anthracite, basalt, bituminous-coal, copper-ore, iron-ore, limestone, and sandstone operations; and in Utah, for copper-ore, lead-ore, potash, silver-ore, vanadium-and-uranium-ore, and zinc-ore operations.

Detailed statistics are available for contractors engaged principally in stripping overburden. Of the total amount received by or due such contractors, 38 percent was reported by contractors who performed most of their work for the stone industries and 27 percent by those primarily engaged in work for metal-mining industries producing principally bauxite, iron ore, lode gold, and placer gold. The remaining 35 percent was accounted for by contractors working principally for industries

whose major products were ball clay, barite, bentonite, bituminous coal, common clay and shale, fire clay, foundry sand, fuller's earth, glass sand, lignite, pyrites, and sand and gravel.

PRINCIPAL EXPENSES

Concerns engaged in general contract work in 1939 paid \$1,666,000 in wages--an average of 62 cents per man-hour worked by wage earners. Salaried employees were paid \$287,000. Supplies and materials consumed during the year cost \$624,000; fuel, \$335,000; and purchased electric energy, \$25,000. These reported principal expenses totaled \$2,937,000; \$305,000 of this amount was reported by contractors engaged principally in stripping overburden and \$2,632,000 by those engaged principally in other types of work. Machinery, equipment, and mine buildings costing about \$151,000 were installed or erected during the year for the contractors' own accounts.

EMPLOYMENT AND WORKING TIME

The number of wage earners employed during the year averaged 1,365, ranging from a minimum of 1,087 in January to a maximum of 1,596 in October. In addition, 128 salaried employees and 165 proprietors and firm members were reported for October. Contractors engaged principally in stripping overburden employed an average of 167 wage earners and all other general contractors employed 1,198. Wage earners worked a total of 2,680,000 man-hours, or 339,000 man-shifts, averaging 7.9 hours per shift. Contractors engaged principally in stripping overburden worked the equivalent of 124 full days during the year whereas those engaged in other types of work were active the equivalent of 234 full days; the average number of full days worked by all contractors was 210. Most of the contractors reported working on a one-shift basis throughout the year. However, 22 contractors reported working two shifts and 6 reported working three shifts for at least part of the year.

POWER EQUIPMENT

Power equipment in use or available for use at the end of 1939 had an aggregate horsepower rating of 51,820, an average of 38 horsepower per wage earner. Of the total, 45,837 horsepower represented the rating of prime movers such as gasoline, Diesel, and steam engines; 5,983 horsepower, the rating of electric motors driven by purchased energy. About 88 percent of the total horsepower rating represented units for driving mobile equipment such as dragline excavators, power shovels, tractors, and trucks. The remaining 12 percent represented units for driving stationary equipment such as pumps and compressors.

At the end of the year contractors were equipped with 50 power shovels, 47 driven by internal-combustion engines and 3 by steam engines; 8 dragline excavators, 7 driven by internal-combustion engines and 1 by electricity; 3 clamshell or orange-peel loaders, 2 driven by internal-combustion engines and 1 by steam; 19 scraper loaders, 12 driven by internal-combustion engines, 6 by compressed air, and 1 by electricity; and 27 bulldozers and tractor-drawn scrapers driven by internal-combustion engines.

¹For description of general contract services covered by this report see table 1, footnotes 1 and 2. Statistics for contractors performing oil- and gas-field services and for contractors engaged in strip-pit mining activities in the Pennsylvania anthracite industry are excluded; statistics for such contractors are covered in other Census of Mineral Industries reports.

TABLE 1.—PRINCIPAL STATISTICS FOR CONCERNS ENGAGED IN GENERAL CONTRACT WORK FOR THE MINERAL INDUSTRIES IN THE UNITED STATES, BY PRINCIPAL TYPE OF WORK PERFORMED: 1939¹

ITEM	PRINCIPAL TYPE OF WORK PERFORMED			ITEM	PRINCIPAL TYPE OF WORK PERFORMED		
	Total	Stripping overburden	All other ²		Total	Stripping overburden	All other ²
Number of companies-----	179	34	145	Cost of mine buildings, machinery, and equipment erected or installed during year-----	\$150,771	\$34,600	\$115,971
Number of persons engaged, total-----	1,656	220	1,436	Horsepower rating of power equipment, total-----	51,820	6,622	45,198
Wage earners (average for the year)-----	1,365	167	1,198	Per wage earner-----	32.0	39.7	37.7
Salaried employees-----	126	19	107	Stationary equipment ³ -----	6,064	50	6,034
Proprietors and firm members-----	165	34	131	Mobile equipment ⁴ -----	45,736	6,572	39,164
Performing manual labor-----	76	15	61	Number of man-shifts worked by wage earners-----	339,199	43,004	296,195
Amount received or due for work done during 1939-----	\$4,487,670	\$486,397	\$4,001,273	Number of man-hours worked by wage earners-----	2,680,194	341,994	2,338,200
Principal expenses designated below, total-----	\$2,937,135	\$305,081	\$2,632,054	Average number of hours worked per shift-----	7.9	8.0	7.9
Wages-----	\$1,665,776	\$172,500	\$1,493,276	Average number of full days contractors were active ⁵ -----	210	124	234
Salaries-----	\$267,114	\$56,086	\$251,028	Average hourly earning of wage earners-----	\$0.62	\$0.50	\$0.64
Supplies and materials-----	\$624,100	\$42,572	\$581,528				
Fuel-----	\$334,992	\$50,414	\$284,578				
Purchased electric energy-----	\$25,151	\$3,509	\$21,642				

¹ Figures cover the activities in 1939 of concerns engaged in rendering general contract services closely related to the production of minerals or to the development of mineral properties, whether or not the work for the account of others was performed on the basis of a formally written contract; figures cover only such activities as stripping overburden and those of the types enumerated in footnote 2. Statistics are excluded for the following: Contractors that received or were due less than \$2,500 for work done during 1939; contractors engaged in work for the crude-petroleum and natural-gas industry (such statistics are covered in a separate report for oil- and gas-field services); contractors engaged in strip-pit mining activities for the Pennsylvania anthracite industry (such statistics are included in a report for that industry); other contractors conducting entire mining operations for the account of others (such contractors are treated as operating companies and their activities are covered in the reports for the mineral industries involved); that portion of the activities of general contractors for the account of mineral-producing companies that was not of a type closely related to the production of minerals or to the development of mineral properties; and "contract miners" who undertake to recover mineral products at a stipulated price per ton, car, etc. (such men are treated as wage earners in census reports for mineral industries).

² Includes mineral exploration work (including geophysical and other exploratory surveying); drilling test holes (including core drilling); drilling and blasting in connection with mine development or mineral production; hauling overburden or waste to a waste dump; hauling crude ore or minerals to a primary preparation plant such as a crusher, ore-dressing or -concentrating mill, washery, etc., but excluding haulage of minerals from vicinity of the mine or quarry to smelters, wholesalers, or consumers; sinking mine shafts or driving mine tunnels, drifts, raises, etc.; pumping or draining mines or quarries; loading from mineral stock piles at mines or quarries; and other activities closely related to the foregoing types of work.

³ Aggregate horsepower rating of engines and motors for driving stationary or fixed equipment such as pumps and compressors.

⁴ Aggregate horsepower rating of engines and motors for driving mobile equipment such as dragline excavators, power shovels, tractors, and trucks.

⁵ Computed by dividing the sum of the man-shifts worked by wage earners by the sum of the average numbers of wage earners working on each shift on active days. Contractors were requested to consider as active all days on which they performed for the mineral industries any of the types of work designated in footnotes 1 and 2.

TABLE 2.—PRINCIPAL STATISTICS FOR CONCERNS ENGAGED IN GENERAL CONTRACT WORK FOR THE MINERAL INDUSTRIES IN THE UNITED STATES, BY MINERAL INDUSTRY: 1939¹

ITEM	All industries, total	COAL			METALS				
		"Bituminous coal" and "Lignite"	"Pennsylvania anthracite" ²	"Copper ore"	"Gold"		"Lead ore"	"Zinc ore"	
					Lode	Placer			
Number of companies-----	179	32	13	6	23	6	7	11	
Number of persons engaged, total-----	1,656	263	246	91	161	40	92	121	
Wage earners (average for the year)-----	1,365	199	222	84	158	28	80	104	
Salaried employees-----	126	29	11	4	17	5	6	10	
Proprietors and firm members-----	165	35	13	5	6	7	8	7	
Performing manual labor-----	76	20	1	1	5	5	2	4	
Amount received or due for work done during 1939-----	\$4,487,670	\$611,848	\$541,632	\$355,427	\$639,437	\$91,930	\$229,616	\$307,481	
Principal expenses designated below, total-----	\$2,937,135	\$460,571	\$338,214	\$160,893	\$471,206	\$54,453	\$167,845	\$232,339	
Wages-----	\$1,665,776	\$239,705	\$253,830	\$114,908	\$244,154	\$32,678	\$96,557	\$115,935	
Salaries-----	\$267,114	\$85,928	\$21,244	\$8,767	\$35,259	\$1,076	\$15,000	\$19,076	
Supplies and materials-----	\$624,100	\$61,120	\$37,023	\$26,881	\$136,410	\$12,458	\$32,976	\$61,615	
Fuel-----	\$334,992	\$52,522	\$25,979	\$10,337	\$53,232	\$8,231	\$11,344	\$35,513	
Purchased electric energy-----	\$25,151	\$1,296	\$138		\$2,091	\$10	\$12,168		
Cost of mine buildings, machinery, and equipment erected or installed during year-----	\$150,771	\$41,171	\$8,649		\$2,000	\$15,400	\$1,000	\$2,000	
Horsepower rating of power equipment, total-----	51,820	8,441	2,365	1,582	5,866	2,062	5,008	3,494	
Per wage earner-----	36.0	42.4	10.7	18.8	37.1	73.6	62.6	33.6	
Stationary equipment-----	6,064	525	122	715	215	2	3,648		
Mobile equipment-----	45,736	7,916	2,243	867	5,651	2,060	1,360	3,494	
Number of man-shifts worked by wage earners-----	339,199	46,182	48,069	21,069	47,723	5,861	20,308	29,508	
Number of man-hours worked by wage earners-----	2,680,194	365,090	338,817	168,570	379,798	45,924	162,674	246,172	
Average number of hours worked per shift-----	7.9	7.9	7.0	8.0	8.0	7.8	8.0	8.3	
Average number of full days contractors were active-----	210	169	225	281	274	89	260	289	
Average hourly earning of wage earners-----	\$0.62	\$0.66	\$0.75	\$0.68	\$0.64	\$0.71	\$0.59	\$0.47	

ITEM	METALS—Continued				STONE		CLAYS	
	"Silver ore"	"Iron ore"	"Tungsten ore"	"Bauxite," "Molybdenum ore," and "Vanadium and uranium ore"	"Granite"	"Lime-stone"	"Basalt," "Marble," "Sandstone," and "Slate"	"Bentonite" and "Filler's earth"
Number of companies-----	3	6	3	4	3	12	5	3
Number of persons engaged, total-----	20	116	12	71	18	93	22	25
Wage earners (average for the year)-----	17	98	4	64	15	74	15	17
Salaried employees-----	1	11		4		11		5
Proprietors and firm members-----	2	7	8	3	3	8	7	5
Performing manual labor-----	1	2	7	3	2	4	4	

See footnotes at end of table.

MINERAL INDUSTRIES

TABLE 2.—PRINCIPAL STATISTICS FOR CONCERNS ENGAGED IN GENERAL CONTRACT WORK FOR THE MINERAL INDUSTRIES IN THE UNITED STATES, BY MINERAL INDUSTRY: 1939¹—Continued

ITEM	METALS—Continued				STONE		CLAYS	
	"Silver ore"	"Iron ore"	"Tungsten ore"	"Bauxite," "Molybdenum ore," and "Vanadium and uranium ore"	"Granite"	"Limestone"	"Basalt," "Marble," "Sandstone," and "Slate"	"Bentonite" and "Fuller's earth"
Amount received or due for work done during 1939—	\$75,368	\$253,758	\$38,037	\$178,948	\$29,259	\$212,757	\$35,042	\$58,475
Principal expenses designated below, total—	\$68,843	\$209,085	\$12,131	\$153,767	\$20,465	\$139,114	\$21,112	\$49,241
Wages—	\$39,799	\$127,733	\$6,520	\$74,757	\$15,060	\$87,540	\$9,073	\$15,333
Salaries—	\$250	\$23,824		\$28,572		\$9,115		\$23,740
Supplies and materials—	\$25,077	\$47,382	\$2,551	\$38,440	\$2,450	\$18,405	\$3,818	\$5,901
Fuel—	\$3,789	\$6,354	\$1,135	\$11,998	\$2,955	\$24,054	\$4,221	\$876
Purchased electric energy—	\$1,921	\$1,792	\$1,927					\$3,591
Cost of mine buildings, machinery, and equipment erected or installed during year—		\$27,200				\$1,428		
Horsepower rating of power equipment, total—	1,105	2,253	310	1,215	284	3,303	1,718	680
Per wage earner—	65.0	23.0	77.5	19.0	18.9	44.6	114.5	38.8
Stationary equipment—	230	147	100					
Mobile equipment—	875	2,106	210	1,215	284	3,303	1,718	680
Number of man-shifts worked by wage earners—	5,241	21,898	1,205	14,387	3,841	21,954	3,028	5,141
Number of man-hours worked by wage earners—	43,078	175,186	8,582	114,172	30,728	176,359	24,523	42,789
Average number of hours worked per shift—	8.2	8.0	7.1	7.9	8.0	8.0	8.1	8.3
Average number of full days contractors were active—	181	184	134	277	104	152	151	286
Average hourly earning of wage earners—	\$0.92	\$0.73	\$0.76	\$0.65	\$0.49	\$0.50	\$0.53	\$0.36

ITEM	CLAYS—Continued			ALL OTHER INDUSTRIES					
	"Common clay and shale" and "Kaolin and ball clay"	"Fire clay"	"Barite"	"Fluor-spar"	"Foundry sand" and "Glass sand"	"Phosphate rock"	"Common sand and gravel"	"Sulfur"	"Gypsum," "Potash," "Pyrites," "Rock salty and unspecified"
Number of companies—	5	4	4	7	6	3	4	3	6
Number of persons engaged, total—	43	14	14	46	34	16	7	40	31
Wage earners (average for the year)—	32	10	8	32	26	13	3	36	26
Salaried employees—	3		1	4				5	1
Proprietors and firm members—	8	4	5	10	8	3	4	1	4
Performing manual labor—	2	2	1	5	2	2	1		2
Amount received or due for work done during 1939—	\$164,366	\$27,923	\$19,036	\$102,339	\$61,694	\$18,795	\$19,562	\$100,338	\$91,402
Principal expenses designated below, total—	\$93,460	\$18,357	\$9,620	\$86,164	\$41,461	\$13,233	\$9,817	\$68,106	\$55,433
Wages—	\$27,191	\$8,220	\$5,077	\$32,857	\$23,699	\$8,670	\$3,243	\$44,834	\$34,605
Salaries—	\$3,390		\$500	\$4,073				\$4,300	\$3,000
Supplies and materials—	\$30,954	\$5,200	\$1,001	\$20,611	\$11,660	\$1,962	\$2,793	\$7,405	\$11,807
Fuel—	\$31,815	\$4,937	\$3,192	\$10,523	\$6,102	\$2,506	\$3,781	\$11,567	\$5,971
Purchased electric energy—	\$110		\$50	\$100		\$100			\$50
Cost of mine buildings, machinery, and equipment erected or installed during year—	\$22,506	\$8,600		\$14,580	\$2,140	\$300	\$997	\$2,800	
Horsepower rating of power equipment, total—	4,582	1,082	423	2,197	679	358	459	1,373	1,031
Per wage earner—	143.2	105.2	52.9	68.7	26.1	27.5	153.0	38.1	39.7
Stationary equipment—				218		20		142	
Mobile equipment—	4,582	1,082	423	1,979	679	338	459	1,231	1,031
Number of man-shifts worked by wage earners—	7,622	2,347	1,497	5,968	5,724	2,564	666	11,198	6,198
Number of man-hours worked by wage earners—	66,734	18,785	11,974	47,742	45,788	22,245	5,328	89,578	49,560
Average number of hours worked per shift—	8.8	8.0	8.0	8.0	8.0	8.7	8.0	8.0	8.0
Average number of full days contractors were active—	206	196	214	186	155	233	83	311	248
Average hourly earning of wage earners—	\$0.41	\$0.44	\$0.42	\$0.69	\$0.52	\$0.39	\$0.61	\$0.50	\$0.70

¹For definition of contract services covered see table 1, footnote 1. Each contracting concern that performed work for more than one mineral industry was classified in the industry for which most of the work was performed, as indicated by the relative amount received or due for work done during the year for each industry. Mineral industries other than those for which most of the respective contractors' work was performed, but for which some of their work was performed, included "Magnesite and brucite," "Mercury," and "Talc and soapstone." The figure for amount received by or due contractors as shown in this table for a specific industry does not necessarily agree with the figure for total amount paid for contract work as shown in the reports for that industry. The differences are accounted for by the following principal reasons: Classification of contractors in this report by industries for which most of their work was performed, thereby including in a given industry classification some data for work done for other mineral industries; exclusion from contractors' reports of data for certain types of activities such as those relating to the construction of mine or preparation-plant buildings (such construction activities in general were covered by the census of business for 1939), whereas amounts paid for such activities were included in the total amount paid for contract work by the mine or plant operator; exclusion from this report of amounts received by mineral-producing companies for contract work performed for other mineral-producing companies (such amounts received are included in the figures for value of products of the industries in which the mineral-producing companies that performed this work were classified); failure of some contractors to return a report covering their activities for mineral-producing companies, including some who did work for other than mineral-producing companies and could not exclude statistics for the latter activities from their reports; exclusion of data from this report for contractors who received or were due a total of less than \$2,500 during the year; and inclusion of data in this report for amounts reported by contractors as due (in addition to amounts received) for work done during 1939, whereas mine or plant operators were asked to report amounts paid to contractors for work done during 1939. Twenty-nine contractors reported work done during 1939 for more than one mineral industry.

²Excludes data for contractors engaged in strip-pit mining activities for the Pennsylvania anthracite industry; data covering the activities of such contractors are included in a report for that industry. Contractors for whom statistics are shown here are those who performed such work as drilling test holes, tunneling, and hauling for Pennsylvania anthracite operations.

GENERAL CONTRACT SERVICES

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TABLE 3.—PRINCIPAL STATISTICS FOR CONTRACTS ENGAGED IN GENERAL CONTRACT WORK FOR THE MINERAL INDUSTRIES IN THE UNITED STATES, BY STATE: 1939¹

ITEM	United States	Alabama	Arizona	California	Colorado	Florida	Georgia	Idaho
Number of companies	179	6	7	17	6	3	4	5
Number of persons engaged, total	1,856	94	29	136	60	16	40	40
Wage earners (average for the year)	1,365	78	24	113	49	13	28	35
Salaried employees	126	12	—	15	3	—	8	1
Proprietors and firm members	165	4	5	8	5	3	4	4
Performing manual labor	76	3	4	5	7	2	1	3
Amount received or due for work done during 1939	\$4,487,870	\$166,490	\$103,029	\$572,690	\$184,308	\$18,795	\$121,259	\$83,813
Principal expenses designated below, total	\$2,937,135	\$124,789	\$52,777	\$308,798	\$159,685	\$13,238	\$86,739	\$94,242
Wages	\$1,865,778	\$75,997	\$25,041	\$164,352	\$64,598	\$8,870	\$22,215	\$58,110
Salaries	\$287,114	\$17,070	—	\$25,103	\$26,572	—	\$25,830	\$250
Supplies and materials	\$624,100	\$13,067	\$18,522	\$32,045	\$39,565	\$1,962	\$5,532	\$26,160
Fuel	\$354,992	\$18,655	—	\$27,227	\$7,023	\$2,506	\$9,921	\$8,080
Purchased electric energy	\$25,151	—	—	\$91	\$1,927	\$100	\$5,441	\$5,642
Cost of mine buildings, machinery, and equipment erected or installed during year	\$150,771	—	—	\$1,428	—	\$300	—	—
Horsepower rating of power equipment, total	51,820	1,053	1,009	4,241	955	558	1,438	5,678
Per wage earner	38.0	13.5	42.0	37.5	19.5	27.5	51.4	105.1
Stationary equipment	6,084	250	—	100	150	20	—	2,844
Mobile equipment	45,736	803	1,009	4,141	805	538	1,438	854
Number of man-shifts worked by wage earners	339,199	25,158	5,806	29,791	11,158	2,584	7,657	9,700
Number of man-hours worked by wage earners	2,680,194	189,141	47,151	237,984	87,262	22,245	67,012	77,810
Average number of hours worked per shift	7.9	8.2	8.1	8.0	7.8	8.7	8.0	8.0
Average number of full days contractors were active	210	225	225	199	237	235	273	202
Average hourly earning of wage earners	\$0.62	\$0.40	\$0.55	\$0.69	\$0.74	\$0.39	\$0.35	\$0.75

ITEM	Illinois	Kansas	Maryland	Michigan	Minnesota	Missouri	Montana	Nevada
Number of companies	12	3	3	5	6	6	3	10
Number of persons engaged, total	69	10	8	112	91	37	12	62
Wage earners (average for the year)	51	8	5	103	71	50	12	82
Salaried employees	4	—	—	7	8	—	—	10
Proprietors and firm members	14	2	3	2	9	7	—	10
Performing manual labor	8	—	2	—	5	1	—	5
Amount received or due for work done during 1939	\$163,277	\$22,368	\$13,278	\$568,161	\$175,262	\$59,778	\$45,477	\$392,376
Principal expenses designated below, total	\$106,952	\$13,707	\$5,683	\$187,169	\$159,335	\$50,802	\$27,615	\$211,080
Wages	\$56,015	\$7,308	\$4,269	\$134,372	\$93,574	\$27,264	\$19,021	\$106,480
Salaries	\$3,397	—	—	\$13,567	\$19,024	—	—	\$9,897
Supplies and materials	\$26,059	\$5,771	\$550	\$28,581	\$36,372	\$15,427	\$5,815	\$64,286
Fuel	\$21,600	\$2,628	\$844	\$10,849	\$7,573	\$7,911	\$4,979	\$28,427
Purchased electric energy	—	—	—	—	\$1,782	—	—	\$2,010
Cost of mine buildings, machinery, and equipment erected or installed during year	\$24,182	—	—	—	\$27,200	\$1,000	—	\$15,400
Horsepower rating of power equipment, total	4,059	980	118	1,732	2,357	885	825	3,127
Per wage earner	79.6	120.0	23.6	16.8	31.9	29.5	68.8	50.4
Stationary equipment	218	—	—	715	147	—	—	67
Mobile equipment	3,841	980	118	1,017	2,210	865	825	3,080
Number of man-shifts worked by wage earners	9,658	1,948	1,054	24,678	16,444	6,255	5,555	19,906
Number of man-hours worked by wage earners	74,549	16,384	8,040	197,408	131,837	50,056	28,685	158,842
Average number of hours worked per shift	7.7	8.4	7.6	8.0	8.0	8.0	8.1	7.9
Average number of full days contractors were active	172	182	117	280	171	223	237	195
Average hourly earning of wage earners	\$0.75	\$0.45	\$0.55	\$0.58	\$0.71	\$0.54	\$0.66	\$0.68

ITEM	New York	Ohio	Oklahoma	Pennsylvania	Texas	Utah	West Virginia	Other States ²
Number of companies	4	18	5	28	5	4	4	17
Number of persons engaged, total	24	87	89	358	47	66	55	114
Wage earners (average for the year)	20	68	78	300	41	56	27	90
Salaried employees	4	14	7	26	3	9	5	5
Proprietors and firm members	1	8	2	32	5	1	5	19
Performing manual labor	1	—	—	15	—	1	2	3
Amount received or due for work done during 1939	\$35,171	\$213,978	\$211,534	\$809,684	\$116,117	\$245,850	\$77,149	\$507,730
Principal expenses designated below, total	\$22,494	\$151,592	\$153,518	\$544,140	\$79,180	\$154,847	\$61,553	\$208,822
Wages	\$20,906	\$81,681	\$86,053	\$348,358	\$49,208	\$77,611	\$42,417	\$82,517
Salaries	—	\$25,000	\$10,754	\$72,628	\$4,300	\$23,322	\$2,400	\$10,000
Supplies and materials	\$600	\$17,437	\$55,739	\$80,649	\$10,788	\$51,543	\$9,613	\$62,441
Fuel	\$988	\$29,474	\$20,772	\$42,841	\$14,886	\$11,917	\$5,875	\$43,604
Purchased electric energy	—	—	—	\$184	—	\$10,454	\$1,250	\$260
Cost of mine buildings, machinery, and equipment erected or installed during year	—	\$26,855	\$2,000	\$15,924	\$3,797	—	\$4,500	\$28,225
Horsepower rating of power equipment, total	121	5,824	1,759	7,122	1,608	2,389	581	7,641
Per wage earner	6.0	56.2	22.6	23.7	39.2	42.7	20.8	84.9
Stationary equipment	121	3,824	1,759	6,790	1,468	1,355	496	7,641
Mobile equipment	—	—	—	—	—	—	—	—
Number of man-shifts worked by wage earners	5,045	16,318	23,121	66,749	12,578	14,663	7,058	20,587
Number of man-hours worked by wage earners	40,344	128,258	198,186	495,551	100,866	113,394	51,961	161,470
Average number of hours worked per shift	8.0	7.7	8.6	7.4	8.1	7.7	7.4	7.8
Average number of full days contractors were active	163	220	293	205	295	512	144	145
Average hourly earning of wage earners	\$0.52	\$0.65	\$0.48	\$0.70	\$0.49	\$0.68	\$0.82	\$0.57

¹ For definition of contract services covered see table 1, footnote 1. Each contracting concern that performed work in more than one State was classified in the State in which most of its work was performed, as indicated by the amounts received or due for work done during the year in each State. Twenty-three contractors reported work done during 1939 in more than one State. States in which contractors reported work performed other than those in which any contractor reported performing the major portion of his work are New Jersey, North Carolina, Oregon, Vermont, and Wisconsin.

² Arkansas, 1 company; Indiana, 1; Iowa, 2; Kentucky, 2; Louisiana, 1; New Mexico, 2; North Dakota, 1; South Carolina, 2; South Dakota, 1; Tennessee, 1; Virginia, 1; Washington, 1; and Wyoming, 1.

TABLE 4.—NUMBER OF WAGE EARNERS EMPLOYED BY CONCERNS ENGAGED IN GENERAL CONTRACT WORK FOR THE MINERAL INDUSTRIES IN THE UNITED STATES, BY PRINCIPAL TYPE OF WORK PERFORMED, BY STATE, AND BY MONTH: 1939¹

PRINCIPAL TYPE OF WORK PERFORMED AND STATE	Average for the 12 months	NUMBER RECEIVING PAY DURING PAY-ROLL PERIOD ENDING NEAREST THE 15TH OF THE MONTH											
		January	February	March	April	May	June	July	August	September	October	November	December
United States, total—	1,365	1,087	1,099	1,131	1,216	1,292	1,324	1,432	1,516	1,567	1,596	1,541	1,582
TYPE OF WORK PERFORMED													
Stripping overburden—	167	57	67	96	153	159	202	223	200	252	217	193	224
All other ² —	1,198	1,030	1,032	1,035	1,063	1,133	1,122	1,209	1,316	1,315	1,379	1,348	1,358
STATE													
Alabama—	78	39	54	44	55	41	100	105	102	106	101	88	103
Arizona—	24	21	21	19	24	24	24	21	25	23	29	30	29
California—	113	55	79	105	113	119	120	148	125	119	118	127	128
Colorado—	49	34	39	45	45	46	47	49	52	55	57	56	66
Florida—	13	11	13	14	11	13	11	13	12	12	16	12	12
Georgia—	28	28	28	29	28	25	27	33	29	29	28	27	26
Idaho—	35	18	17	19	20	16	24	49	50	49	57	54	47
Illinois—	51	45	45	46	47	41	43	43	47	58	63	70	70
Kansas—	8	3	8	6	6	6	6	11	11	11	12	9	9
Maryland—	5	1	1	1	4	9	9	9	9	9	1	1	1
Michigan—	103	99	98	88	104	109	96	109	122	123	102	95	86
Minnesota—	74	13	16	22	37	64	73	78	85	111	136	122	126
Missouri—	30	19	19	25	32	36	40	39	38	32	28	28	28
Montana—	12	6	5	5	6	11	12	14	14	14	14	18	20
Nevada—	62	32	33	35	57	68	48	49	74	67	108	87	85
New York—	20	9	6	6	28	28	34	32	32	23	23	21	3
Ohio—	68	71	68	69	45	66	55	68	72	73	71	79	83
Oklahoma—	78	77	70	73	74	74	75	82	79	64	85	81	79
Pennsylvania—	300	281	258	278	298	286	264	281	305	308	337	339	364
Texas—	41	40	40	40	40	40	42	42	42	42	42	42	42
Utah—	56	52	54	49	52	49	53	50	52	56	57	65	78
West Virginia—	27	75	68	49	10	13	12	13	14	18	14	23	21
Other States—	90	60	59	62	80	108	109	96	125	144	97	67	76

¹For definition of contract services covered see table 1, footnote 1.²For description of types of work see table 1, footnote 2.TABLE 5.—NUMBER AND HORSEPOWER RATING OF PRIME MOVERS AND ELECTRIC MOTORS REPORTED BY CONCERNS ENGAGED IN GENERAL CONTRACT WORK FOR THE MINERAL INDUSTRIES IN THE UNITED STATES, BY TYPE OF EQUIPMENT AND BY PRINCIPAL TYPE OF WORK PERFORMED BY CONTRACTORS: 1939¹

PRINCIPAL TYPE OF WORK PERFORMED	Aggre- gate horse- power	PRIME MOVERS AND ELECTRIC MOTORS DRIVEN BY PURCHASED ENERGY												ELECTRIC MOTORS DRIVEN BY ENERGY GENERATED BY REPORTING COMPANIES ²	
		Prime movers						Electric motors driven by purchased energy							
		Total		Stationary		Mobile		Total		Stationary		Mobile			
		Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower	Number	Horsepower
All types, total—	51,820	928	45,637	84	1,502	844	44,335	199	5,983	129	4,582	70	1,401	3	25
Stripping overburden—	6,622	107	6,210	1	50	106	6,160	5	412	—	—	5	412	—	—
All other ³ —	45,198	821	39,627	83	1,452	738	38,175	194	5,571	129	4,582	65	989	3	25

¹For definition of contract services covered see table 1, footnote 1.²Represents stationary equipment; no mobile units were reported.³For description of types of work see table 1, footnote 2.TABLE 6.—NUMBER OF POWER-LOADING MACHINES REPORTED BY CONCERNS ENGAGED IN GENERAL CONTRACT WORK FOR THE MINERAL INDUSTRIES IN THE UNITED STATES, BY TYPE OF MACHINE, BY KIND OF POWER USED, AND BY PRINCIPAL TYPE OF WORK PERFORMED BY CONTRACTORS: 1939¹

PRINCIPAL TYPE OF WORK PERFORMED	POWER SHOVELS ²			DRAGLINE EXCAVATORS ³			CLAMSHELLS OR ORANGE PEELS			SCRAPER LOADERS ⁴				BULLDOZERS AND TRACTOR- DRAWN SCRAPERS ⁵
	Total	Kind of power used		Total	Kind of power used		Total	Kind of power used		Total	Kind of power used			
		Steam	Internal- combustion engine		Elec- tric	Internal- combustion engine		Steam	Internal- combustion engine		Elec- tric	Com- pressed air	Internal- combustion engine	
All types, total-----	50	3	47	8	1	7	3	1	2	19	1	6	12	27
Stripping overburden-----	23	3	20	6	1	5	-----	-----	-----	14	-----	3	11	19
All other ⁶ -----	27	-----	27	2	-----	2	3	1	2	5	1	3	1	8

¹For definition of contract services covered see table 1, footnote 1. Miscellaneous loading equipment, not shown in this table, included 1 conveyor driven by an internal-combustion engine (reported by 1 company engaged principally in stripping overburden) and 1 electric sand or gravel pump (reported by 1 company engaged in other work).²All had dipper capacities of less than 3 cubic yards.³Of the total, 7 had bucket capacities of less than 3 cubic yards; the other (electric), of more than 5 cubic yards.⁴Excludes tractor-drawn scrapers. Of the total, 18 were reported for surface operations and 1 (electric) for underground operations. Five were driven by hoists with ratings of less than 10 horsepower and 14 by hoists with ratings of 10 to 25 horsepower.⁵All were driven by internal-combustion engines. Includes both track-type and wheel-type tractor-drawn units.⁶For description of types of work see table 1, footnote 2.