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U.S. DEPARTMENT OF THE INTERIOR

HAROLD L. ICKES, Secretary

BUREAU OF MINES

JOHN W. FINCH, Director

**STATISTICAL APPENDIX TO
MINERALS YEARBOOK**

1935

O. E. KIESSLING

Chief Economist, Mineral Production and Economics Division



**UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1936**

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INTRODUCTION

Although the Bureau of Mines has for years maintained a policy of releasing mimeographed summaries of essential statistics of each commodity as soon as figures were completed in the workshops, in 1933 the Bureau further expedited prompt release of more complete basic statistical information by replacing the annual volume "Mineral Resources of the United States" with the "Minerals Yearbook." A rigorous schedule for completion of canvasses was adopted in order that the manuscript for the Minerals Yearbook, might be sent to the printer in June.

For some minerals—such as coal or stone, where the number of producers is large—it is physically impossible, with present limited staff and resources, to close the canvasses and prepare the detailed tables until after the Yearbook manuscript has been completed. For these minerals the data included in the Yearbook are subject to slight revision and are supplemented by final detailed tables subsequently published as separate statistical appendixes to the Minerals Yearbook and finally assembled in bound form, as in this volume.

In addition to the introduction and the summary of mineral production, 14 chapters of final statistics are included in this volume as supplementary to discussions of specific mineral commodities in the 1935 Yearbook.

Each chapter of the Statistical Appendix has been published separately upon completion of detailed compilations, and copies were distributed free by the Bureau to those mineral producers who cooperated in supplying information. Only a limited number of bound volumes of both the Minerals Yearbook and the Statistical Appendix customarily are distributed to reference libraries and educational institutions. Copies of either the separate chapters or the bound volumes can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at a moderate cost. The office of the Superintendent of Documents is in no way connected with the Bureau of Mines, and no money derived from sales reverts to the Bureau.

O. E. KIESSLING.

REPORT

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SUMMARY OF MINERAL PRODUCTION

(GENERAL UNITED STATES SUMMARY AND DETAILED PRODUCTION BY STATES)

By M. B. CLARK

SUMMARY OUTLINE

	Page		Page
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INTRODUCTION

This report continues, in abbreviated form, the series of annual summaries published as chapters of Mineral Resources and of Statistical Appendix to Minerals Yearbook.

UNIT OF MEASUREMENT

The unit of measurement used by the Bureau of Mines for each mineral product in reports on the mineral resources is that common to the industry concerned, and the variation in these units makes it impracticable, if not impossible, directly to combine and compare the different minerals except as to value. Although most of the products are measured by weight, some are measured by volume, some by number of "pieces", etc., and for some no total quantity figures are available.

ELIMINATION OF DUPLICATION

In the totals for the United States, shown in the following "general" tables, duplication has been eliminated wherever practicable, and in the State totals given in the State tables virtually all duplication has been eliminated. For instance, in both general and State tables the output of coke is shown but its value is not included in the totals, as the value of the coal used in its manufacture enters into the value of the coal production which is included in the totals. For clay, the value of the products of the clay industries is included in both general and State totals as representing the first marketable form of the greater part of the clay produced; the quantity and value of the clay mined and sold in the raw state by miners to users of clay are shown separately also, but the value is not included in the totals as it is duplicated largely in that for clay products. No figures are available for total clay produced. For asphalt, both native and oil are shown in the general tables, but the value of the oil asphalt is excluded from the totals as it duplicates that of the petroleum from which it is manufactured.

United States totals.—In the general tables both iron ore and pig iron are shown, but the value of the pig iron rather than the iron ore is included in the United States totals, as that is considered the better means of presenting the statistics for iron in its first marketable form. For gold, silver, copper, lead, and zinc the value of "smelter output" is included in the general totals, and to account more fully for the value of the ores treated these smelter figures are supplemented by the value of the byproduct sulphuric acid. The value of pigments (white lead, red lead, lithopone, litharge, and orange mineral) manufactured from metals is not included in the general tables, as the base from which they are made is included in the output of lead or zinc, whereas the value of sublimed blue lead, sublimed white lead, leaded zinc oxide, and zinc oxide is included, as these are made in large part direct from the ores and do not enter into the lead or zinc totals, which represent smelter output.

State totals.—In the State tables also iron ore and pig iron are both shown. As blast-furnace products cannot be traced to the States in which the ore is mined, the value of the ore is used in the State totals. For ores of gold, silver, copper, lead, and zinc no values are shown, and in fact none are recorded; instead, for each of these metals the recoverable content of the ores is used as the basis of valuation. The value of the zinc and lead pigments is not included in the State total, as the recoverable zinc and lead content of the ores from which the products were made is included under zinc or lead. The value of the sulphuric acid produced as a byproduct of copper and zinc smelting is not included in the State total, as tracing this product back to the State producing the ore has not been possible.

GENERAL TABLES

Mineral products of the United States, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
METALLIC				
Aluminum.....pounds.....	85, 126, 000	\$16, 174, 000	74, 177, 000	\$14, 094, 000
Antimonial lead.....short tons (2,000 pounds).....	¹ 17, 805	(¹)	¹ 16, 607	(¹)
Antimony:				
Metal.....do.....	(²)	(²)	(²)	(²)
Ore (concentrates).....do.....	1, 133	(¹)	897	(¹)
Bauxite.....long tons (2,240 pounds).....	154, 176	923, 259	157, 838	1, 129, 053
Cadmium.....pounds.....	2, 276, 933	(¹)	2, 777, 384	(¹)
Chromite.....long tons.....	843	11, 585	369	4, 653
Copper, ³ sales value.....pounds.....	449, 999, 143	28, 800, 000	488, 454, 107	39, 076, 000
Ferro-alloys.....long tons.....	421, 423	28, 653, 794	428, 798	34, 634, 957
Gold.....troy ounces.....	⁶ 2, 556, 246	⁷ 65, 337, 648	⁶ 3, 091, 183	⁶ 108, 191, 400
Iron:				
Ore ⁸.....long tons.....	24, 624, 285	⁸ 63, 776, 033	25, 792, 606	⁸ 66, 483, 846
Pig.....do.....	14, 353, 197	213, 347, 583	15, 632, 619	264, 653, 746
Lead (refined), ⁵ sales value.....short tons.....	259, 616	19, 212, 000	299, 841	22, 188, 000
Manganese ore (35 percent or more Mn).....long tons.....	⁸ 19, 146	⁸ 466, 285	26, 514	571, 748
Manganiferous ore (5 to 35 percent Mn).....long tons.....	191, 631	529, 204	221, 822	621, 090
Mercury:				
Metal.....flasks (76 pounds net).....	⁸ 9, 669	⁸ 572, 666	15, 445	1, 140, 845
Ore.....do.....	(⁹)	(¹⁰)	(⁹)	(¹⁰)
Nickel.....do.....	126	62, 913	157	108, 414
Ores (crude), old tailings, etc.:				
Copper.....do.....	8, 385, 000	(¹⁰)	11, 717, 000	(¹⁰)
Copper-lead.....do.....	126, 000	(¹⁰)	121, 000	(¹⁰)
Dry and siliceous (gold and silver).....do.....	8, 680, 000	(¹⁰)	11, 853, 000	(¹⁰)
Lead.....do.....	3, 213, 000	(¹⁰)	3, 360, 000	(¹⁰)
Lead-zinc.....do.....	4, 894, 000	(¹⁰)	6, 384, 000	(¹⁰)
Zinc.....do.....	3, 236, 000	(¹⁰)	6, 237, 000	(¹⁰)
Platinum and allied metals (value at New York City).....troy ounces.....	51, 539	1, 631, 000	47, 274	1, 686, 000
Silver ¹¹.....do.....	23, 002, 629	8, 050, 920	32, 725, 353	21, 155, 784
Tin (metallic equivalent).....short tons.....	⁸ 3	⁸ 2, 400	9	9, 600
Titanium ore:				
Ilmenite.....do.....	(⁴)	(⁴)	(⁴)	(⁴)
Rutile.....do.....	(⁴)	(⁴)	(⁴)	(⁴)
Tungsten ore (60 percent concentrates).....do.....	895	514, 234	2, 049	1, 791, 316
Uranium and vanadium ores.....do.....	105	4, 119	(⁴)	(⁴)
Zinc, ⁵ sales value.....do.....	306, 010	25, 705, 000	355, 366	30, 561, 000
Total value of metallic products (approximate).....		411, 300, 000		543, 500, 000

¹ Figures represent antimonial lead produced at primary refineries from both domestic and foreign primary and secondary sources; no figures for value of antimonial lead available. Estimate of value of primary antimony and lead contents of antimonial lead from domestic sources included in total value of metallic products.

² All from foreign ore in 1933 and largely from foreign ore in 1934; Bureau of Mines not at liberty to publish figures.

³ Value not included in total value.

⁴ Value included in total value of metallic products; Bureau of Mines not at liberty to publish figures.

⁵ Product from domestic ores only.

⁶ According to Bureau of the Mint. Valued in 1934 at \$35.00 per ounce.

⁷ Includes \$52,842,300, calculated by Bureau of the Mint at legal coinage value (\$20.67+ per ounce), plus \$12,495,348 premium, calculated by Bureau of Mines at average weighted price (\$25.56 per ounce). For details regarding premium on newly mined gold see chapters on Gold and Silver in Minerals Yearbook, 1934 and 1935.

⁸ Revised figures.

⁹ Figures not available.

¹⁰ Figures showing values not available.

¹¹ According to Bureau of the Mint.

Mineral products of the United States, 1933-34—Continued

Product	1933		1934	
	Quantity	Value	Quantity	Value
NONMETALLIC				
Arsenious oxide.....short tons..	11,797	\$636,132	15,623	\$797,278
Asbestos.....do.....	4,745	130,677	5,087	158,347
Asphalt:				
Native.....do.....	313,135	1,705,310	440,852	2,365,750
Oil (including road oil) ².....do.....	2,122,458	² 15,946,191	2,515,628	² 23,413,386
Barite (crude).....do.....	167,880	852,611	209,860	1,109,378
Borates (naturally occurring sodium borates and colemanite).....short tons..	188,047	3,436,377	242,500	4,822,014
Bromine.....pounds.....	10,147,960	2,040,352	15,344,290	3,227,425
Calcium-magnesium chloride.....short tons..	57,813	893,442	76,719	1,153,159
Cement.....barrels (376 pounds net).....	64,715,171	² 86,155,564	76,579,483	117,881,816
Clay:				
Products ¹²		94,726,786		116,171,631
Raw ².....short tons..	1,840,173	² 6,840,617	2,187,263	² 8,197,253
Coal:				
Bituminous ¹³.....do.....	333,630,533	445,788,000	359,368,022	628,112,000
Pennsylvania anthracite.....do.....	49,541,344	206,718,405	57,168,291	244,152,245
Coke ³.....do.....	² 27,589,194	² 122,951,057	31,821,576	² 159,425,674
Diatomite and tripoli ¹⁴.....do.....	20,878	350,383	20,529	329,356
Emery.....do.....	1,056	12,283	189	1,800
Feldspar (crude).....long tons..	150,633	778,826	154,188	853,136
Fluorspar.....short tons..	72,930	1,039,178	85,786	1,391,405
Fuller's earth.....do.....	² 224,152	² 2,080,640	220,264	2,085,081
Garnet for abrasive purposes.....do.....	2,794	224,717	2,591	214,815
Gems and precious stones.....do.....		(15)		(15)
Graphite:				
Amorphous.....short tons..	(16)	(16)	(16)	(16)
Crystalline.....pounds.....			(16)	(16)
Grindstones and pulpstones.....short tons..	14,176	444,250	12,630	463,234
Gypsum.....do.....	1,335,192	11,927,478	1,536,170	13,761,977
Helium.....cubic feet.....	(17)	(17)	(17)	(17)
Lime.....short tons..	2,269,280	14,253,659	2,397,087	17,164,024
Magnesite (crude).....do.....	108,187	840,000	100,973	730,630
Mica:				
Scrap.....do.....	8,751	98,159	7,719	99,791
Sheet.....pounds.....	364,540	53,179	583,528	90,263
Millstones.....do.....		8,387		10,101
Mineral paints:				
Natural pigments ¹⁸.....short tons..	(18)	(18)	(18)	(18)
Zinc and lead pigments ¹⁹.....do.....	129,355	13,193,627	114,661	12,617,296
Mineral waters.....gallons sold.....	(15)	(15)	(15)	(15)
Natural gas.....M cubic feet.....	1,555,474,000	368,540,000	1,770,721,000	395,378,000
Natural gasoline.....gallons.....	1,420,000,000	54,368,000	1,535,360,000	60,523,000
Oilstones, etc.....short tons..	587	96,597	396	94,419
Peat.....do.....	(15)	(15)	40,544	214,185
Petroleum.....barrels (42 gallons).....	905,656,000	608,000,000	908,065,000	904,825,000
Phosphate rock.....long tons..	2,490,312	7,872,362	2,834,523	10,040,005
Potassium salts.....short tons..	²⁰ 139,067	5,296,793	²⁰ 114,122	2,813,218
Pumice.....do.....	61,220	241,834	56,169	207,058
Pyrites.....long tons..	284,311	769,942	432,524	1,216,363
Salt.....short tons..	7,604,972	22,318,086	7,612,074	22,850,797
Sand and gravel:				
Glass sand.....do.....	1,781,423	3,011,023	1,923,614	3,326,538
Sand (molding, building, etc.) and gravel.....short tons..	105,973,926	50,061,887	114,688,075	57,920,635

² Value not included in total value.³ Revised figures.¹² Figures obtained through cooperation with Bureau of the Census.¹³ Includes brown coal and lignite, and anthracite mined elsewhere than in Pennsylvania.¹⁴ Figures represent tripoli only. Value of diatomite included in total value of nonmetallic products; Bureau of Mines not at liberty to publish figures.¹⁵ No canvass. Estimate of value included in total value of nonmetallic products.¹⁶ Value included in total value of nonmetallic products; Bureau of Mines not at liberty to publish figures.¹⁷ Value included in total value of nonmetallic products. For details of production in fiscal years see chapter on Helium in Minerals Yearbook, 1935.¹⁸ Canvass discontinued after 1915. Value of iron ore sold for paint included under last item ("Unspecified").¹⁹ Sublimed blue lead, sublimed white lead, leaded zinc oxide, and zinc oxide.²⁰ Equivalent as K₂O.

Mineral products of the United States, 1933-34—Continued

Product	1933		1934	
	Quantity	Value	Quantity	Value
NONMETALLIC—continued				
Sand-lime brick ²¹ thousands.....	22,904	\$195,318	41,408	\$355,560
Silica (quartz)..... short tons.....	11,153	71,048	18,293	129,965
Slate..... do.....	259,620	2,696,185	232,730	2,707,928
Stone ²² do.....	70,222,210	80,945,608	92,063,830	98,979,936
Sulphur..... long tons.....	1,637,368	29,500,000	1,613,838	28,900,000
Sulphuric acid (60° Baumé) from copper and zinc smelters..... short tons.....	656,102	4,337,983	575,660	4,227,096
Talc and ground soapstone ²² do.....	⁸ 166,023	⁸ 1,731,882	138,905	1,450,685
Total value of nonmetallic products (approximate).....		2,132,900,000		2,770,300,000
SUMMARY				
Total value of metallic products.....		411,300,000		543,500,000
Total value of nonmetallic products (exclusive of mineral fuels).....		449,350,000		537,200,000
Total value of mineral fuels.....		1,683,550,000		2,233,100,000
Total value of "unspecified" (metallic and non-metallic) products (partly estimated) ²³		10,900,000		²³ 14,500,000
Grand total approximate value of mineral products.....		2,555,100,000		3,328,300,000

⁸ Revised figures.²¹ According to Bureau of the Census.²² Figures for soapstone used as dimension stone included in figures for stone.²³ Includes for 1934 the value of bismuth, cadmium compounds, chats (\$518,110), flint lining for tube mills and pebbles for grinding, iodine (\$342,957), iron ore sold for magnets, iron ore sold for paint (\$26,151), lithium minerals (\$20,980), new ingot magnesium, natural magnesium hydrate (brucite), natural magnesium salts (\$1,266,325), calcareous marl (\$22,236), greensand marl (\$209,278), micaceous minerals (\$123,796), molybdenum (\$6,502,000), selenium, silica sand and sandstone (finely ground) (\$1,301,285), sodium salts (carbonates and sulphates) from natural sources (\$1,402,338), tantalum ore (\$968), tellurium, and an estimate of the value of miscellaneous mineral products, statistics for which are not collected annually by the Bureau of Mines.

Value of mineral products of the United States, 1880-1934

Year	Metallic		Nonmetallic		Unspecified (metallic and nonmetallic)	Total	
	Value	Increase or decrease (percent)	Value	Increase or decrease (percent)		Value	Increase or decrease (percent)
1880-----	\$187,881,000	(¹)	\$173,582,000	(¹)	\$6,000,000	\$367,463,000	(¹)
1881-----	189,413,000	+0.8	207,207,000	+19	6,500,000	403,120,000	+10
1882-----	215,820,000	+14	230,786,000	+11	6,500,000	453,106,000	+12
1883-----	197,881,000	-8	243,680,000	+6	6,500,000	448,061,000	-1
1884-----	180,284,000	-9	221,756,000	-9	5,000,000	407,040,000	-9
1885-----	172,218,000	-4	242,333,000	+9	5,000,000	419,551,000	+3
1886-----	204,400,000	+19	250,995,000	+4	790,000	456,185,000	+9
1887-----	240,791,000	+18	294,057,000	+17	785,000	535,633,000	+17
1888-----	242,010,000	+5	310,889,000	+6	900,000	553,799,000	+3
1889-----	250,325,000	+3	291,004,000	-6	997,000	542,326,000	-2
1890-----	303,440,000	+21	310,995,000	+7	994,000	615,429,000	+13
1891-----	280,485,000	-8	319,364,000	+3	1,000,000	600,849,000	-2
1892-----	283,715,000	+1	337,517,000	+6	1,000,000	622,232,000	+4
1893-----	223,154,000	-21	321,339,000	-5	1,000,000	545,493,000	-12
1894-----	186,835,000	-16	362,410,000	+13	1,000,000	550,245,000	+9
1895-----	248,033,000	+33	393,658,000	+9	1,000,000	642,691,000	+17
1896-----	252,075,000	+2	387,966,000	-1	1,000,000	641,041,000	-3
1897-----	269,934,000	+7	380,678,000	-2	1,009,000	651,612,000	+2
1898-----	308,247,000	+14	417,795,000	+10	1,000,000	727,042,000	+12
1899-----	483,521,000	+57	525,575,000	+26	1,000,000	1,010,096,000	+39
1900-----	513,732,000	+6	594,204,000	+13	1,000,000	1,108,936,000	+10
1901-----	493,314,000	-4	660,764,000	+11	1,000,000	1,155,078,000	+4
1902-----	604,517,000	+23	722,434,000	+9	1,000,000	1,327,951,000	+15
1903-----	588,753,000	-3	905,628,000	+25	1,000,000	1,495,381,000	+13
1904-----	501,114,000	-15	857,667,000	-5	400,000	1,359,181,000	-9
1905-----	702,585,000	+40	920,780,000	+7	400,000	1,623,765,000	+19
1906-----	886,180,000	+26	1,014,500,000	+10	200,000	1,900,880,000	+17
1907-----	904,108,000	+2	1,165,376,000	+15	86,000	2,069,570,000	+9
1908-----	550,768,000	-39	1,040,761,000	-11	244,000	1,591,773,000	-23
1909-----	754,944,000	+37	1,131,866,000	+9	297,000	1,887,107,000	+19
1910-----	749,879,000	-7	1,237,668,000	+9	297,000	1,987,844,000	+5
1911-----	680,907,000	-9	1,242,942,000	+4	232,000	1,924,081,000	-3
1912-----	862,008,000	+27	1,375,420,000	+11	366,000	2,237,794,000	+16
1913-----	878,869,000	+2	1,554,298,000	+13	378,000	2,433,545,000	+9
1914-----	686,639,000	-22	1,424,063,000	-8	470,000	2,111,172,000	-13
1915-----	991,730,000	+44	1,400,484,000	-2	2,430,000	2,394,644,000	+13
1916-----	1,620,745,000	+63	1,884,413,000	+35	3,281,000	3,508,439,000	+47
1917-----	2,086,234,000	+29	2,900,462,000	+54	5,800,000	4,992,496,000	+42
1918-----	2,153,318,000	+3	3,380,690,000	+17	6,700,000	5,540,708,000	+11
1919-----	1,359,744,000	-37	3,232,626,000	-4	3,400,000	4,595,770,000	-17
1920-----	1,762,350,000	+30	5,214,170,000	+61	4,320,000	6,981,340,000	+52
1921-----	654,130,000	-63	3,481,720,000	-33	2,650,000	4,138,500,000	-41
1922-----	987,180,000	+51	3,656,410,000	+5	3,700,000	4,647,290,000	+12
1923-----	1,510,930,000	+53	4,471,620,000	+22	3,950,000	5,986,500,000	+29
1924-----	1,232,330,000	-18	4,067,730,000	-9	5,740,000	5,305,800,000	-11
1925-----	1,380,280,000	+12	4,291,100,000	+5	6,250,000	5,677,630,000	+7
1926-----	1,402,920,000	+2	4,803,080,000	+12	7,500,000	6,213,600,000	+9
1927-----	1,217,700,000	-13	4,304,100,000	-10	8,200,000	5,530,000,000	-11
1928-----	1,284,580,000	+5	4,091,620,000	-5	9,000,000	5,385,200,000	-3
1929-----	1,475,990,000	+15	4,401,180,000	+8	10,430,000	5,887,600,000	+9
1930-----	982,550,000	-33	3,773,400,000	-14	8,850,000	4,764,800,000	-19
1931-----	567,200,000	-42	2,592,100,000	-31	7,300,000	3,166,600,000	-34
1932-----	283,700,000	-50	2,172,000,000	-16	6,000,000	2,461,700,000	-22
1933-----	411,300,000	+45	2,132,900,000	-2	10,900,000	2,555,100,000	-4
1934-----	543,500,000	+32	2,770,300,000	+30	14,500,000	3,328,300,000	+30
Grand total.	39,187,190,000	-----	91,094,062,000	-----	187,837,000	130,469,089,000	-----

¹ Figures for earlier years not available.

The sum of the following State totals does not reach the total for the United States given on pages A5 and A6 partly because figures for certain of the products included in the United States total are not available by States of origin. This fact is brought out in the text on page A2 and in the table on page A9.

In addition, there are many factors (the more important discussed in the text on pp. A1 and A2) that account for the disagreement between the sum of the State totals and the grand total for the United States, by products. Chief among these are: (1) The use of iron ore values in State totals and pig iron values in United States total (see text on pp. A1 and A2); (2) the use of mine figures for gold, silver, copper, lead, and zinc in the State totals and mint and smelter figures (supplemented by the value of byproduct sulphuric acid from copper and zinc smelting and the value of zinc and lead pigments made in large part direct from ores) in the United States total; and (3) the inclusion of estimates in the United States total for a few products for which no canvass has been conducted for many years and for which no estimate by States is made (see table on pp. A3 to A5).

Many other less important differences are involved, but both State and United States totals are as complete and definite as seems possible with the data available. The practice is consistent from year to year, and it is believed that the reader can determine readily just what minerals are covered by the total concerned.

In every table each mineral produced is listed, and all figures are shown except those that the Bureau of Mines is not at liberty to publish.

Value of mineral products of the United States, 1930-34, by States¹

State	1930	1931	1932	1933	1934
Alabama.....	\$55,461,985	\$38,506,558	\$19,170,152	\$23,291,204	\$29,827,048
Alaska.....	13,707,235	12,371,057	11,526,387	12,681,071	19,586,413
Arizona.....	82,933,802	41,602,929	15,203,724	12,570,753	26,062,865
Arkansas.....	34,901,476	18,692,379	15,540,325	12,710,203	16,081,642
California.....	479,049,507	304,538,557	286,638,332	293,034,859	331,255,652
Colorado.....	46,270,545	32,970,230	25,800,227	27,259,095	39,719,123
Connecticut.....	5,485,120	4,299,790	1,910,803	1,550,594	2,276,061
Delaware.....	424,901	394,579	300,426	135,397	271,814
District of Columbia.....	1,288,344	281,980	1,819,017	423,233	406,891
Florida.....	15,484,206	10,850,806	7,107,866	8,843,896	11,548,144
Georgia.....	12,830,845	10,290,593	6,292,609	6,111,641	6,365,165
Idaho.....	22,903,659	13,177,427	9,477,884	12,429,155	16,708,153
Illinois.....	143,311,418	108,065,936	71,692,511	74,837,452	89,211,596
Indiana.....	79,226,808	50,852,088	34,602,723	34,010,753	39,416,727
Iowa.....	33,357,958	21,614,611	18,522,625	15,154,652	19,326,181
Kansas.....	100,253,311	56,804,312	58,471,164	57,974,881	81,117,503
Kentucky.....	111,691,254	74,868,106	59,076,459	65,536,454	89,042,117
Louisiana.....	71,929,038	61,692,802	61,097,004	54,886,010	85,210,783
Maine.....	6,227,528	4,889,282	3,174,278	2,593,871	2,352,076
Maryland.....	14,989,695	11,330,323	7,233,821	7,014,570	10,128,349
Massachusetts.....	12,722,974	11,170,497	8,038,615	4,917,110	6,165,303
Michigan.....	111,405,530	62,785,908	34,713,951	54,222,848	61,831,364
Minnesota.....	103,931,377	55,275,230	12,272,622	42,472,038	48,330,235
Mississippi.....	1,774,621	2,387,771	2,718,919	2,765,988	2,520,521
Missouri.....	69,074,500	41,805,772	29,245,055	30,588,018	32,954,534
Montana.....	50,995,123	32,359,904	19,023,093	21,662,089	31,430,496
Nebraska.....	4,962,012	3,623,426	1,548,486	2,047,335	2,790,571
Nevada.....	24,075,375	14,963,785	6,568,283	7,455,493	14,702,869
New Hampshire.....	3,337,169	2,796,132	1,351,554	1,457,041	1,149,289
New Jersey.....	57,206,357	41,632,683	23,073,173	22,580,043	25,009,596
New Mexico.....	31,850,263	25,349,712	20,263,883	23,354,681	30,079,469
New York.....	99,622,368	78,007,467	50,175,726	42,940,471	54,625,552
North Carolina.....	7,462,450	5,554,190	2,466,311	3,365,160	5,342,306
North Dakota.....	3,056,493	2,271,454	2,385,735	2,960,811	2,549,850
Ohio.....	186,971,555	130,927,783	87,996,538	91,145,609	116,987,662
Oklahoma.....	390,170,991	181,904,857	185,120,999	172,560,924	237,208,583
Oregon.....	6,169,898	5,045,307	2,989,383	3,504,825	4,211,397
Pennsylvania.....	778,523,421	594,642,736	424,734,073	421,846,539	546,932,552
Rhode Island.....	1,209,227	792,911	506,325	386,983	485,441
South Carolina.....	3,341,051	3,031,459	950,693	1,014,162	1,323,293
South Dakota.....	11,075,808	11,338,739	11,118,029	14,658,504	19,173,033
Tennessee.....	32,499,380	24,461,447	14,561,792	16,785,481	23,525,650
Texas.....	450,373,151	302,201,046	390,141,325	365,571,179	509,521,286
Utah.....	64,224,307	40,301,788	22,620,230	24,179,771	32,527,119
Vermont.....	11,637,393	8,421,911	6,401,143	5,792,574	4,852,949
Virginia.....	34,602,749	26,150,041	16,927,446	18,845,740	28,309,377
Washington.....	20,075,844	14,800,608	12,816,678	9,387,645	12,946,751
West Virginia.....	290,118,914	221,734,789	156,643,214	172,726,695	241,473,621
Wisconsin.....	17,711,394	11,843,343	7,414,456	7,153,881	9,752,431
Wyoming.....	46,735,184	30,892,663	27,343,288	22,025,393	27,640,294

¹ In this table iron ore, not pig iron, is taken as the basis of iron valuation, and for other metals mine production (recoverable content of metals) is the basis.

Mineral products of the United States and principal producing States in 1934

Rank in value	Product	Principal producing States ¹	
		In order of quantity	In order of value
22	Aluminum.....	New York, Tennessee, North Carolina.....	Rank same as for quantity.
(*)	Antimonial lead.....	Not separable by States.....	Not separable by States.
81	Antimony ore.....	Idaho.....	Rank same as for quantity.
52	Arsenious oxide.....	Utah, Montana, Idaho.....	Do.
68	Asbestos.....	Vermont, Arizona, Maryland, Montana.....	Do.
	Asphalt:		
35	Native.....	Oklahoma, Texas, Alabama, Kentucky.....	Oklahoma, Utah, Alabama, Kentucky.
17	Oil.....	Not separable by States.....	Not separable by States.
49	Barite (crude).....	Missouri, Georgia, California, Tennessee.....	Rank same as for quantity.
48	Bauxite.....	Arkansas, Alabama, Georgia.....	Do.
55	Bismuth.....	Not separable by States.....	Not separable by States.
29	Borates.....	California.....	Rank same as for quantity.
30	Briquets, fuel.....	Wisconsin, Pennsylvania, West Virginia, Massachusetts.....	Wisconsin, Pennsylvania, Oregon, Massachusetts.
32	Bromine.....	Michigan, North Carolina, California, West Virginia.....	Rank same as for quantity.
39	Cadmium (metal and compounds).....	Not separable by States.....	Not separable by States.
46	Calcium-magnesium chloride.....	Michigan, West Virginia, Oklahoma, California.....	Michigan, Oklahoma, West Virginia, California.
6	Cement.....	Pennsylvania, California, New York, Indiana.....	Pennsylvania, California, New York, Texas.
58	Chats.....	Missouri, Oklahoma, Kansas.....	Rank same as for quantity.
85	Chromite.....	California.....	Do.
	Clay:		
7	Products.....		Ohio, Pennsylvania, West Virginia, New Jersey.
26	Raw.....	Pennsylvania, Georgia, Missouri, California.....	Georgia, Pennsylvania, Missouri, South Carolina.
2	Coal:		
	Bituminous.....	West Virginia, Pennsylvania, Illinois, Kentucky.....	Rank same as for quantity.
	Pennsylvania anthracite.....	Pennsylvania.....	Do.
5	Coke.....	Pennsylvania, Ohio, New York, Indiana.....	Pennsylvania, New York, Ohio, Indiana.
13	Copper.....	Arizona, Utah, Montana, Michigan.....	Rank same as for quantity.
45	Diatomite.....	California, Oregon, Washington, Arizona.....	California, New York, Oregon, Washington.
89	Emery.....	New York.....	Rank same as for quantity.
51	Feldspar (crude).....	North Carolina, Maine, Virginia, New Hampshire.....	North Carolina, Maine, New Hampshire, Virginia.
14	Ferro-alloys.....	Pennsylvania, New York, Ohio, Iowa.....	Pennsylvania, New York, West Virginia, Ohio.
86	Flint lining for tube mills.....	Minnesota.....	Rank same as for quantity.
41	Fluorspar.....	Kentucky, Illinois, Colorado, New Mexico.....	Do.
36	Fuller's earth.....	Georgia, Florida, Texas, Illinois.....	Do.
63	Garnet, abrasive.....	New York, New Hampshire.....	Do.
(*)	Gems and precious stones.....	No canvass for 1934.....	No canvass for 1934.
8	Gold.....	California, Alaska, South Dakota, Colorado.....	Rank same as for quantity.
76	Graphite:		
	Amorphous.....	Nevada.....	Do.
	Crystalline.....	Alabama, Montana.....	Do.
59	Grindstones and pulpstones.....	Ohio, West Virginia, Washington.....	Do.
23	Gypsum.....	New York, Michigan, Iowa, Texas.....	Do.
75	Helium.....	Texas.....	Do.

See footnotes at end of table.

Mineral products of the United States and principal producing States in 1934—Continued

Rank in value	Product	Principal producing States	
		In order of quantity	In order of value
61	Iodine (natural).....	California.....	Rank same as for quantity.
	Iron:		
10	Ore.....	Minnesota, Michigan, Alabama, Wisconsin.....	Do.
4	Pig.....	Pennsylvania, Ohio, Indiana, Illinois.....	Do.
19	Lead.....	Missouri, Idaho, Utah, Oklahoma.....	Do.
21	Lime.....	Ohio, Pennsylvania, Missouri, West Virginia.....	Do.
80	Lithium minerals.....	South Dakota, New Mexico.....	Do.
53	Magnesite.....	Washington, California.....	Do.
50	Magnesium.....	Michigan.....	Do.
88	Magnesium hydrate (brucite).....	Nevada.....	Do.
43	Magnesium salts (natural).....	Michigan, Oklahoma, California, Washington.....	Michigan, California, Oklahoma, Washington
56	Manganese ore.....	Montana, Georgia, Arkansas, Virginia.....	Montana, Georgia, Arkansas, Tennessee.
54	Manganiferous ore.....	Minnesota, Montana, Georgia, Alabama.....	Minnesota, Georgia, Montana, Alabama.
69	Manganiferous zinc residuum.....	New Jersey.....	Rank same as for quantity.
	Marl:		
78	Calcareous.....	West Virginia, Virginia, Wisconsin, Nevada.....	West Virginia, Virginia, Nevada, Ohio.
65	Greensand.....	New Jersey.....	Rank same as for quantity.
47	Mercury.....	California, Oregon, Texas, Arkansas.....	Do.
67	Mica.....	North Carolina, New Hampshire, New Mexico, South Dakota.....	North Carolina, Connecticut, New Hampshire, New Mexico.
	Scrap.....	North Carolina, New Mexico, New Hampshire, South Dakota.....	North Carolina, New Hampshire, New Mexico, Connecticut
	Sheet.....	North Carolina, New Hampshire, Connecticut, Colorado.....	North Carolina, Connecticut, New Hampshire, Colorado.
71	Micaceous minerals.....	Montana, North Carolina, Georgia, California.....	Rank same as for quantity.
83	Millstones.....		
	Mineral paints, zinc and lead pigments.....	Pennsylvania, Ohio, Kansas, Indiana.....	North Carolina, New York, Virginia.
(3)	Mineral waters.....	No canvass for 1934.....	Pennsylvania, Ohio, Indiana, Kansas.
27	Molybdenum.....	Colorado, New Mexico, Arizona, Nevada.....	No canvass for 1934.
3	Natural gas.....	Texas, California, Oklahoma, Louisiana.....	Rank same as for quantity.
12	Natural gasoline.....	California, Texas, Oklahoma, West Virginia.....	Texas, California, West Virginia, Louisiana.
72	Nickel.....	Not separable by States.....	Rank same as for quantity.
73	Oilstones, etc.....	Ohio, Vermont, Arkansas, Indiana.....	Not separable by States.
(4)	Ores (crude), etc.:		Arkansas, Ohio, Vermont, Indiana.
	Copper.....	Utah, Arizona, Nevada, New Mexico.....	Value not available.
	Copper-lead.....	Idaho, New Mexico, Colorado, Utah.....	Do.
	Dry and siliceous (gold and silver).....	Alaska, California, South Dakota, Colorado.....	Do.
	Lead.....	Missouri, Idaho, Utah, Nevada.....	Do.
	Lead-zinc.....	Oklahoma, Kansas, Idaho, Utah.....	Do.
	Zinc.....	Oklahoma, Kansas, Tennessee, New Jersey.....	Do.
64	Peat.....	New Jersey, Iowa, Michigan, Florida.....	New Jersey, Florida, Iowa, California.
87	Pebbles for grinding.....	Minnesota, California.....	Rank same as for quantity.

1	Petroleum	Texas, Oklahoma, California, Kansas	Do.
25	Phosphate rock	Florida, Tennessee, Idaho, Montana	Florida, Tennessee, Idaho, Virginia.
38	Platinum and allied metals	Alaska, California, Oregon, Washington	Rank same as for quantity.
33	Potassium salts	New Mexico, California, Maryland, Wyoming	California, New Mexico, Maryland, Wyoming.
66	Pumice	Kansas, California, Nebraska, Oklahoma	Rank same as for quantity.
44	Pyrites	Tennessee, Virginia, California, New York	Tennessee, California, Virginia, New York.
18	Salt	Michigan, New York, Ohio, Kansas	Michigan, New York, Kansas, Louisiana.
11	Sand and gravel	New York, California, Illinois, Pennsylvania	Pennsylvania, New York, California, Ohio.
60	Sand-lime brick	New York, Minnesota, Michigan, Massachusetts	New York, Massachusetts, Minnesota, Michigan.
57	Selenium	Not separable by States	Not separable by States.
70	Silica (quartz)	Missouri, Virginia, Ohio, New Jersey	Missouri, New Jersey, Virginia, Tennessee.
42	Silica sand and sandstone (finely ground)	New Jersey, Wisconsin, Illinois, Ohio	New Jersey, Wisconsin, Ohio, Illinois.
20	Silver	Idaho, Utah, Arizona, Montana	Rank same as for quantity.
34	Slate .....	.....	Pennsylvania, Vermont, New York, Virginia.
28	Sodium salts (other than NaCl) from natural sources.	California, Texas, Wyoming, Nevada	Rank same as for quantity.
9	Stone .....	.....	Pennsylvania, New York, California, Ohio.
16	Sulphur	Pennsylvania, New York, Michigan, Ohio	Rank same as for quantity.
31	Sulphuric acid from copper and zinc smelters.	Texas, Louisiana, California	Pennsylvania, Illinois, Tennessee, Oklahoma.
40	Talc and ground soapstone ¹	Pennsylvania, Tennessee, Illinois, Oklahoma .....	.....
90	Tantalum ore	New York, Vermont, California, North Carolina	New York, Vermont, North Carolina, California.
79	Tellurium	New Mexico, South Dakota	Rank same as for quantity.
84	Tin	Not separable by States	Not separable by States.
	Titanium ore:	Alaska, South Dakota	Rank same as for quantity.
77	Ilmenite .....	.....	Do.
74	Rutile	Virginia	Do.
62	Tripoli	Virginia, Arkansas	Do.
37	Tungsten ore	Illinois, Oklahoma, Missouri, Arkansas .....	.....
82	Uranium and vanadium ores	Nevada, Colorado, Arizona, California	Nevada, Colorado, California, Arizona.
15	Zinc	Arizona, Colorado, Utah	Colorado, Utah, Arizona.
		Oklahoma, New Jersey, Kansas, Montana	Rank same as for quantity.

¹ Rank of States in metal production (except aluminum, ferro-alloys, and pig iron) arranged according to mine reports, not smelter output.

² Separate figures for antimonial lead from primary sources not available.

³ No canvass for 1934.

⁴ Value not available.

⁵ Exclusive of soapstone used as dimension stone (all from Virginia), which is included in figures for stone.

*States and their principal mineral products in 1934*¹

State	Rank	Percent of total value for United States	Principal mineral products in order of value
Alabama.....	20	0.98	Coal, iron ore, cement, clay products.
Alaska.....	26	.64	Gold, coal, silver, stone.
Arizona.....	23	.85	Copper, gold, silver, sand and gravel.
Arkansas.....	30	.53	Petroleum, coal, natural gas, bauxite.
California.....	3	10.85	Petroleum, natural gas, natural gasoline, gold.
Colorado.....	14	1.30	Coal, gold, molybdenum, silver.
Connecticut.....	45	.07	Stone, clay products, sand and gravel, lime.
Delaware.....	50	.01	Stone, clay products, sand and gravel.
District of Columbia.....	49	.01	Clay products.
Florida.....	33	.38	Phosphate rock, cement, stone, fuller's earth.
Georgia.....	36	.21	Stone, clay products, cement, fuller's earth.
Idaho.....	29	.55	Lead, silver, gold, zinc.
Illinois.....	7	2.92	Coal, cement, petroleum, clay products.
Indiana.....	15	1.29	Coal, cement, stone, clay products.
Iowa.....	27	.63	Coal, cement, stone, gypsum.
Kansas.....	10	2.66	Petroleum, natural gas, coal, cement.
Kentucky.....	8	2.92	Coal, natural gas, petroleum, clay products.
Louisiana.....	9	2.79	Natural gas, petroleum, sulphur, salt.
Maine.....	44	.08	Stone, cement, sand and gravel, clay products.
Maryland.....	34	.33	Coal, cement, clay products, sand and gravel.
Massachusetts.....	37	.20	Stone, sand and gravel, clay products, lime.
Michigan.....	11	2.03	Iron ore, petroleum, cement, salt.
Minnesota.....	13	1.58	Iron ore, sand and gravel, stone, cement.
Mississippi.....	43	.08	Natural gas, sand and gravel, clay products, petroleum.
Missouri.....	16	1.08	Lead, clay products, coal, cement.
Montana.....	18	1.03	Copper, natural gas, petroleum, coal.
Nebraska.....	41	.09	Cement, sand and gravel, stone, clay products.
Nevada.....	31	.48	Gold, copper, silver, zinc.
New Hampshire.....	47	.04	Stone, sand and gravel, clay products, feldspar.
New Jersey.....	24	.82	Clay products, zinc, sand and gravel, stone.
New Mexico.....	19	.99	Petroleum, natural gas, coal, zinc.
New York.....	12	1.79	Petroleum, stone, cement, clay products.
North Carolina.....	38	.18	Stone, clay products, bromine, feldspar.
North Dakota.....	42	.08	Coal, sand and gravel, clay products, stone.
Ohio.....	6	3.83	Coal, natural gas, clay products, petroleum.
Oklahoma.....	5	7.77	Petroleum, natural gas, natural gasoline, zinc.
Oregon.....	40	.14	Gold, stone, cement, sand and gravel.
Pennsylvania.....	1	17.92	Coal, natural gas, petroleum, cement.
Rhode Island.....	48	.02	Stone, sand and gravel, lime.
South Carolina.....	46	.04	Stone, clay products, sand and gravel, gold.
South Dakota.....	28	.63	Gold, sand and gravel, cement, stone.
Tennessee.....	25	.77	Coal, cement, stone, zinc.
Texas.....	2	16.69	Petroleum, natural gas, sulphur, natural gasoline.
Utah.....	17	1.07	Copper, gold, coal, silver.
Vermont.....	39	.16	Stone, slate, talc, lime.
Virginia.....	21	.93	Coal, stone, zinc, cement.
Washington.....	32	.42	Coal, stone, cement, sand and gravel.
West Virginia.....	4	7.91	Coal, natural gas, clay products, petroleum.
Wisconsin.....	35	.32	Stone, sand and gravel, iron ore, clay products.
Wyoming.....	22	.91	Petroleum, coal, natural gas, natural gasoline.

¹ In this table iron ore, not pig iron, is taken as the basis of iron valuation, and for other metals mine production (recoverable content of metals) is the basis.

Prices of gold, silver, copper, lead, and zinc, 1930-34

Year	Gold ¹	Silver ²	Copper ³	Lead ³	Zinc ³
	<i>Per fine ounce</i>	<i>Per fine ounce</i>	<i>Per pound</i>	<i>Per pound</i>	<i>Per pound</i>
1930.....	\$20.67+	\$0.385	\$0.130	\$0.050	\$0.048
1931.....	4 20.67+	.290	.091	.037	.038
1932.....	4 20.67+	.282	.093	.030	.030
1933.....	25.56	.350	.064	.037	.042
1934.....	34.95	5.646+	.080	.037	.043

¹ 1930-32: Legal coinage value; 1933-34: Average weighted price.

² 1930-33: Average New York price for bar silver; 1934: Treasury buying price for newly mined domestic silver.

³ Average weighted price, all grades.

⁴ \$20.671835.

⁵ \$0.64646464.

STATE TABLES

Mineral production of Alabama, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Asphalt (native).....short tons..	(1)	(1)	(1)	(1)
Bauxite.....long tons..	6, 899	(1)	(1)	(1)
Cement.....barrels..	2 1, 999, 412	2 \$2, 536, 121	2 2, 181, 513	2 \$3, 017, 329
Clay:				
Products.....		3 824, 215		(1 3)
Raw.....short tons..	26, 966	4 31, 699	36, 572	4 46, 426
Coal.....do.....	8, 759, 989	13, 758, 000	9, 142, 117	18, 838, 000
Coke.....do.....	1, 668, 975	4 3, 885, 858	2, 109, 192	4 6, 508, 933
Copper.....pounds..			11, 000	880
Ferro-alloys.....long tons..	12, 318	4 509, 463	26, 140	4 1, 612, 178
Fuller's earth.....short tons..	266	2, 028	(1)	(1)
Gold 5.....troy ounces..	4	101	2, 781	97, 186
Graphite, crystalline.....pounds..			(1)	(1)
Iron: /				
Ore.....long tons..	2, 156, 142	3, 252, 630	2, 720, 923	4, 379, 827
Pig.....do.....	987, 606	4 11, 385, 080	1, 144, 900	4 15, 805, 365
Lime.....short tons..	107, 810	565, 384	123, 881	746, 232
Manganese ore.....long tons..	806	9, 930		
Manganiferous ore.....do.....	3, 495	18, 683	1, 404	7, 878
Mineral waters.....gallons sold..	(6)	(6)	(6)	(6)
Ore (dry and siliceous) (gold and silver).....short tons..			22, 511	(7)
Sand and gravel.....do.....	934, 641	416, 857	660, 633	348, 978
Silver.....troy ounces..			361	233
Stone.....short tons..	8 521, 750	8 1, 442, 628	8 542, 500	8 660, 458
Miscellaneous 9.....do.....		464, 627		1, 730, 047
Total value, eliminating duplications.....		23, 291, 204		29, 827, 048

¹ Value included under "Miscellaneous."

² Exclusive of puzzolan, value for which is included under "Miscellaneous."

³ Figures obtained through cooperation with Bureau of the Census.

⁴ Value not included in total value for State.

⁵ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

⁶ No canvass.

⁷ Not valued as ore; value of recoverable metal content included under the metals.

⁸ Exclusive of sandstone, value for which is included under "Miscellaneous."

⁹ Includes minerals indicated by "1", "2", and "3" above.

Mineral production of Alaska, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Arsenic.....short tons..	(1)	(1)	(1)	(1)
Coal.....do.....	96, 467	\$481, 000	107, 508	\$451, 000
Copper.....pounds..	29, 000	1, 856	121, 000	9, 680
Gold 2.....troy ounces..	469, 286	11, 994, 947	537, 282	18, 778, 000
Lead.....short tons..	1, 157	85, 618	840	62, 123
Natural gas.....M cubic feet..	19, 500	2, 300		
Natural gasoline.....gallons..	25, 000	4, 000		
Ores (crude), etc.:				
Dry and siliceous (gold and silver).....short tons..	4, 171, 000	(3)	4, 390, 000	(3)
Petroleum.....barrels..	(4)	(4)		
Platinum and allied metals.....troy ounces..	99	3, 729	1, 873	73, 297
Sand and gravel.....short tons..	(4)	(4)	(4)	(4)
Silver.....troy ounces..	157, 150	55, 003	168, 868	109, 167
Stone.....short tons..	19, 930	16, 078	48, 890	74, 919
Tin (metallic equivalent).....do.....	3	2, 300	9	(4)
Miscellaneous 4.....do.....		34, 240		28, 227
Total value, eliminating duplications.....		12, 681, 071		19, 586, 413

¹ Figures not available.

² Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

³ Not valued as ore; value of recoverable metal content included under the metals.

⁴ Value included under "Miscellaneous."

⁵ Includes minerals indicated by "4" above.

Mineral production of Arizona, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Asbestos..... short tons.....	(1)	(1)	(1)	(1)
Clay:				
Products.....		(1 2)		(1 2)
Raw..... short tons.....	11,616	\$ 90,986	(1 3)	(1 3)
Coal..... do.....	10,345	52,000	9,058	\$45,000
Copper..... pounds.....	114,041,781	7,298,674	178,082,213	14,246,577
Diatomite..... short tons.....			(1)	(1)
Feldspar (crude)..... long tons.....	(1)	(1)	(1)	(1)
Gems and precious stones.....	(1)	(1)	(1)	(1)
Gold 4..... troy ounces.....	79,993	2,044,611	167,024	5,837,493
Gypsum..... short tons.....	1,100	10,550	765	15,413
Lead..... do.....	1,724	127,374	3,439	254,457
Lime..... do.....	8,587	95,432	16,003	163,748
Mercury..... flasks (76 pounds).....			(1)	(1)
Micaceous minerals (mica schist)..... short tons.....			140	742
Molybdenum..... pounds.....	76,643	(1)	378,730	(1)
Ores (crude), etc.:				
Copper..... short tons.....	888,508	(9)	2,845,604	(9)
Copper-lead..... do.....			47	(9)
Dry and siliceous (gold and silver)..... do.....			373,073	(9)
Lead..... do.....	96,090	(9)	16,203	(9)
Lead-zinc..... do.....	11,029	(9)	35,315	(9)
Lead-zinc..... do.....	101	(9)		(9)
Sand and gravel..... do.....	3,402,249	1,723,894	4,152,689	1,730,874
Silica (quartz)..... do.....	(1)	(1)	(1)	(1)
Silver..... troy ounces.....	2,390,363	836,627	4,448,474	2,875,781
Sodium sulphate from natural sources..... short tons.....	(1)	(1)		
Stone..... do.....	124,540	102,219	392,250	346,975
Sulphuric acid 7..... do.....	(1 3)	(1 3)		(1 3)
Tungsten ore (60 percent concentrates)..... do.....	42	(1)	(1)	(1)
Vanadium ores..... do.....			(1)	(1)
Zinc..... do.....	6	463	905	77,842
Miscellaneous 8..... do.....		302,471		659,418
Total value, eliminating duplications.....		12,570,753		26,062,865

1 Value included under "Miscellaneous."

2 Figures obtained through cooperation with Bureau of the Census.

3 Value not included in total value for State.

4 No canvass.

5 Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

6 Not valued as ore; value of recoverable metal content included under the metals.

7 From copper smelting.

8 Includes minerals indicated by "1" above.

Mineral production of Arkansas, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Bauxite..... long tons..	142, 179	\$853, 718	145, 764	\$1, 057, 062
Cement..... barrels..	(¹)	(¹)	(¹)	(¹)
Clay:				
Products.....		(¹)		¹ 349, 154
Raw..... short tons..	224	² 960		
Coal..... do.....	882, 924	2, 348, 000	856, 432	2, 564, 000
Gems and precious stones.....		(¹)		(¹)
Iron ore sold for magnets..... long tons..	1	(¹)	5	(¹)
Lead..... short tons..	10	740	40	2, 960
Lime..... do.....	(¹)	(¹)	(¹)	(¹)
Manganese ore..... long tons..	1, 890	(¹)	5, 842	(¹)
Manganiferous ore..... do.....	1, 060	(¹)	1, 374	(¹)
Mercury..... flasks (76 pounds)..	(¹)	(¹)	488	36, 046
Mineral waters..... gallons sold..	(¹)	(¹)	(¹)	(¹)
Natural gas..... M cubic feet..	8, 288, 000	1, 812, 000	7, 024, 000	1, 574, 000
Natural gasoline..... gallons..	15, 215, 000	602, 000	13, 033, 000	450, 000
Oilstones..... short tons..	20	10, 417	82	49, 741
Ores (lead and zinc)..... do.....	(³)	(³)	(³)	(³)
Petroleum..... barrels..	11, 686, 000	4, 850, 000	11, 182, 000	8, 000, 000
Sand and gravel..... short tons..	1, 264, 742	600, 998	1, 122, 099	565, 190
Slate..... do.....		35, 420		(¹)
Stone..... short tons..	402, 820	422, 692	⁴ 397, 150	⁶ 268, 667
Titanium minerals: Rutile..... do.....			(¹)	(¹)
Tripoli..... do.....	1, 175	21, 072	1, 968	21, 774
Zinc..... do.....	11	924	68	5, 848
Miscellaneous ⁷		1, 152, 222		1, 137, 200
Total value, eliminating duplications.....		12, 710, 203		16, 081, 642

¹ Value included under "Miscellaneous."² Figures obtained through cooperation with Bureau of the Census.³ Value not included in total value for State.⁴ No canvass.⁵ Figures not available.⁶ Exclusive of sandstone, value for which is included under "Miscellaneous."⁷ Includes minerals indicated by "1" and "6" above.

Mineral production of California, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Asphalt (native).....short tons..	(1)	(1)	(1)	(1)
Barite.....do.....	9, 266	\$54, 404	21, 783	\$124, 664
Borates.....do.....	188, 047	3, 436, 377	242, 500	4, 822, 014
Briquets, fuel.....do.....	(1 2)	(1 2)	(1 2)	(1 2)
Bromine.....pounds..	(1)	(1)	(1)	(1)
Calcium chloride.....short tons..	(1)	(1)	(1)	(1)
Cement.....barrels..	7, 168, 835	10, 530, 698	8, 395, 037	12, 449, 389
Chromite.....long tons..	843	11, 585	369	4, 653
Clay:				
Products.....		³ 5, 317, 227		³ 5, 475, 818
Raw.....short tons..	117, 782	² 333, 053	205, 934	² 500, 796
Coal.....do.....	(1)	(1)	(1)	(1)
Copper.....pounds..	990, 380	63, 384	569, 068	45, 525
Diatomite.....short tons..	(1)	(1)	(1)	(1)
Feldspar (crude).....long tons..	1, 433	10, 189	(1)	(1)
Fluorspar.....short tons..			181	(1)
Gems and precious stones.....		(4)		(4)
Gold ⁴.....troy ounces..	613, 579	15, 683, 075	719, 064	25, 131, 284
Gypsum.....short tons..	57, 175	(1)	55, 620	(1)
Iodine.....pounds..	(1)	(1)	284, 604	342, 957
Iron ore—				
Sold to furnaces.....long tons..			16, 333	(1)
Sold for paint.....do.....	25	(1)		
Lead.....short tons..	381	28, 163	412	30, 457
Lime.....do.....	35, 754	342, 999	34, 733	342, 621
Magnesite.....do.....	(1)	(1)	(1)	(1)
Magnesium salts (natural).....pounds..	(1)	(1)	(1)	(1)
Manganese ore.....long tons..			158	1, 500
Mercury.....flasks (76 pounds)...	3, 930	232, 762	7, 808	576, 738
Micaceous minerals (mica schist).....short tons..	(1)	(1)	320	2, 240
Mineral paints, zinc and lead pigments.....do.....			(1 2)	(1 2)
Mineral waters.....gallons sold..	(4)	(4)	(4)	(4)
Molybdenum.....pounds..	634	(1)		
Natural gas.....M cubic feet..	259, 799, 000	74, 480, 000	268, 122, 000	73, 065, 000
Natural gasoline.....gallons..	496, 293, 000	22, 820, 000	506, 272, 000	29, 931, 000
Ores (crude), etc.:				
Copper.....short tons..	38, 176	(6)	53, 357	(6)
Copper-lead.....do.....	8	(6)	11	(6)
Dry and siliceous (gold and silver).....do.....	1, 281, 843	(6)	2, 299, 699	(6)
Lead.....do.....	1, 257	(6)	2, 160	(6)
Zinc.....do.....	816	(6)	864	(6)
Zinc.....do.....	(4)	(4)	(1)	(1)
Peat.....do.....			(1)	(1)
Pebbles for grinding.....do.....	4	44	(1)	(1)
Petroleum.....barrels..	172, 010, 000	143, 300, 000	174, 305, 000	160, 760, 000
Platinum and allied metals.....troy ounces..	207	7, 755	312	12, 223
Potassium salts.....short tons..	(1)	(1)	(1)	(1)
Pumice.....do.....	8, 337	55, 449	9, 431	60, 088
Pyrites.....long tons..	(1)	(1)	(1)	(1)
Salt.....short tons..	331, 009	2, 018, 694	341, 893	2, 026, 376
Sand and gravel.....short tons..	6, 347, 503	3, 746, 130	6, 811, 109	4, 147, 509
Sand and sandstone (finely ground).....do.....	(1)	(1)	(1)	(1)
Silica (quartz).....do.....	(1)	(1)	(1)	(1)
Silver.....troy ounces..	402, 591	140, 907	844, 413	545, 853
Slate.....do.....		39, 845		35, 393
Sodium salts (carbonates and sulphates) from natural sources.....short tons..	70, 461	918, 295	91, 439	1, 274, 701
Stone.....do.....	4, 362, 720	3, 994, 581	5, 597, 040	5, 520, 311
Sulphur.....long tons..	(1)	(1)	3, 989	78, 070
Talc and ground soapstone.....short tons..	15, 319	196, 972	15, 880	164, 777
Tripoli.....do.....	(1)	(1)	(1)	(1)
Tungsten ore (60 percent concentrates).....do.....	174	(1)	(1)	(1)
Zinc.....do.....	145	12, 189	361	31, 034
Miscellaneous ⁷		5, 651, 135		4, 348, 414
Total value, eliminating duplications.....		293, 034, 859		331, 255, 652

¹ Value included under "Miscellaneous."

² Value not included in total value for State.

³ Figures obtained through cooperation with Bureau of the Census.

⁴ No canvass.

⁵ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

⁶ Not valued as ore; value of recoverable metal content included under the metals.

⁷ Includes minerals indicated by "1" above.

SUMMARY OF MINERAL PRODUCTION

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Mineral production of Colorado, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Briquets, fuel..... short tons..	(1) ¹	(1) ¹	(1) ¹	(1) ¹
Cement..... barrels..	(1)	(1)	(1)	(1)
Clay:				
Products.....		\$ 870, 488		\$ 1, 104, 672
Raw..... short tons..	28, 644	43, 055	39, 415	52, 474
Coal..... do.....	5, 229, 767	11, 350, 000	5, 210, 933	12, 309, 000
Coke..... do.....	174, 883	(1) ¹	208, 908	(1) ¹
Copper..... pounds..	9, 667, 000	618, 688	11, 294, 000	903, 520
Feldspar (crude)..... long tons..	(1)	(1)	(1)	(1)
Ferro-alloys..... do.....	(1) ¹	(1) ¹	(1) ¹	(1) ¹
Fluorspar..... short tons..	742	6, 778	6, 537	83, 132
Fuller's earth..... do.....	(1)	(1)	(1)	(1)
Gems and precious stones.....				
Gold ² troy ounces..	242, 828	6, 206, 676	324, 923	11, 356, 070
Gypsum..... short tons..	(1)	(1)	(1)	(1)
Iron, pig..... long tons..	(1) ¹	(1) ¹	(1) ¹	(1) ¹
Lead..... short tons..	2, 402	177, 711	4, 218	312, 095
Lime..... do.....	2, 887	31, 337	3, 712	37, 506
Mica:				
Scrap..... do.....	(1)	(1)	419	3, 717
Sheet..... pounds..			(1)	(1)
Micaceous minerals (vermiculite)..... short tons..	(1)	(1)	219	1, 976
Mineral paints, zinc and lead pigments..... do.....	(1) ¹	(1) ¹	(1) ¹	(1) ¹
Mineral waters..... gallons sold..	(1)	(1)	(1)	(1)
Molybdenum..... pounds..	5, 028, 695	(1)	8, 378, 683	(1)
Natural gas..... M cubic feet..	2, 449, 000	671, 000	2, 633, 000	667, 000
Natural gasoline..... gallons..	408, 000	14, 000	643, 000	18, 000
Dres (crude), etc.:				
Copper..... short tons..	91, 133	(1)	135, 082	(1)
Copper-lead..... do.....	66	(1)	201	(1)
Dry and siliceous (gold and silver)..... do.....	741, 900	(1)	1, 164, 575	(1)
Lead..... do.....	2, 604	(1)	5, 677	(1)
Lead-zinc..... do.....	9, 792	(1)	3, 652	(1)
Peat..... do.....	(1)	(1)	(1)	(1)
Petroleum..... barrels..	919, 000	540, 000	1, 139, 000	1, 060, 000
Pyrites..... long tons..	4, 059	(1)	5, 303	(1)
Sand and gravel..... short tons..	1, 395, 524	564, 677	1, 367, 187	684, 650
Silver..... troy ounces..	2, 186, 140	765, 149	3, 475, 661	2, 246, 892
Stone..... short tons..	7 599, 970	7 506, 118	7 1, 191, 480	7 1, 270, 965
Tungsten ore (60 percent concentrates)..... do.....	86	49, 371	342	298, 063
Uranium and vanadium ores..... do.....	50	(1)	178	8, 246
Zinc..... do.....	1, 285	107, 898	772	66, 392
Miscellaneous ³		7, 034, 298		9, 870, 851
Total value, eliminating duplications.....		27, 259, 095		39, 719, 123

1 Value included under "Miscellaneous."

2 Not included in total value for State.

3 Figures obtained through cooperation with Bureau of the Census.

4 No canvass.

5 Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

6 Not valued as ore; value of recoverable metal content included under the metals.

7 Exclusive of marble, value for which is included under "Miscellaneous."

8 Includes minerals indicated by "1" and "7" above.

Mineral production of Connecticut, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Clay:				
Products.....		1 \$396, 838		(1 ²)
Raw.....short tons.....	(3 ³)	(2 ³)	(2 ³)	(3 ³)
Coke.....do.....	(2 ³)	(2 ³)	(2 ³)	(2 ³)
Feldspar (crude).....long tons.....	(2)	(2)	(2)	(2)
Lime.....short tons.....	(2)	(2)	(2)	(2)
Mica:				
Scrap.....do.....	(2)	(2)	439	\$7, 753
Sheet.....pounds.....	(2)	(2)	111, 334	26, 579
Mineral waters.....gallons sold.....	(4)	(4)	(4)	(4)
Sand and gravel.....short tons.....	458, 494	133, 418	326, 218	193, 937
Stone.....do.....	⁵ 1, 075, 160	⁵ 939, 853	⁵ 1, 293, 510	⁵ 1, 356, 144
Miscellaneous ⁶		2, 558, 927		3, 780, 332
Total value, eliminating duplications.....		1, 550, 594		2, 276, 061

¹ Figures obtained through cooperation with Bureau of the Census.

² Value included under "Miscellaneous."

³ Value not included in total value for State.

⁴ No canvass.

⁵ Exclusive of sandstone, value for which is included under "Miscellaneous."

⁶ Includes minerals indicated by "3" and "4" above.

Mineral production of Delaware, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Clay:				
Products.....		(1 ²)		(1 ²)
Raw.....short tons.....	1, 876	³ \$24, 879	2, 127	³ \$28, 718
Sand and gravel.....do.....	58, 297	33, 223	84, 820	52, 625
Sand and sandstone (finely ground).....do.....	(1)	(1)		
Stone.....do.....	62, 380	78, 856	(1)	(1)
Miscellaneous ⁴		23, 318		219, 189
Total value, eliminating duplications.....		135, 397		271, 814

¹ Value included under "Miscellaneous."

² Figures obtained through cooperation with Bureau of the Census.

³ Value not included in total value for State.

⁴ Includes minerals indicated by "1" above.

Mineral production of the District of Columbia, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Clay products.....		(1 ²)		(1 ²)
Sand and gravel.....short tons.....	(1)	(1)		
Stone.....do.....	(1)	(1)		
Miscellaneous.....		\$423, 233		\$406, 891
Total value, eliminating duplications.....		423, 233		406, 891

¹ Value included under "Miscellaneous."

² Figures obtained through cooperation with Bureau of the Census.

Mineral production of Florida, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Cement.....barrels.....	(1)	(1)	(1)	(1)
Clay:				
Products.....		\$ 771,277		\$ 1,117,802
Raw.....short tons.....	(1) ³	(1) ³	(1) ³	(1) ³
Fuller's earth.....do.....	(1)	(1)	(1)	(1)
Lime.....do.....	(1)	(1)	14,207	121,247
Mineral waters.....gallons sold.....	(4)	(4)	(4)	(4)
Peat.....short tons.....	(4)	(4)	(1)	(1)
Phosphate rock.....long tons.....	2,136,123	6,417,110	2,369,334	8,076,317
Sand and gravel.....short tons.....	299,365	202,679	402,981	269,938
Sand-lime brick.....thousands.....			(1) ²	(1) ²
Stone.....short tons.....	\$ 606,530	\$ 519,005	\$ 1,095,800	\$ 945,515
Miscellaneous ⁶		1,792,455		2,183,636
Total value, eliminating duplications.....		8,843,896		11,548,144

¹ Value included under "Miscellaneous."

² Figures obtained through cooperation with Bureau of the Census.

³ Value not included in total value for State.

⁴ No canvass.

⁵ Exclusive of unclassified stone, value for which is included under "Miscellaneous."

⁶ Includes minerals indicated by "1" and "3" above.

Mineral production of Georgia, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Barite.....short tons.....	(1)	(1)	(1)	(1)
Bauxite.....long tons.....	5,098	(1)	(1)	(1)
Cement.....barrels.....	(1)	(1)	(1)	(1)
Clay:				
Products.....		\$ 1,168,420		(1) ²
Raw.....short tons.....	280,098	\$ 1,417,680	284,556	\$ 1,621,223
Coal.....do.....	41,382	77,000	32,716	80,000
Fuller's earth.....do.....	(1)	(1)	(1)	(1)
Gold ⁴.....troy ounces.....	558	14,273	970	33,898
Iron ore.....long tons.....	302	(1)	1,098	(1)
Lime.....short tons.....	3,898	23,506	2,864	21,674
Manganese ore.....long tons.....	1,565	(1)	6,281	(1)
Manganiferous ore.....do.....	8,505	36,386	9,197	(1)
Mica:				
Scrap.....short tons.....			(1)	(1)
Sheet.....pounds.....			(1)	(1)
Micaeous minerals (chlorite schist).....short tons.....	(1)	(1)	(1)	(1)
Mineral waters.....gallons sold.....	(4)	(4)	(4)	(4)
Ore (dry and siliceous) (gold and silver).....short tons.....	529	(4)	2,069	(4)
Sand and gravel.....do.....	247,030	124,544	325,526	229,849
Silver.....troy ounces.....	65	23	48	31
Slate.....		(1)		(1)
Stone.....short tons.....	915,640	2,769,395	953,050	2,526,786
Talc.....do.....	(1)	(1)	(1)	(1)
Tripoli.....do.....	(1)	(1)	(1)	(1)
Miscellaneous ⁷		1,898,094		3,472,927
Total value, eliminating duplications.....		6,111,641		6,365,165

¹ Value included under "Miscellaneous."

² Figures obtained through cooperation with Bureau of the Census.

³ Value not included in total value for State.

⁴ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

⁵ No canvass.

⁶ Not valued as ore; value of recoverable metal content included under the metals.

⁷ Includes minerals indicated by "1" above.

Mineral production of Idaho, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Antimony ore (concentrates).....short tons..	1, 133	(1)	897	(1)
Arsenious oxide.....do.....	120	\$6, 480	961	\$49, 042
Cement.....barrels..	(1)	(1)	(1)	(1)
Clay:				
Products.....		(1 2)		(1 2)
Raw.....short tons..	252	\$ 2, 868	282	\$ 3, 655
Coal.....do.....	(1)	(1)	(1)	(1)
Copper.....pounds..	1, 562, 234	99, 983	1, 531, 625	122, 530
Diatomite.....short tons..	10	80		
Gems and precious stones.....		(1)		(1)
Gold ¹.....troy ounces..	64, 592	1, 650, 977	84, 817	2, 964, 361
Lead.....short tons..	74, 363	5, 502, 888	71, 324	5, 277, 984
Lime.....do.....	(1)	(1)	(1)	(1)
Ores (crude), etc.:				
Copper.....do.....	17	(9)	1, 020	(9)
Copper-lead.....do.....	121, 769	(9)	118, 927	(9)
Dry and siliceous (gold and silver).....do.....	131, 187	(9)	202, 784	(9)
Lead.....do.....	630, 305	(9)	240, 465	(9)
Lead-zinc.....do.....	307, 573	(9)	723, 986	(9)
Phosphate rock.....long tons..	19, 751	80, 622	37, 151	140, 397
Sand and gravel.....short tons..	304, 266	151, 011	632, 485	237, 896
Silver.....troy ounces..	6, 987, 960	2, 445, 786	7, 394, 143	4, 780, 052
Stone.....short tons..	7 536, 410	7 440, 969	7 764, 730	7 575, 103
Tungsten ore (80 percent concentrates).....do.....			1	(1)
Zinc.....do.....	20, 968	1, 761, 911	24, 799	2, 132, 742
Miscellaneous ².....do.....		289, 048		428, 046
Total value, eliminating duplications.....		12, 429, 155		16, 708, 153

¹ Value included under "Miscellaneous."² Figures obtained through cooperation with Bureau of the Census.³ Value not included in total value for State.⁴ No canvass.⁵ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.⁶ Not valued as ore; value of recoverable metal content included under the metals.⁷ Exclusive of sandstone, value for which is included under "Miscellaneous."⁸ Includes minerals indicated by "1" and "2" above.

Mineral production of Illinois, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Cement.....barrels..	4, 193, 048	\$4,607, 335	3, 908, 107	\$5, 498, 568
Clay:				
Products.....		\$ 3, 991, 779		\$ 4, 930, 454
Raw.....short tons..	72, 447	\$ 197, 532	69, 921	\$ 160, 537
Coal.....do.....	37, 413, 145	54, 578, 000	41, 272, 384	64, 238, 060
Coke.....do.....	1, 501, 020	\$ 7, 379, 561	1, 649, 907	\$ 9, 071, 800
Fluorspar.....do.....	35, 075	543, 066	33, 234	567, 396
Fuller's earth.....do.....	(1)	(1)	(1)	(1)
Iron, pig.....long tons..	1, 269, 940	\$ 20, 063, 481	1, 430, 841	\$ 25, 768, 115
Lead.....short tons..	240	17, 760	40	2, 960
Lime.....do.....	81, 888	575, 862	86, 679	655, 359
Marl, calcareous.....do.....	(1)	(1)		
Mineral paints, zinc and lead pigments.....do.....	12, 539	\$ 1, 268, 853	11, 043	\$ 1, 217, 607
Mineral waters.....gallons sold..	(1)	(1)	(1)	(1)
Natural gas.....M cubic feet..	1, 631, 000	951, 000	1, 868, 000	1, 290, 000
Natural gasoline.....gallons..	3, 673, 000	194, 000	3, 810, 000	183, 000
Ore (lead and zinc).....short tons..	(9)	(9)	(9)	(9)
Peat.....do.....	(5)	(5)	(4)	(4)
Petroleum.....barrels..	4, 244, 000	3, 690, 000	4, 479, 000	4, 990, 000
Sand and gravel.....short tons..	6, 107, 829	3, 370, 039	6, 174, 202	3, 373, 690
Sand and sandstone (finely ground).....do.....	39, 248	182, 776	38, 610	200, 893
Silver.....troy ounces..	1, 422	498	310	200
Stone.....short tons..	7 2, 433, 940	7 1, 735, 420	3, 915, 880	2, 894, 538
Sulphuric acid (60° Baumé) ¹.....do.....	129, 194	\$ 974, 123	123, 701	\$ 977, 238
Tripoli.....do.....	8, 757	149, 979	7, 417	119, 418
Miscellaneous ².....do.....		249, 944		267, 120
Total value, eliminating duplications.....		74, 837, 452		89, 211, 596

¹ Exclusive of natural cement, value for which is included under "Miscellaneous."² Figures obtained through cooperation with Bureau of the Census.³ Value not included in total value for State.⁴ Value included under "Miscellaneous."⁵ No canvass.⁶ No ore milled in Northern Illinois; lead output of Southern Illinois is byproduct of fluorspar milling.⁷ Exclusive of sandstone, value for which is included under "Miscellaneous."⁸ From zinc smelting. ⁹ Includes minerals indicated by "1", "2", "3", and "4" above.

Mineral production of Indiana, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Cement.....barrels..	(1)	(1)	(1)	(1)
Clay:				
Products.....		² \$2,604, 609		² \$3, 336, 038
Raw.....short tons..	51, 139	² 52, 745	67, 245	² 78, 129
Coal.....do.....	13, 761, 052	² 17, 567, 006	14, 793, 643	² 21, 838, 000
Coke.....do.....	2, 089, 100	² 12, 031, 285	2, 613, 437	² 16, 957, 287
Fuller's earth.....do.....		(1)	(1)	(1)
Iron, pig.....long tons..	1, 296, 518	² 19, 989, 998	1, 545, 011	² 27, 977, 992
Lime.....short tons..	64, 479	355, 720	72, 606	443, 398
Mineral paints, zinc and lead pigments.....do.....	(1 ³)	(1 ³)	(1 ³)	(1 ³)
Mineral waters.....gallons sold..	(4)	(4)	(4)	(4)
Natural gas.....M cubic feet..	1, 544, 000	899, 000	1, 802, 000	1, 060, 000
Peat.....short tons..	(4)	(4)	(1)	(1)
Petroleum.....barrels..	737, 000	650, 000	838, 000	960, 000
Rubbing stones and whetstones.....short tons..	(1)	(1)	62	8, 861
Sand and gravel.....do.....	3, 996, 248	1, 706, 309	3, 957, 548	1, 890, 185
Sand-lime brick.....thousands..		(1)	(1 ²)	(1 ²)
Stone.....short tons..	⁵ 2, 269, 490	⁵ 6, 265, 952	⁵ 2, 057, 440	⁵ 4, 140, 960
Miscellaneous ⁶		5, 915, 060		7, 412, 872
Total value, eliminating duplications.....		34, 010, 753		39, 416, 727

¹ Value included under "Miscellaneous."

² Figures obtained through cooperation with Bureau of the Census.

³ Value not included in total value for State.

⁴ No canvass.

⁵ Exclusive of unclassified stone, value for which is included under "Miscellaneous."

⁶ Includes minerals indicated by "⁴" and "⁵" above.

Mineral production of Iowa, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Cement.....barrels..	2, 770, 656	\$3, 651, 921	3, 340, 049	\$5, 094, 922
Clay:				
Products.....		¹ 842, 726		¹ 1, 352, 227
Raw.....short tons..	9, 379	¹ 74, 822	2, 272	¹ 22, 242
Coal.....do.....	3, 194, 983	7, 217, 000	3, 366, 992	7, 862, 000
Ferro-alloys.....long tons..	(2 ³)	(2 ³)	(2 ³)	(2 ³)
Gypsum.....short tons..	172, 555	1, 357, 407	180, 271	1, 670, 356
Iron, pig.....long tons..	(2 ³)	(2 ³)	(2 ³)	(2 ³)
Mineral waters.....gallons sold..	(4)	(4)	(4)	(4)
Peat.....short tons..	(4)	(4)	(3)	(3)
Sand and gravel.....do.....	4, 343, 781	1, 165, 066	4, 348, 862	1, 393, 800
Stone.....do.....	1, 050, 190	920, 532	⁵ 2, 276, 440	⁵ 1, 934, 364
Miscellaneous ⁶		900, 203		1, 320, 509
Total value, eliminating duplications.....		15, 154, 652		19, 326, 181

¹ Figures obtained through cooperation with Bureau of the Census.

² Value not included in total value for State.

³ Value included under "Miscellaneous."

⁴ No canvass.

⁵ Exclusive of unclassified stone, value for which is included under "Miscellaneous."

⁶ Includes minerals indicated by "³" and "⁴" above.

Mineral production of Kansas, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Asphalt (native)..... short tons..	(1)	(1)	(1)	(1)
Cement..... barrels..	² 2, 189, 137	² \$2, 881, 978	² 2, 425, 867	² \$3, 734, 493
Chats..... short tons..	88, 450	18, 267	87, 000	13, 200
Clay products.....		³ 372, 762		³ 656, 510
Coal..... short tons..	2, 217, 622	3, 881, 000	2, 508, 254	4, 619, 000
Gypsum..... do.....	62, 636	341, 333	68, 655	383, 910
Lead..... do.....	6, 089	450, 586	6, 805	503, 570
Mineral paints, zinc and lead pigments..... do.....	(1 ⁴)	(1 ⁴)	(1 ⁴)	(1 ⁴)
Mineral waters..... gallons sold.....	(5)	(5)	(5)	(5)
Natural gas..... M cubic feet..	41, 596, 000	13, 179, 000	46, 909, 000	14, 124, 000
Natural gasoline..... gallons..	24, 869, 000	841, 000	27, 891, 000	796, 000
Ores (crude), etc.:				
Lead..... short tons..	5, 000	(9)	2, 000	(9)
Lead-zinc..... do.....	720, 400	(9)	1, 159, 600	(9)
Zinc..... do.....	503, 600	(9)	935, 100	(9)
Petroleum..... barrels..	41, 976, 000	27, 700, 000	46, 482, 000	47, 850, 000
Pumice..... short tons..	42, 355	109, 454	39, 283	102, 668
Salt..... do.....	732, 947	3, 039, 343	768, 133	2, 949, 930
Sand and gravel..... do.....	2, 015, 799	734, 343	1, 681, 619	698, 461
Stone..... do.....	1, 052, 980	956, 734	⁷ 1, 371, 300	⁷ 1, 350, 391
Zinc..... do.....	40, 947	3, 439, 548	38, 261	3, 290, 446
Miscellaneous ⁸		1, 474, 863		1, 605, 819
Total value, eliminating duplications.....		57, 974, 881		81, 117, 503

¹ Value included under "Miscellaneous."
² Exclusive of natural cement, value for which is included under "Miscellaneous."
³ Figures obtained through cooperation with Bureau of the Census.
⁴ Value not included in total value for State.
⁵ No canvass.
⁶ Not valued as ore; value of recoverable metal content included under the metals.
⁷ Exclusive of unclassified stone, value for which is included under "Miscellaneous."
⁸ Includes minerals indicated by "1", "2", and "7" above.

Mineral production of Kentucky, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Asphalt (native)..... short tons..	44, 369	\$356, 139	(1)	(1)
Cement..... barrels..	(1)	(1)	(1)	(1)
Clay:				
Products.....		² 2, 186, 367		(1 ²)
Raw..... short tons..	114, 190	³ 477, 400	140, 842	³ \$606, 703
Coal..... do.....	36, 099, 729	40, 748, 000	38, 525, 235	60, 548, 000
Coke..... do.....	(1 ³)	(1 ³)	(1 ³)	(1 ³)
Fluorspar..... do.....	34, 614	469, 451	43, 163	690, 990
Iron, pig..... long tons..	103, 017	(1 ³)	170, 399	(1 ³)
Lead..... short tons..	176	13, 024	104	7, 696
Lime..... do.....	(1)	(1)	(1)	(1)
Marl, calcareous..... do.....	(1)	(1)	(1)	(1)
Mineral waters..... gallons sold.....	(4)	(4)	(4)	(4)
Natural gas..... M cubic feet..	31, 380, 000	14, 546, 000	33, 124, 000	14, 973, 000
Natural gasoline..... gallons..	4, 514, 000	224, 000	4, 171, 000	177, 000
Ores (lead and zinc)..... short tons..	(5)	(5)	(5)	(5)
Petroleum..... barrels..	4, 608, 000	3, 780, 000	4, 860, 000	5, 640, 000
Sand and gravel..... short tons..	1, 173, 727	679, 641	1, 069, 656	789, 748
Stone..... do.....	2, 101, 740	1, 773, 977	1, 992, 820	1, 760, 756
Zinc..... do.....	228	19, 152	125	10, 756
Miscellaneous ⁶		2, 831, 335		8, 743, 200
Total value, eliminating duplications.....		65, 536, 454		89, 042, 117

¹ Value included under "Miscellaneous."
² Figures obtained through cooperation with Bureau of the Census.
³ Value not included in total value for State.
⁴ No canvass.
⁵ Figures not available.
⁶ Includes minerals indicated by "1" above.

Mineral production of Louisiana, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Briquets, fuel..... short tons..	(1) ²	(1) ²		
Cement..... barrels..	(1)	(1)	(1)	(1)
Clay products.....		\$ \$160, 143		\$ \$63, 463
Iodine..... pounds..	(1)	(1)		
Lime..... short tons..			(1)	(1)
Mineral waters..... gallons sold..	(4)	(4)	(4)	(4)
Natural gas..... M cubic feet..	197, 826, 000	32, 339, 000	225, 713, 000	42, 531, 000
Natural gasoline..... gallons..	36, 973, 000	1, 149, 000	40, 558, 000	1, 141, 000
Petroleum..... barrels..	25, 168, 000	15, 280, 000	32, 869, 000	31, 850, 000
Salt..... short tons..	532, 569	2, 345, 208	567, 289	2, 854, 785
Sand and gravel..... do..	1, 018, 588	633, 395	1, 090, 331	646, 883
Stone..... do..	65, 090	43, 383	(1)	(1)
Sulphur..... long tons..	123, 916	2, 320, 496	307, 186	5, 350, 487
Miscellaneous ⁵		617, 085		773, 165
Total value, eliminating duplications.....		54, 886, 010		85, 210, 783

¹ Value included under "Miscellaneous."

² Value not included in total value for State.

³ Figures obtained through cooperation with Bureau of the Census.

⁴ No canvass.

⁵ Includes minerals indicated by "1" above.

Mineral production of Maine, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Cement..... barrels..	(1)	(1)	(1)	(1)
Clay:				
Products.....		\$ \$208, 910		\$ \$226, 952
Raw..... short tons..	84	\$ 1, 236	(1) ³	(1) ³
Feldspar (crude)..... long tons..	11, 273	48, 380	14, 685	82, 854
Gems and precious stones.....		(1)		(1)
Lime..... short tons..	(1)	(1)	(1)	(1)
Mica:				
Scrap..... do..	(1)	(1)		
Sheet..... pounds..	(1)	(1)	(1)	(1)
Mineral waters..... gallons sold..	(4)	(4)	(4)	(4)
Peat..... short tons..	(4)	(4)	(1)	(1)
Sand and gravel..... do..	2, 822, 330	359, 315	2, 030, 222	238, 761
Slate.....		114, 588		133, 835
Stone..... short tons..	186, 870	1, 114, 184	\$ 138, 620	\$ 949, 632
Miscellaneous ⁶		748, 494		720, 065
Total value, eliminating duplications.....		2, 593, 871		2, 352, 076

¹ Value included under "Miscellaneous."

² Figures obtained through cooperation with Bureau of the Census.

³ Value not included in total value for State.

⁴ No canvass.

⁵ Exclusive of basalt, value for which is included under "Miscellaneous."

⁶ Includes minerals indicated by "1" and "4" above.

Mineral production of Maryland, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Asbestos..... short tons..	(1)	(1)	(1)	(1)
Cement..... barrels..	(1)	(1)	(1)	(1)
Clay:				
Products.....		² \$1,285,849		² \$1,807,667
Raw..... short tons..	21,459	² 65,105	22,700	³ 78,604
Coal..... do.....	1,530,748	2,134,000	1,627,112	3,089,000
Coke..... do.....	702,227	(1 ³)	784,539	(1 ³)
Feldspar (crude)..... long tons..			(1)	(1)
Gold ⁴ troy ounces..	14	345		
Iron, pig..... long tons..	639,539	(1 ³)	704,304	(1 ³)
Lime..... short tons..	26,469	154,318	28,167	191,071
Marl, calcareous..... do.....			(1)	(1)
Mineral waters..... gallons sold..	(5)	(5)	(5)	(5)
Potassium salts..... short tons..	(1)	(1)	(1)	(1)
Sand and gravel..... do.....	1,444,120	1,328,266	1,693,112	1,708,519
Silica (quartz)..... do.....	371	5,565	564	6,390
Slate..... do.....		(1)		(1)
Stone..... short tons..	⁶ 690,160	⁶ 778,792	⁶ 897,830	⁶ 1,127,798
Talc..... do.....	(1)	(1)	(1)	(1)
Miscellaneous ⁷		13,713,152		8,167,128
Total value, eliminating duplications.....		7,014,570		10,128,349

¹ Value included under "Miscellaneous."
² Figures obtained through cooperation with Bureau of the Census.
³ Value not included in total value for State.
⁴ Gold valued at average weighted price (\$25.56 per ounce).
⁵ No canvass.
⁶ Exclusive of marble, value for which is included under "Miscellaneous."
⁷ Includes minerals indicated by "1" and "6" above.

Mineral production of Massachusetts, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Briquets, fuel..... short tons..	(1 ²)	(1 ²)	(1 ²)	(1 ²)
Clay:				
Products.....		³ \$559,486		³ \$806,201
Raw..... short tons..	837	² 12,891	1,014	² 12,761
Coke..... do.....	1,020,255	² 5,935,219	1,127,632	² 7,181,783
Iron, pig..... long tons..	(1 ²)	(1 ²)	(1 ²)	(1 ²)
Lime..... short tons..	56,941	481,487	52,518	452,494
Mineral waters..... gallons sold..	(4)	(4)	(4)	(4)
Peat..... short tons..	(4)	(4)	(1)	(1)
Sand and gravel..... do.....	3,420,096	1,233,158	2,033,201	1,109,066
Sand and sandstone (finely ground)..... do.....	343	2,509	514	3,471
Sand-lime brick..... thousands..	(1 ³)	(1 ³)	(1 ³)	(1 ³)
Stone..... short tons..	1,396,310	2,580,791	2,347,080	3,743,875
Miscellaneous ⁵		822,658		781,728
Total value, eliminating duplications.....		4,917,110		6,165,303

¹ Value included under "Miscellaneous."
² Value not included in total value for State.
³ Figures obtained through cooperation with Bureau of the Census.
⁴ No canvass.
⁵ Includes minerals indicated by "1" above.

Mineral production of Michigan, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Bromine.....pounds..	(1)	(1)	(1)	(1)
Calcium chloride.....short tons..	(1)	(1)	(1)	(1)
Cement.....barrels..	3, 447, 867	\$4, 128, 082	3, 945, 375	\$5, 920, 214
Clay.....				
Products.....		\$ 2, 657, 248		\$ 3, 224, 189
Raw.....short tons..	114	\$ 546	(1) ³	(1) ³
Coal.....do.....	406, 584	1, 171, 000	621, 741	1, 940, 000
Coke.....do.....	2, 341, 081	\$ 9, 911, 010	2, 547, 747	\$ 14, 348, 536
Copper.....pounds..	46, 853, 130	2, 998, 600	48, 215, 859	3, 857, 269
Gems and precious stones.....		(4)		(4)
Gold ⁴.....troy ounces..	10	247	59	2, 049
Graphite, amorphous.....short tons..	(1)	(1)		
Gypsum.....do.....	211, 392	2, 170, 243	281, 033	2, 469, 222
Ore.....				
Sold to furnaces.....long tons..	6, 099, 031	18, 442, 073	5, 497, 953	15, 646, 165
Sold for paint.....do.....	417	1, 992	1, 165	(1)
Pig.....do.....	407, 011	\$ 6, 181, 318	644, 895	\$ 9, 987, 451
Lime.....short tons..	43, 959	292, 144	32, 844	240, 181
Magnesium.....pounds..	1, 434, 893	377, 181	4, 249, 838	(1)
Magnesium chloride (natural).....do.....	(1)	(1)	(1)	(1)
Magnesium sulphate (natural).....do.....	(1)	(1)	(1)	(1)
Manganiferous ore.....long tons..	6, 445	19, 817	595	(1)
Marl, calcareous.....short tons..	450	(1)	(1)	(1)
Mineral waters.....gallons sold..	(4)	(1)	(1)	(1)
Natural gas.....M cubic feet..	1, 528, 000	635, 000	2, 789, 000	1, 421, 000
Natural gasoline.....gallons..	188, 000	6, 000	589, 000	15, 000
Ores (crude), etc.:.....				
Copper.....short tons..	697, 158	(9)	700, 055	(9)
Dry and siliceous (gold and silver).....do.....	200	(9)	800	(9)
Peat.....do.....	(4)	(1)	(1)	(1)
Petroleum.....barrels..	7, 942, 000	7, 150, 000	10, 603, 000	10, 820, 000
Salt.....short tons..	2, 090, 254	5, 679, 737	2, 012, 370	5, 470, 684
Sand and gravel.....do.....	4, 619, 223	1, 805, 360	5, 432, 071	2, 197, 838
Sand-lime brick.....thousands..	(1) ²	(1) ²	\$ 5, 575	\$ 45, 129
Silver.....troy ounces..	125, 926	44, 074	529	342
Stone.....short tons..	5, 702, 000	3, 094, 912	7 6, 617, 770	7 3, 718, 398
Talc.....do.....			(1)	(1)
Miscellaneous ⁵		3, 548, 869		4, 844, 306
Total value, eliminating duplications.....		54, 222, 848		61, 831, 364

¹ Value included under "Miscellaneous."² Figures obtained through cooperation with Bureau of the Census.³ Value not included in total value for State.⁴ No canvass.⁵ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.⁶ Not valued as ore; value of recoverable metal content included under the metals.⁷ Exclusive of sandstone, value for which is included under "Miscellaneous."⁸ Includes minerals indicated by "1" and "7" above.

Mineral production of Minnesota, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Briquets, fuel.....short tons.....	(1) ²	(1) ²		
Cement.....barrels.....	(1)	(1)	(1)	(1)
Clay:				
Products.....		(1) ³		\$703,616
Raw.....short tons.....	(1) ²	(1) ²	(1) ²	(1) ²
Coke.....do.....	412,037	\$2,919,602	417,447	(1) ²
Feldspar (crude).....long tons.....	(1)	(1)		
Flint lining for tube mills.....short tons.....	(1)	(1)	(1)	(1)
Gems and precious stones.....		(4)		(4)
Iron:				
Ore—				
Sold to furnaces.....long tons.....	14,784,763	38,291,656	15,768,418	41,843,148
Sold for paint.....do.....	34	375	774	(1)
Pig.....do.....	(1) ²	(1) ²	(1) ²	(1) ²
Lime.....short tons.....	(1)	(1)	(1)	(1)
Manganiferous ore.....long tons.....	171,722	450,134	197,622	510,017
Mineral waters.....gallons sold.....	(4)	(4)	(4)	(4)
Peat.....short tons.....	(4)	(4)	(1)	(1)
Pebbles for grinding.....do.....	(1)	(1)	(1)	(1)
Sand and gravel.....do.....	2,719,282	768,714	5,217,775	2,064,876
Sand-lime brick.....thousands.....	(1) ³	(1) ³	³ 6,899	³ 49,510
Stone.....short tons.....	316,980	1,361,121	797,510	1,925,753
Miscellaneous ⁴		1,662,106		4,559,648
Total value, eliminating duplications.....		42,472,038		48,330,235

¹ Value included under "Miscellaneous."

² Value not included in total value for State.

³ Figures obtained through cooperation with Bureau of the Census.

⁴ No canvass.

⁵ Includes minerals indicated by "4" above.

Mineral production of Mississippi, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Clay:				
Products.....		¹ \$220,638		(1) ²
Raw.....short tons.....	(2) ³	(2) ³	(2) ³	(2) ³
Mineral waters.....gallons sold.....	(4)	(4)	(4)	(4)
Natural gas.....M cubic feet.....	8,679,000	2,171,000	8,245,000	\$2,021,000
Petroleum.....barrels.....	(2)	(2)	(2)	(2)
Sand and gravel.....short tons.....	838,725	369,745	677,828	349,800
Stone.....do.....	(2)	(2)	(2)	(2)
Miscellaneous ⁴		5,932		150,921
Total value, eliminating duplications.....		2,765,988		2,520,521

¹ Figures obtained through cooperation with Bureau of the Census.

² Value included under "Miscellaneous."

³ Value not included in total value for State.

⁴ No canvass.

⁵ Includes minerals indicated by "2" above.

Mineral production of Missouri, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Asphalt (native)..... short tons..	3, 979	\$20, 890	(1)	(1)
Barite..... do.....	112, 335	510, 551	118, 836	\$581, 889
Briquets, fuel..... do.....	(1 ²)	(1 ²)	(1 ²)	(1 ²)
Cement..... barrels..	3, 994, 690	4, 722, 441	3, 779, 125	5, 449, 606
Chats..... short tons..	1, 934, 349	493, 597	1, 937, 000	484, 350
Clay:				
Products.....		³ 5, 080, 420		³ 6, 323, 896
Raw..... short tons..	177, 169	² 713, 127	223, 022	² 961, 854
Coal..... do.....	3, 432, 212	6, 175, 000	3, 352, 283	6, 278, 000
Coke..... do.....	(1 ²)	(1 ²)	(1 ²)	(1 ²)
Copper..... pounds.....			46, 276	3, 702
Iron ore..... long tons..			4, 154	13, 271
Lead..... short tons..	84, 980	6, 288, 520	90, 493	6, 696, 482
Lime..... do.....	230, 051	1, 121, 295	272, 236	1, 538, 900
Mineral paints, zinc and lead pigments..... do.....	1, 757	(1 ²)		
Mineral waters..... gallons sold..	(4)	(4)	(4)	(4)
Natural gas..... M cubic feet..	673, 000	380, 000	549, 000	278, 000
Ores (crude), etc.:				
Lead..... short tons..	2, 490, 000	(5)	2, 989, 700	(5)
Lead-zinc..... do.....	170, 800	(5)	60, 700	(5)
Zinc..... do.....			364, 600	(5)
Petroleum..... barrels..	10, 000	6, 000	35, 000	29, 000
Pyrites..... long tons..	18, 355	50, 161	14, 557	51, 640
Sand and gravel..... short tons..	3, 434, 540	1, 668, 048	2, 381, 453	1, 462, 740
Sand-lime brick..... thousands..			(1 ³)	(1 ³)
Silica (quartz)..... short tons..	(1)	(1)	(1)	(1)
Silver..... troy ounces..			63, 066	40, 770
Stone..... short tons..	2, 860, 590	3, 509, 248	⁶ 2, 438, 260	⁶ 2, 913, 415
Tripoli..... do.....	(1)	(1)	(1)	(1)
Zinc..... do.....	5, 042	423, 528	7, 059	607, 074
Miscellaneous ⁷ do.....		1, 230, 942		1, 247, 281
Total value, eliminating duplications.....		30, 588, 018		32, 954, 534

¹ Value included under "Miscellaneous."² Value not included in total value for State.³ Figures obtained through cooperation with Bureau of the Census.⁴ No canvass.⁵ Not valued as ore; value of recoverable metal content included under the metals.⁶ Exclusive of unclassified stone, value for which is included under "Miscellaneous."⁷ Includes minerals indicated by "1" and "6" above.

Mineral production of Montana, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Arsenious oxide.....short tons..	5, 480	\$295, 920	6, 833	\$348, 704
Asbestos.....do.....	10	350	8	240
Cement.....barrels.....	(1)	(1)	(1)	(1)
Clay:				
Products.....		\$ 35, 486		\$ 98, 593
Raw.....short tons.....	1, 092	\$ 3, 075	2, 675	\$ 4, 800
Coal.....do.....	2, 152, 207	3, 309, 000	2, 565, 702	3, 997, 000
Copper.....pounds.....	65, 476, 375	4, 190, 488	63, 265, 000	5, 061, 200
Gems and precious stones.....		(1)		(1)
Gold ¹.....troy ounces.....	57, 822	1, 477, 935	97, 446	3, 405, 736
Graphite, crystalline.....pounds.....		(1)		(1)
Gypsum.....short tons.....	(1)	(1)	(1)	(1)
Lead.....do.....	6, 582	487, 047	10, 005	740, 370
Lime.....do.....	1, 251	17, 264	(1)	(1)
Manganese ore.....long tons.....	9, 320	297, 451	11, 548	362, 450
Manganiferous ore.....do.....			11, 247	43, 484
Micaceous minerals (vermiculite).....short tons.....	(1)	(1)	(1)	(1)
Mineral waters.....gallons sold.....	(4)	(4)	(4)	(4)
Natural gas.....M cubic feet.....	14, 391, 000	4, 358, 000	14, 971, 000	4, 415, 000
Natural gasoline.....gallons.....	1, 295, 000	100, 000	1, 237, 000	83, 000
Ores (crude), etc.:				
Copper.....short tons.....	491, 893	(9)	458, 587	(9)
Copper lead.....do.....	60	(9)		
Dry and siliceous (gold and silver).....do.....	167, 237	(9)	287, 828	(9)
Lead.....do.....	7, 425	(9)	10, 321	(9)
Lead-zinc.....do.....	152, 582	(9)	244, 303	(9)
Zinc.....do.....	43, 289	(9)	65, 913	(9)
Petroleum.....barrels.....	2, 273, 000	2, 220, 000	3, 603, 000	4, 385, 000
Phosphate rock.....long tons.....	492	1, 238	2, 086	7, 613
Pyrites.....do.....	(1)	(1)	(1)	(1)
Sand and gravel.....short tons.....	2, 317, 758	1, 379, 831	5, 257, 164	2, 073, 513
Silver.....troy ounces.....	2, 660, 700	931, 245	4, 006, 468	2, 590, 040
Stone.....short tons.....	438, 800	377, 973	434, 260	407, 363
Zinc.....do.....	20, 724	1, 740, 854	30, 721	2, 642, 017
Miscellaneous ⁷		442, 007		774, 173
Total value, eliminating duplications.....		21, 662, 089		31, 430, 496

¹ Value included under "Miscellaneous."² Figures obtained through cooperation with Bureau of the Census.³ Value not included in total value for State.⁴ No canvass.⁵ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.⁶ Not valued as ore; value of recoverable metal content included under the metals.⁷ Includes minerals indicated by "1" above.

Mineral production of Nebraska, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Briquets, fuel.....short tons.....	(1) ²	(1) ²	(1) ²	(1) ²
Cement.....barrels.....	(1)	(1)	(1)	(1)
Clay:				
Products.....		(1) ³		(1) ³
Raw.....short tons.....	10, 178	\$ 89, 371	9, 006	\$ 86, 226
Mineral waters.....gallons sold.....	(4)	(4)	(4)	(4)
Pumice.....short tons.....	(1)	(1)	(1)	(1)
Sand and gravel.....do.....	1, 560, 589	656, 906	1, 433, 407	591, 513
Stone.....do.....	198, 070	219, 616	294, 690	402, 367
Miscellaneous ⁴		1, 189, 954		1, 828, 854
Total value, eliminating duplications.....		2, 047, 335		2, 790, 571

¹ Value included under "Miscellaneous."² Value not included in total value for State.³ Figures obtained through cooperation with Bureau of the Census.⁴ No canvass.⁵ Includes minerals indicated by "1" above.

SUMMARY OF MINERAL PRODUCTION

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Mineral production of Nevada, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Barite..... short tons..	1,040	\$7,280	(1)	(1)
Clay.....				
Products.....				
Raw..... short tons..	(1)	(1)		(1)
Copper..... short tons..	28,489,610	1,823,335	41,611,119	\$3,328,890
Diatomite..... short tons..	(1)	(1)	(1)	(1)
Feldspar (crude)..... long tons..			(1)	(1)
Fluorspar..... short tons..	505	(1)	631	(1)
Fuller's earth..... do.	5,974	61,571	(1)	(1)
Gems and precious stones.....				(1)
Gold.....				(1)
Graphite, amorphous..... troy ounces..	98,590	2,519,968	144,275	5,042,417
Gypsum..... short tons..	(1)	(1)	(1)	(1)
Lead..... do.	74,249	(1)	82,348	(1)
Lime..... do.	2,303	170,449	10,991	813,329
do..... do.	(1)	(1)	(1)	(1)
Magnesium hydrate (natural) (brucite)..... do.	(1)	(1)	(1)	(1)
Marl, calcareous..... do.	(1)	(1)	(1)	(1)
Mercury..... flasks (76 pounds)..	387	22,921	300	22,160
Mineral waters..... gallons sold..	(1)	(1)	(1)	(1)
Molybdenum..... pounds..			24,116	(1)
Ores (crude), etc.:				
Copper..... short tons..	1,197,498	(1)	1,819,913	(1)
Copper-lead..... do.	2,885	(1)	72	(1)
Dry and siliceous (gold and silver)..... do.	448,984	(1)	901,454	(1)
Lead..... do.	1,583	(1)	24,931	(1)
Lead-zinc..... do.	27,302	(1)	153,412	(1)
Zinc..... do.	202	(1)		(1)
Salt..... do.	(1)	(1)	(1)	(1)
Sand and gravel..... do.	2,522,718	937,327	1,377,496	597,453
Silver..... troy ounces..	1,148,621	402,017	3,057,114	1,976,316
Sodium sulphate from natural sources..... short tons..			(1)	(1)
Stone..... do.	80,630	104,428	764,880	74,219
Tungsten ore (60 percent concentrates)..... do.	550	(1)	1,044	(1)
Vanadium ores..... do.	50	(1)		(1)
Zinc..... do.	6,387	536,531	13,940	1,198,874
Miscellaneous.....		870,366		1,649,211
Total value, eliminating duplications.....		7,455,493		14,702,869

¹ Value included under "Miscellaneous."

² Figures obtained through cooperation with Bureau of the Census.

³ Value not included in total value for State.

⁴ No canvass.

⁵ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

⁶ Not valued as ore; value of recoverable metal content included under the metals.

⁷ Exclusive of basalt, value for which is included under "Miscellaneous."

⁸ Includes minerals indicated by "1" and "7" above.

Mineral production of New Hampshire, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Clay products.....				
Feldspar (crude)..... long tons..	12,425	¹ \$89,576	12,119	¹ \$172,162
Garnet, abrasive..... short tons..	(2)	82,978	(2)	80,733
Mica:				
Scrap..... do.	532	9,563	537	9,529
Sheet..... pounds..	167,464	22,008	161,430	14,423
Mineral waters..... gallons sold..	(3)	(3)	(3)	(3)
Peat..... short tons..	(3)	(3)	(3)	(3)
Sand and gravel..... do.	2,414,637	744,712	2,810,674	300,213
Stone..... do.	86,360	499,304	50,670	547,997
Miscellaneous.....		8,900		24,232
Total value, eliminating duplications.....		1,437,041		1,149,289

¹ Figures obtained through cooperation with Bureau of the Census.

² Value included under "Miscellaneous."

³ No canvass.

Mineral production of New Jersey, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Briquets, fuel..... short tons..	(1) ²	(1) ²	(1) ²	(1) ²
Cement..... barrels.....	(1)	(1)	(1)	(1)
Clay:				
Products.....		\$9,725,135 ³		\$10,249,477 ³
Raw..... short tons.....	57,445	256,731 ²	68,791	289,541 ²
Coke..... do.....	835,125	(1) ²	910,121	(1) ²
Diatomite..... do.....			150	4,635
Ferro-alloys..... long tons.....	(1) ²	(1) ²	(1) ²	(1) ²
Graphite, artificial..... pounds.....	(1) ²	(1) ²		
Iron ore..... long tons.....	73,385	(1)	145,326	(1)
Lime..... short tons.....	(1)	(1)	720	(1), 090
Manganiferous residuum..... long tons.....			65,236	(1)
Marl, greensand..... short tons.....	6,713	206,985	7,335	209,278
Mineral paints, zinc and lead pigments..... do.....			(1) ²	(1) ²
Mineral waters..... gallons sold.....	(4)	(4)	(4)	(4)
Ore (zinc)..... short tons.....	471,607	(4)	469,339	(4)
Peat..... do.....	(4)	(4)	(4)	(4)
Sand and gravel..... do.....	2,064,260	1,636,406	2,312,794	1,756,293
Sand and sandstone (finely ground)..... do.....	66,437	263,806	64,467	291,733
Silica (quartz)..... do.....	(1)	(1)	(1)	(1)
Stone..... do.....	1,093,310	1,272,481	1,368,490	1,662,968
Talc..... do.....	(1)	(1)	(1)	(1)
Zinc..... do.....	75,125	8,272,400	76,553	8,772,200
Miscellaneous ⁷		6,381,374		8,293,279
Total value, eliminating duplications.....		22,580,043		25,009,596

¹ Value included under "Miscellaneous."

² Value not included in total value for State.

³ Figures obtained through cooperation with Bureau of the Census.

⁴ No canvass.

⁵ Not valued as ore; value of recoverable metal content included under the metal.

⁶ Value reported for zinc in New Jersey is estimated smelting value of recoverable zinc content of ore after freight, haulage, smelting, and manufacturing charges are added.

⁷ Includes minerals indicated by "1" above.

Mineral production of New Mexico, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Asphalt (native)..... short tons.....	(1)	(1)	(1)	(1)
Clay:				
Products.....		(1) ²		(1) ²
Raw..... short tons.....	142	\$1,505	1,411	\$6,081
Coal..... do.....	1,226,236	3,071,000	1,259,323	3,402,000
Copper..... pounds.....	26,947,000	1,724,608	23,630,000	1,890,400
Fluorspar..... short tons.....	994	(1)	2,040	(1)
Gems and precious stones.....		(1)		(1)
Gold ⁴ troy ounces.....	26,474	676,678	27,307	954,380
Lead..... short tons.....	11,043	817,182	9,365	692,973
Lime..... do.....	(1)	(1)	(1)	(1)
Lithium minerals..... do.....	(1)	(1)	(1)	(1)
Mica:				
Scrap..... do.....	(1)	(1)	602	7,957
Sheet..... pounds.....	(1)	(1)	(1)	(1)
Mineral waters..... gallons sold.....	(1)	(1)	(1)	(1)
Molybdenum..... pounds.....	(1)	(1)	(1)	(1)
Natural gas..... M cubic feet.....	19,148,000	2,465,000	24,075,000	3,674,000
Natural gasoline..... gallons.....	19,149,000	654,000	21,748,000	570,000
Ores (crude), etc.:				
Copper..... short tons.....	1,100,707	(1)	1,000,972	(1)
Copper-lead..... do.....	1,419	(1)	1,178	(1)
Dry and siliceous (gold and silver)..... do.....	38,650	(1)	55,606	(1)
Lead..... do.....	877	(1)	807	(1)
Lead-zinc..... do.....	255,946	(1)	272,795	(1)
Zinc..... do.....	78,240	(1)	66,353	(1)
Petroleum..... barrels.....	14,116,000	6,490,000	16,864,000	12,760,000
Potassium salts..... short tons.....	(1)	(1)	(1)	(1)
Salt..... do.....	(1)	(1)	(1)	(1)
Sand and gravel..... do.....	777,086	776,936	161,325	180,879
Silver..... troy ounces.....	1,181,580	413,553	1,061,775	686,400
Stone..... short tons.....	427,980	437,287	1,215,940	1,094,608
Tantalum ore..... pounds.....	300	180	2,000	800
Tungsten ore (60 percent concentrates)..... short tons.....			1	(1)
Zinc..... do.....	30,924	2,597,616	26,522	2,280,849
Miscellaneous ⁷		3,230,641		1,934,222
Total value, eliminating duplications.....		23,354,681		30,079,469

¹ Value included under "Miscellaneous."

² Figures obtained through cooperation with Bureau of the Census.

³ Value not included in total value for State.

⁴ No canvass.

⁵ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

⁶ Not valued as ore; value of recoverable metal content included under the metals.

⁷ Includes minerals indicated by "(1)" above.

Mineral production of New York, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Aluminum..... pounds.....	(1)	(1)	(1)	(1)
Cement..... barrels.....	3,966,696	\$5,274,593	4,730,257	\$7,503,270
Clay:				
Products.....		4,511,639		4,564,493
Raw..... short tons.....	1,740	13,401	5,390	39,067
Coke..... do.....	3,426,529	19,232,209	4,089,708	25,283,246
Diatomite..... do.....	(1)	(1)	(1)	(1)
Emery..... do.....	1,056	12,283	189	1,800
Feldspar (crude)..... long tons.....	6,138	41,736	6,262	37,275
Ferro-alloys..... do.....	117,348	8,251,467	112,021	9,166,041
Garnet, abrasive..... short tons.....	(1)	(1)	(1)	(1)
Graphite, artificial..... pounds.....	(1)	(1)	(1)	(1)
Gypsum..... short tons.....	363,745	3,646,109	391,408	3,922,529
Iron:				
Ore—				
Sold to furnaces..... long tons.....	163,000	(1)	235,025	(1)
Sold for paint..... do.....			(1)	(1)
Pig..... do.....	851,496	12,344,827	961,679	14,621,274
Lead..... short tons.....	(1)	(1)	(1)	(1)
Lime..... do.....	36,369	286,625	36,050	300,328
Millstones.....		5,187		3,381
Mineral waters..... gallons sold.....	(1)	(1)	(1)	(1)
Natural gas..... M cubic feet.....	6,865,000	4,838,000	6,278,000	4,408,000
Natural gasoline..... gallons.....	96,000	5,000	85,000	5,000
Ores (crude), etc.:				
Lead-zinc..... short tons.....	120,839	(1)	198,936	(1)
Zinc..... do.....	59,831	(1)	84,016	(1)
Peat..... do.....	(1)	(1)	(1)	(1)
Petroleum..... barrels.....	3,181,000	5,960,000	3,804,000	9,340,000
Pyrites..... long tons.....	19,824	(1)	31,674	(1)
Salt..... short tons.....	1,847,696	5,120,846	1,866,280	5,263,394
Sand and gravel..... do.....	7,274,610	3,960,334	7,619,456	4,964,440
Sand-lime brick..... thousands.....	(1)	(1)	(1)	(1)
Silica (quartz)..... short tons.....	(1)	(1)	(1)	(1)
Silver..... troy ounces.....			26,406	17,071
Slate.....		291,768		305,869
Stone..... short tons.....	7,395,690	6,351,397	8,400,690	8,516,754
Talc..... do.....	82,618	969,338	57,580	681,184
Zinc..... do.....	17,733	1,489,572	23,188	1,994,168
Miscellaneous ⁷		9,709,144		9,597,016
Total value, eliminating duplications.....		42,940,471		54,625,552

¹ Value included under "Miscellaneous."

² Value not included in total value for State.

³ Exclusive of natural cement, value for which is included under "Miscellaneous."

⁴ Figures obtained through cooperation with Bureau of the Census.

⁵ No canvass.

⁶ Not valued as ore; value of recoverable metal content included under the metals.

⁷ Includes minerals indicated by "1" and "2" above.

Mineral production of North Carolina, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Aluminum..... pounds.....	(1) ¹	(1) ²	(1) ³	(1) ³
Bromine..... do.....			(1)	(1)
Clay:				
Products.....		\$1,035,195		\$1,136,115
Raw..... short tons.....	6,928	² 102,814	7,146	² 106,742
Coal..... do.....	2,014	7,000	3,140	9,000
Copper..... pounds.....	(1)	(1)	(1)	(1)
Feldspar (crude)..... long tons.....	85,962	471,312	79,844	465,214
Gems and precious stones.....	(1)	(1)	(1)	(1)
Gold ⁴ troy ounces.....	725	18,522	509	17,779
Lime..... short tons.....	(1)	(1)	(1)	(1)
Marl, calcareous..... do.....	(1)	(1)	(1)	(1)
Mica:				
Scrap..... do.....	6,918	74,711	4,757	59,496
Sheet..... pounds.....	162,672	21,107	293,381	38,674
Micaceous minerals (mica schist)..... short tons.....	(1)	(1)	(1)	(1)
Millstones.....		2,400		(1)
Mineral waters..... gallons sold.....	(1)	(1)	(1)	(1)
Ores (crude):				
Copper..... short tons.....	22,833	(1)	26,100	(1)
Dry and siliceous (gold and silver)..... do.....	1,820	(1)	670	(1)
Sand and gravel..... do.....	524,903	201,113	338,381	225,588
Silica (quartz)..... do.....	(1)	(1)	(1)	(1)
Silver..... troy ounces.....	11,492	4,022	9,710	6,277
Stone..... short tons.....	599,400	1,049,214	1,193,690	1,831,351
Talc..... do.....	14,412	149,540	15,367	165,523
Miscellaneous ⁷		2,379,024		3,455,289
Total value, eliminating duplications.....		3,365,160		5,342,806

¹ Value included under "Miscellaneous."

² Value not included in total value for State.

³ Figures obtained through cooperation with Bureau of the Census.

⁴ No canvass.

⁵ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

⁶ Not valued as ore; value of recoverable metal content included under the metals.

⁷ Includes minerals indicated by "1" above.

Mineral production of North Dakota, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Briquets, fuel..... short tons.....	(1) ¹	(1) ²	(1) ³	(1) ³
Clay:				
Products.....		(1) ³		(1) ³
Raw..... short tons.....	3,522	² \$3,381	(1) ³	(1) ³
Coal..... do.....	1,782,272	2,248,000	1,753,888	\$2,363,000
Mineral waters..... gallons sold.....	(1)	(1)	(1)	(1)
Sand and gravel..... short tons.....	1,964,394	674,187	1,605,382	130,813
Stone..... do.....			⁴ 5,700	⁴ 2,132
Miscellaneous ⁶		102,243		155,305
Total value, eliminating duplications.....		2,960,811		2,549,850

¹ Value included under "Miscellaneous."

² Value not included in total value for State.

³ Figures obtained through cooperation with Bureau of the Census.

⁴ No canvass.

⁵ Exclusive of granite, value for which is included under "Miscellaneous."

⁶ Includes minerals indicated by "1" and "2" above.

Mineral production of Ohio, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Briquets, fuel..... short tons..	(1) ¹	(1) ¹	(1) ¹	(1) ¹
Bromine..... pounds..	(1)	(1)	(1)	(1)
Calcium chloride..... short tons..	(1)	(1)	(1)	(1)
Cement..... barrels..	³ 3, 042, 645	³ \$3, 662, 733	³ 3, 674, 384	³ \$5, 565, 525
Clay:				
Products.....		⁴ 19, 534, 120		⁴ 25, 600, 605
Raw..... short tons..	167, 873	² 320, 782	204, 176	² 467, 829
Coal..... do..	19, 588, 763	23, 549, 000	20, 690, 564	34, 774, 000
Coke..... do..	3, 676, 727	² 14, 540, 301	4, 296, 338	² 19, 001, 895
Ferro-alloys..... long tons..	69, 125	² 2, 563, 705	58, 041	² 2, 140, 286
Grindstones and pulpstones..... short tons..	8, 749	237, 627	8, 085	241, 682
Gypsum..... do..	(1)	(1)	(1)	(1)
Iron, pig..... long tons..	4, 188, 482	² 60, 995, 721	4, 147, 116	² 68, 525, 145
Lime..... short tons..	558, 901	3, 353, 102	562, 041	4, 282, 510
Marl, calcareous..... do..	(1)	(1)	(1)	(1)
Mineral paints, zinc and lead pigments..... do..	(1) ²	(1) ²	(1) ²	(1) ²
Mineral waters..... gallons sold..	(5)	(5)	(5)	(5)
Natural gas..... M cubic feet..	47, 929, 000	25, 103, 000	50, 330, 000	25, 728, 000
Natural gasoline..... gallons..	4, 662, 000	258, 000	5, 831, 000	239, 000
Peat..... short tons..	(5)	(5)	(1)	(1)
Petroleum..... barrels..	4, 235, 000	4, 540, 000	4, 234, 000	6, 830, 000
Rubbing stones, scythestones, and whetstones..... short tons..	(1)	(1)	129	18, 151
Salt..... do..	1, 382, 294	2, 599, 055	1, 432, 292	2, 721, 167
Sand and gravel..... do..	4, 071, 808	2, 672, 052	5, 257, 514	4, 134, 006
Sand and sandstone (finely ground)..... do..	(1)	(1)	(1)	(1)
Sand-lime brick..... thousands..	(1)	(1)	(1)	(1)
Silica (quartz)..... short tons..	(1)	(1)	(1)	(1)
Stone..... do..	⁶ 5, 428, 490	⁶ 4, 518, 520	5, 974, 850	5, 490, 800
Sulphuric acid ⁷ do..	(1) ²	(1) ²	(1) ²	3, 896, 339
Miscellaneous ⁸ do..	(1)	4, 438, 507		
Total value, eliminating duplications.....		91, 145, 609		116, 937, 662

¹ Value included under "Miscellaneous."

² Value not included in total value for State.

³ Exclusive of natural cement, value for which is included under "Miscellaneous."

⁴ Figures obtained through cooperation with Bureau of the Census.

⁵ No canvass.

⁶ Exclusive of unclassified stone, value for which is included under "Miscellaneous."

⁷ From zinc smelting.

⁸ Includes minerals indicated by "1", "3", and "6" above.

Mineral production of Oklahoma, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Asphalt (native).....short tons..	(1)	(1)	(1)	(1)
Briquets, fuel.....do.....	(1 ²)	(1 ²)	(1 ²)	(1 ²)
Bromine.....pounds.....	(1)	(1)	(1)	(1)
Calcium chloride.....short tons..	(1)	(1)	(1)	(1)
Cement.....barrels.....	(1)	(1)	(1)	(1)
Chats.....short tons.....	91,050	\$18,210	131,000	\$20,560
Clay:				
Products.....		³ 128,396		³ 196,046
Raw.....short tons.....	5,630	² 65,141	8,502	² 84,241
Coal.....do.....	1,238,244	2,616,000	1,208,289	2,846,000
Gypsum.....do.....	97,008	(1)	105,620	(1)
Lead.....do.....	18,038	1,334,812	16,747	1,239,278
Magnesium sulphate (natural).....pounds.....	(1)	(1)	(1)	(1)
Mineral waters.....gallons sold.....	(4)	(4)	(4)	(4)
Natural gas.....M cubic feet.....	245,759,000	23,760,000	254,457,000	23,744,000
Natural gasoline.....gallons.....	360,488,000	12,177,000	355,438,000	10,728,000
Ores (crude), etc.:				
Lead-zinc.....short tons.....	2,188,200	(⁹)	2,505,200	(⁹)
Zinc.....do.....	1,433,900	(⁹)	3,422,200	(⁹)
Petroleum.....barrels.....	182,251,000	120,800,000	180,107,000	183,700,000
Potassium salts.....short tons.....			(1)	(1)
Pumice.....do.....	(1)	(1)	(1)	(1)
Salt.....do.....	(1)	(1)	(1)	(1)
Sand and gravel.....do.....	1,220,425	361,425	703,789	343,704
Stone.....do.....	737,060	575,734	966,020	731,675
Sulphuric acid ⁶.....do.....	(1 ²)	(1 ²)	(1 ²)	(1 ²)
Tripoli.....do.....	(1)	(1)	(1)	(1)
Zinc.....do.....	91,065	7,649,460	107,772	9,268,392
Miscellaneous ⁷		3,493,169		4,881,601
Total value, eliminating duplications.....		172,560,924		237,208,583

¹ Value included under "Miscellaneous."² Value not included in total value for State.³ Figures obtained through cooperation with Bureau of the Census.⁴ No canvass.⁵ Not valued as ore; value of recoverable metal content included under the metals.⁶ From zinc smelting.⁷ Includes minerals indicated by "1" above.

Mineral production of Oregon, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Briquets, fuel.....short tons..	(1) ²	(1) ²	(1) ²	(1) ²
Cement.....barrels..	(1)	(1)	(1)	(1)
Clay:				
Products.....		\$157,137 ³		\$134,715 ³
Raw.....short tons..	(1) ²	(1) ²	(1) ²	(1) ²
Coal.....do.....	(1)	(1)	(1)	(1)
Copper.....pounds..	11,453	733	38,373	3,070
Diatomite.....short tons..	(1)	(1)	(1)	(1)
Gems and precious stones.....	(1)	(1)	(1)	(1)
Gold ⁵.....troy ounces..	20,240	517,326	33,712	1,178,220
Lead.....short tons..	5	347	21	1,539
Lime.....do.....	(1)	(1)	(1)	(1)
Mercury.....flasks (76 pounds)..	1,342	79,483	3,460	255,573
Mineral waters.....gallons sold..	(1)	(1)	(1)	(1)
Ores (crude), etc.:				
Dry and siliceous (gold and silver).....short tons..	11,508	(6)	61,842	(6)
Lead.....do.....	2	(6)	3	(6)
Lead-zinc.....do.....	47	(6)	300	(6)
Platinum and allied metals.....troy ounces..	44	1,647	113	4,401
Pumice.....short tons..	(1)	(1)	(1)	(1)
Sand and gravel.....do.....	1,636,476	863,671	1,617,222	820,677
Silver.....troy ounces..	20,760	7,266	46,560	30,099
Stone.....short tons..	1,341,660	1,328,940	997,030	863,447
Zinc.....do.....	6	516	37	3,147
Miscellaneous ⁸		1,074,566		1,341,352
Total value, eliminating duplications.....		3,504,825		4,211,397

¹ Value included under "Miscellaneous."

² Value not included in total value for State.

³ Figures obtained through cooperation with Bureau of the Census.

⁴ No canvass.

⁵ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

⁶ Not valued as ore; value of recoverable metal content included under the metals.

⁷ Exclusive of limestone in 1933 and of unclassified stone in 1934, value for which is included under "Miscellaneous."

⁸ Includes minerals indicated by "1" and "7" above.

Mineral production of Pennsylvania, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Briquets, fuel..... short tons.....	49, 883	1 \$244, 026	119, 181	1 \$558, 615
Cement..... barrels.....	2 12, 486, 585	2 15, 696, 852	2 15, 435, 648	2 23, 138, 676
Clay: Products.....		3 14, 020, 063		3 15, 530, 583
Raw..... short tons.....	397, 944	1 958, 273	449, 924	1 1, 126, 777
Coal: Anthracite..... do.....	49, 541, 344	206, 718, 405	57, 168, 291	244, 152, 245
Bituminous..... do.....	79, 295, 944	108, 418, 000	89, 825, 875	165, 371, 000
Coke..... do.....	6, 840, 419	1 25, 731, 239	7, 554, 955	1 30, 158, 115
Copper 4..... pounds.....	(5) 213	(5)	(5) 64	(5)
Feldspar (crude)..... long tons.....	(5) 1, 442	(5)	(5) 64	(5) 456
Ferro-alloys..... do.....	175, 172	1 13, 756, 984	165, 650	1 16, 375, 553
Gems and precious stones.....		(5)		(5)
Gold 4 7..... troy ounces.....	209	5, 342	623	21, 774
Iron: Ore— Sold to furnaces..... long tons.....	324, 052	650, 664	524, 657	1, 052, 770
Sold for paint..... do.....	499	(5)	640	(5)
Pig..... do.....	3, 952, 862	1 62, 797, 008	4, 173, 412	1 76, 740, 066
Lime..... short tons.....	433, 795	2, 810, 758	434, 519	3, 165, 539
Marl, calcareous..... do.....	60	150		
Mineral paints, zinc and lead pigments..... do.....	(1 5)	(1 5)	(1 5)	(1 5)
Mineral waters..... gallons sold.....	(5)	(5)	(5)	(5)
Natural gas..... M cubic feet.....	63, 579, 000	31, 979, 600	86, 238, 000	37, 524, 000
Natural gasoline..... gallons.....	11, 686, 000	568, 000	10, 731, 000	467, 000
Peat..... short tons.....	(5)	(5)	(5)	(5)
Petroleum..... barrels.....	12, 624, 000	23, 590, 000	14, 478, 000	35, 200, 000
Sand and gravel..... short tons.....	5, 044, 179	4, 212, 866	5, 970, 517	5, 064, 807
Sand and sandstone (finely ground)..... do.....	(5)	(5)	(5)	(5)
Sand-lime brick..... thousands.....	(3 5)	(3 5)	(3 5)	(3 5)
Silver 4..... troy ounces.....	2, 300	805	6, 230	4, 027
Slate.....		1, 124, 014		1, 237, 477
Stone..... short tons.....	12, 802, 020	11, 660, 318	15, 251, 330	14, 501, 246
Sulphuric acid (60° Baumé) 5..... do.....	113, 596	1 856, 514	161, 201	1 1, 273, 488
Talc..... do.....	(5)	(5)	(5)	(5)
Tripoli (rottenstone)..... do.....	148	4, 487	240	4, 800
Miscellaneous 6.....		5, 467, 196		6, 234, 071
Total value, eliminating duplications.....		421, 846, 539		546, 932, 552

1 Value not included in total value for State.

2 Exclusive of puzzolan and natural cement, value for which is included under "Miscellaneous."

3 Figures obtained through cooperation with Bureau of the Census.

4 Copper, gold, and silver were recovered from pyritiferous magnetite. The quantity of such ore was 347,290 short tons in 1933 and 557,740 short tons in 1934; it is included in the figures shown for iron ore.

5 Value included under "Miscellaneous."

6 No canvass.

7 Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

8 From zinc smelting.

9 Includes minerals indicated by "2" and "3" above.

Mineral production of Rhode Island, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Clay products.....		(1 2)		(1 2)
Coke..... short tons.....	(1 3)	(1 3)	(1 3)	(1 3)
Lime..... do.....	1, 503	\$17, 120	1, 884	\$18, 752
Mineral waters..... gallons sold.....	(4)	(4)	(4)	(4)
Sand and gravel..... short tons.....	397, 977	115, 973	423, 624	69, 149
Stone..... do.....	5 11, 670	5 210, 071	185, 280	397, 540
Miscellaneous.....		1, 530, 636		1, 857, 614
Total value, eliminating duplications.....		386, 983		485, 441

1 Value included under "Miscellaneous."

2 Figures obtained through cooperation with Bureau of the Census.

3 Value not included in total value for State.

4 No canvass.

5 Exclusive of unclassified stone, value for which is included under "Miscellaneous."

Mineral production of South Carolina, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Barite..... short tons.....	(1)	(1)	(1)	(1)
Clay:				
Products.....		¹ \$280, 288		(1) ²
Raw..... short tons.....	95, 654	³ 572, 814	91, 165	³ \$652, 642
Copper..... pounds.....			400	32
Gold..... troy ounces.....	235	5, 996	642	22, 439
Mica, sheet..... pounds.....	(1)	(1)	(1)	(1)
Mineral waters..... gallons sold.....	(9)	(9)	(9)	(9)
Ore (dry and siliceous) (gold and silver)..... short tons.....	510	(9)	3, 982	(9)
Sand and gravel..... do.....	119, 667	59, 163	144, 053	90, 871
Silver..... troy ounces.....	103	36	487	315
Stone..... short tons.....	354, 140	659, 443	431, 790	847, 860
Miscellaneous ⁷ short tons.....		236		361, 776
Total value, eliminating duplications.....		1, 014, 162		1, 323, 293

¹ Value included under "Miscellaneous."

² Figures obtained through cooperation with Bureau of the Census.

³ Value not included in total value for State.

⁴ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

⁵ No canvass.

⁶ Not valued as ore; value of recoverable metal content included under the metals.

⁷ Includes minerals indicated by "1" above.

Mineral production of South Dakota, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Cement..... barrels.....	(1)	(1)	(1)	(1)
Clay:				
Products.....		(1) ²		(1) ²
Raw..... short tons.....	344	³ \$1, 764	(1) ³	(1) ³
Coal..... do.....	59, 375	104, 000	42, 407	\$76, 000
Feldspar (crude)..... long tons.....	3, 220	12, 058	9, 190	30, 892
Gems and precious stones.....		(4)		(4)
Gold ⁴ troy ounces.....	512, 404	13, 097, 040	486, 119	16, 989, 858
Gypsum..... short tons.....	(1)	(1)	(1)	(1)
Lime..... do.....	(1)	(1)	(1)	(1)
Lithium minerals..... do.....	336	10, 477	684	20, 480
Mica, scrap..... do.....	(1)	(1)	515	6, 665
Mineral waters..... gallons sold.....	(4)	(4)	(4)	(4)
Natural gas..... M cubic feet.....	10, 000	3, 000	11, 000	4, 000
Ores (crude), etc.:				
Dry and siliceous (gold and silver)..... short tons.....	1, 432, 555	(9)	1, 520, 669	(9)
Sand and gravel..... do.....	3, 238, 940	624, 428	3, 863, 410	773, 559
Silver..... troy ounces.....	125, 417	43, 896	99, 741	64, 479
Stone..... short tons.....	133, 520	376, 078	⁷ 237, 510	⁷ 497, 200
Tantalum ore..... pounds.....			425	168
Tin (metallic equivalent)..... do.....	240	(1)	445	(1)
Miscellaneous ⁸ do.....		387, 527		734, 527
Total value, eliminating duplications.....		14, 658, 504		19, 173, 033

¹ Value included under "Miscellaneous."

² Figures obtained through cooperation with Bureau of the Census.

³ Value not included in total value for State.

⁴ No canvass.

⁵ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

⁶ Not valued as ore; value of recoverable metal content included under the metals.

⁷ Exclusive of basalt, value for which is included under "Miscellaneous."

⁸ Includes minerals indicated by "1" and "7" above.

Mineral production of Tennessee, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Aluminum..... pounds.....	(1) ²	(1) ²	(1) ²	(1) ²
Barite..... short tons.....	(1)	(1)	(1)	(1)
Cement..... barrels.....	1,468,860	\$2,044,970	2,305,578	\$3,645,659
Clay:				
Products.....		³ 1,355,308		³ 1,756,020
Raw..... short tons.....	48,222	² 224,586	47,665	² 215,511
Coal..... do.....	3,774,761	5,255,000	4,135,790	7,514,000
Coke..... do.....	83,291	² 277,820	76,591	² 399,003
Copper..... pounds.....	(1)	(1)	(1)	(1)
Ferro-alloys..... long tons.....	(1) ²	(1) ²	(1) ²	(1) ²
Gold ⁴ troy ounces.....	223	5,712	455	15,902
Iron:				
Ore—				
Sold to furnaces..... long tons.....	24,912	47,824	3,040	6,080
Sold for paint..... do.....			305	(1)
Pig..... do.....	14,656	(1) ²	10,760	(1) ²
Sinter from copper sulphide ore..... do.....	(1)	(1)	(1)	(1)
Lead..... short tons.....	(1)	(1)	(1)	(1)
Lime..... do.....	119,587	548,242	122,818	650,625
Manganese ore..... long tons.....	588	(1)	1,088	(1)
Mineral waters..... gallons sold.....	(5)	(5)	(5)	(5)
Natural gas..... M cubic feet.....	48,000	8,000	12,000	4,000
Ores (crude), etc.:				
Copper..... short tons.....	333,413	(5)	584,411	(5)
Lead-zinc..... do.....	8,000	(5)	20,000	(5)
Zinc..... do.....	644,820	(5)	808,215	(5)
Petroleum..... barrels.....	5,000	3,000	10,000	10,000
Phosphate rock..... long tons.....	333,051	1,366,015	423,879	1,797,766
Pyrites..... do.....	(1)	(1)	(1)	(1)
Sand and gravel..... short tons.....	1,363,313	752,075	1,713,539	1,115,891
Silica (quartz)..... do.....	(1)	(1)	(1)	(1)
Silver..... troy ounces.....	39,869	13,954	61,148	39,530
Slate..... do.....		(1)		2,238
Stone..... short tons.....	⁷ 1,227,420	⁷ 2,450,168	⁷ 2,094,890	⁷ 2,396,510
Sulphuric acid ⁸ do.....	(1) ²	(1) ²	(1) ²	(1) ²
Tripoli..... do.....	(1)	(1)	(1)	(1)
Zinc..... do.....	(1)	(1)	(1)	(1)
Miscellaneous ⁹		11,446,272		10,762,323
Total value, eliminating duplications.....		16,785,481		23,525,650

¹ Value included under "Miscellaneous."

² Value not included in total value for State.

³ Figures obtained through cooperation with Bureau of the Census.

⁴ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

⁵ No canvass.

⁶ Not valued as ore; value of recoverable metal content included under the metals.

⁷ Exclusive of sandstone in 1933 and of granite in 1934, value for which is included under "Miscellaneous."

⁸ From copper smelting.

⁹ Includes minerals indicated by "1" and "7" above.

Mineral production of Texas, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Asphalt (native)..... short tons.	126, 069	\$353, 847	(1)	(1)
Briquets, fuel..... do.	(1 ²)	(1 ²)	(1 ²)	(1 ²)
Cement..... barrels.	3, 091, 071	5, 268, 605	3, 418, 781	\$5, 995, 677
Clay:				
Products.....		³ 1, 083, 051		³ 1, 246, 341
Raw..... short tons.	28, 951	² 207, 817	55, 233	² 274, 069
Coal..... do.	821, 878	833, 000	759, 289	1, 145, 000
Copper..... pounds.	2, 000	128	29, 000	2, 320
Fuller's earth..... short tons.	31, 893	308, 096	32, 763	325, 397
Gems and precious stones.....		(4)		(4)
Gold ¹ troy ounces.			359	12, 538
Gypsum..... short tons.	112, 106	1, 058, 869	138, 326	1, 403, 454
Helium..... cubic feet.	(1 ⁶)	(1 ⁶)	(1 ⁶)	(1 ⁶)
Lead..... short tons.	3	222	360	26, 603
Lime..... do.	36, 286	339, 035	36, 620	325, 499
Mercury..... flasks (76 pounds)	(1)	(1)	(1)	(1)
Mineral waters..... gallons sold.	(4)	(4)	(4)	(4)
Natural gas..... M cubic feet.	475, 691, 000	88, 264, 000	602, 976, 000	95, 056, 000
Natural gasoline..... gallons.	366, 515, 000	11, 562, 000	466, 570, 000	12, 366, 000
Ores (crude), etc.:				
Copper..... short tons.	45	(7)		(7)
Copper-lead..... do.			47, 625	(7)
Dry and siliceous (gold and silver)..... do.		(7)	54	(7)
Lead..... do.	18	(7)	54	(7)
Petroleum..... barrels.	402, 609, 000	225, 000, 000	381, 516, 000	361, 550, 000
Potassium salts..... short tons.			(1)	(1)
Salt..... do.	165, 603	560, 085	208, 979	612, 586
Sand and gravel..... do.	4, 317, 312	2, 264, 905	4, 572, 594	2, 621, 360
Sand-lime brick..... thousands.			(1 ³)	(1 ³)
Silver..... troy ounces.	160	56	854, 442	552, 367
Sodium sulphate from natural sources..... short tons.	(1)	(1)	(1)	(1)
Stone..... do.	1, 244, 730	1, 170, 464	⁸ 2, 749, 270	⁸ 2, 183, 435
Sulphur..... long tons.	1, 507, 749	27, 139, 482	1, 302, 663	23, 447, 934
Miscellaneous ⁹		381, 900		678, 319
Total value, eliminating duplications.....		365, 571, 179		509, 521, 286

¹ Value included under "Miscellaneous."

² Value not included in total value for State.

³ Figures obtained through cooperation with Bureau of the Census.

⁴ No canvass.

⁵ Gold valued at average weighted price (\$34.95 per ounce).

⁶ For details of production in fiscal years see chapter on Helium in Minerals Yearbook, 1935.

⁷ Not valued as ore; value of recoverable metal content included under the metals.

⁸ Exclusive of basalt, value for which is included under "Miscellaneous."

⁹ Includes minerals indicated by "1" and "6" above.

Mineral production of Utah, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Arsenious oxide..... short tons..	2,091	\$112,914	7,829	\$399,532
Asphalt (native)..... do.....	28,065	580,146	30,399	603,374
Cement..... barrels..	(1) ¹	(1)	(1)	(1)
Clay:				
Products.....		(1 2)		2 250,209
Raw..... short tons..	16,152	141,673	20,036	138,231
Coal..... do.....	2,674,986	5,109,000	2,406,183	4,746,000
Coke..... do.....	77,101	(1 3)	130,804	(1 3)
Copper..... pounds..	73,533,130	4,709,320	86,024,925	6,881,994
Gems and precious stones.....	(4)	(4)	(4)	(4)
Gold ⁵ troy ounces..	109,130	2,739,351	136,582	4,773,524
Gypsum..... short tons..	(1)	(1)	(1)	(1)
Iron:				
Ore—				
Sold to furnaces..... long tons..	95,129	(1)	161,009	(1)
Sold for paint..... do.....	150	(1)	100	(1)
Pig..... do.....	(1 3)	(1 3)	(1 3)	(1 3)
Lead..... short tons..	58,688	4,342,933	58,077	4,297,696
Lime..... do.....	8,557	75,889	9,611	97,363
Mercury..... flasks (76 pounds)	(1)	(1)	(1)	(1)
Natural gas..... M cubic feet..	48,000	13,000	182,000	43,000
Ores (crude), etc.:				
Copper..... short tons..	3,524,073	(6)	4,092,303	(6)
Copper-lead..... do.....			127	(6)
Dry and siliceous (gold and silver)	150,007	(6)	478,119	(6)
Lead..... do.....	62,319	(6)	67,634	(6)
Lead-zinc..... do.....	380,489	(6)	438,552	(6)
Zinc..... do.....	47	(6)		(6)
Petroleum..... barrels..	(1)	(1)	4,000	4,000
Potassium salts..... short tons..			(1)	(1)
Salt..... do.....	56,305	141,330	(1)	(1)
Sand and gravel..... do.....	1,552,690	629,680	1,837,314	1,494,700
Silver..... troy ounces..	5,669,197	1,984,219	7,111,417	4,597,280
Stone..... short tons..	193,470	183,524	389,820	286,714
Sulphur..... long tons..	(1)	(1)	(1)	(1)
Sulphuric acid ⁶ short tons..	(1 3)	(1 3)	(1 3)	(1 3)
Uranium and vanadium ores..... do.....	5	(1)	76	2,828
Zinc..... do.....	29,745	2,498,546	28,198	2,425,040
Miscellaneous ⁸ do.....		2,489,711		4,338,985
Total value, eliminating duplications.....		24,179,771		32,527,119

¹ Value included under "Miscellaneous."² Figures obtained through cooperation with Bureau of the Census.³ Value not included in total value for State.⁴ No canvass.⁵ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.⁶ Not valued as ore; value of recoverable metal content included under the metals.⁷ Exclusive of marble, value for which is included under "Miscellaneous."⁸ From copper smelting.⁹ Includes minerals indicated by "1" and "7" above.

Mineral production of Vermont, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Asbestos..... short tons..	(1)	(1)	(1)	(1)
Clay:				
Products.....		(1 2)		(1 2)
Raw..... short tons..	(1 3)	(1 3)	(1 3)	(1 3)
Lime..... do.....	28,509	\$196,532	31,218	\$242,551
Mineral waters..... gallons sold..	(4)	(4)	(4)	(4)
Sand and gravel..... short tons..	335,763	117,858	395,577	196,469
Scythstones..... do.....	(1)	(1)	(1)	(1)
Slate.....		688,903		579,582
Stone..... short tons..	186,930	4,312,441	238,140	3,321,801
Talc..... do.....	36,233	299,558	34,243	313,346
Miscellaneous ⁵ do.....		183,800		200,325
Total value, eliminating duplications.....		5,792,574		4,852,949

¹ Value included under "Miscellaneous."² Figures obtained through cooperation with Bureau of the Census.³ Value not included in total value for State.⁴ No canvass.⁵ Includes minerals indicated by "1" above.

Mineral production of Virginia, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Barite..... short tons..	(1)	(1)	(1)	(1)
Cement..... barrels..	(1)	(1)	(1)	(1)
Clay:				
Products.....		\$1,089,297		\$1,255,579
Raw..... short tons..	4,823	\$18,145	5,099	\$33,892
Coal..... do.....	8,178,642	10,029,000	9,376,681	16,375,000
Coke..... do.....	70,493	\$243,475	77,960	\$324,063
Copper..... pounds.....			400	32
Feldspar (crude)..... long tons..	13,459	52,758	12,140	64,529
Ferro-alloys..... do.....	(1) ³	(1) ³	(1) ³	(1) ³
Gold ⁴ troy ounces..	32	824	667	23,315
Gypsum..... short tons..	(1)	(1)	(1)	(1)
Iron:				
Ore..... long tons..	287	574	297	594
Pig..... do.....	3,092	(1) ³	3,843	(1) ³
Lead..... short tons..	(1)	(1)	(1)	(1)
Lime..... do.....	84,597	487,957	94,041	610,649
Manganese ore..... long tons..	4,882	74,050	1,597	25,821
Manganiferous ore..... do.....	404	2,032	40	300
Marl, calcareous..... short tons..	2,175	3,706	3,208	4,353
Mica:				
Scrap..... do.....	(1)	(1)	(1)	(1)
Sheet..... pounds.....			(1)	(1)
Millstones.....		800		(1)
Mineral waters..... gallons sold	(9)	(9)	(9)	(9)
Ores (crude), etc.:				
Dry and siliceous (gold and silver)..... short tons..	10	(9)	12,000	(9)
Lead-zinc..... do.....	247,520	(9)	251,144	(9)
Phosphate rock..... long tons..	(1)	(1)	(1)	(1)
Pyrites..... do.....	(1)	(1)	(1)	(1)
Salt..... short tons..	(1)	(1)	(1)	(1)
Sand and gravel..... do.....	1,461,059	1,168,234	1,731,086	1,359,081
Sand and sandstone (finely ground)..... do.....	(1)	(1)		(1)
Silica (quartz)..... do.....			(1)	(1)
Silver..... troy ounces..			103	67
Slate.....		784,126		7113,035
Stone ⁵ short tons..	2,096,750	2,302,125	2,883,140	3,103,403
Talc and ground soapstone ⁶ do.....	9,348	40,058	(1)	(1)
Titanium minerals:				
Ilmenite..... do.....	(1)	(1)	(1)	(1)
Rutile..... do.....	(1)	(1)	(1)	(1)
Zinc..... do.....	(1)	(1)	(1)	(1)
Miscellaneous ¹⁰		4,087,099		5,938,542
Total value, eliminating duplications.....		18,845,740		28,309,377

¹ Value included under "Miscellaneous."

² Figures obtained through cooperation with Bureau of the Census.

³ Value not included in total value for State.

⁴ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

⁵ No canvass.

⁶ Not valued as ore; value of recoverable metal content included under the metals.

⁷ Exclusive of granules, etc., value for which is included under "Miscellaneous."

⁸ Soapstone used as dimension stone included in figures for stone.

⁹ Exclusive of marble, value for which is included under "Miscellaneous."

¹⁰ Includes minerals indicated by "(1)", "(?)", and "(9)" above.

Mineral production of Washington, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Asbestos..... short tons..	(1)	(1)	(1)	(1)
Briquets, fuel..... do.....	(1 2)	(1 2)	(1 2)	(1 2)
Cement..... barrels..	(1)	(1)	(1)	(1)
Clay.....				
Products.....		\$ 533, 822		(1 2)
Raw..... short tons..	6, 101	7, 913	17, 701	\$ 14, 360
Coal..... do.....	1, 394, 068	3, 916, 000	1, 382, 991	4, 002, 000
Coke..... do.....	32, 196	144, 170	28, 893	178, 092
Copper..... pounds..	5, 781	370	13, 900	1, 112
Diatomite..... short tons..	363	5, 700	456	6, 008
Gold ⁴ troy ounces..	4, 563	116, 622	8, 302	290, 149
Grindstones and pulpstones..... short tons..	(1)	(1)	(1)	(1)
Iron ore..... long tons..	1, 631	(1)	1, 920	(1)
Lead..... short tons..	840	62, 176	291	21, 508
Lime..... do.....	17, 214	170, 281	22, 764	247, 151
Magnesite..... do.....	(1)	(1)	(1)	(1)
Magnesium sulphate (natural)..... pounds..	(1)	(1)	(1)	(1)
Mercury..... flasks (76 pounds)..	(1)	(1)	330	24, 375
Mineral waters..... gallons sold..	(1)	(1)	(1)	(1)
Natural gas..... M cubic feet..	110, 500	76, 700	104, 000	75, 000
Ores (crude), etc.:				
Dry and siliceous (gold and silver)..... short tons..	5, 275	(1)	19, 420	(1)
Lead..... do.....	230	(1)	160	(1)
Lead-zinc..... do.....	48, 479	(1)	28, 322	(1)
Platinum..... troy ounces..			1	35
Sand and gravel..... short tons..	2, 278, 097	873, 111	3, 311, 009	1, 288, 918
Silver..... troy ounces..	18, 520	6, 482	44, 120	28, 522
Sodium sulphate from natural sources..... short tons..			(1)	(1)
Stone..... do.....	1, 393, 670	1, 162, 323	3, 059, 130	2, 796, 231
Talc..... do.....	(1)	(1)	900	3, 250
Tungsten ore (60 percent concentrates)..... do.....	43	(1)	164	(1)
Zinc..... do.....	3, 369	285, 003	1, 926	165, 654
Miscellaneous ⁵		2, 218, 672		4, 033, 356
Total value, eliminating duplications.....		9, 387, 645		12, 946, 751

¹ Value included under "Miscellaneous."

² Value not included in total value for State.

³ Figures obtained through cooperation with Bureau of the Census.

⁴ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

⁵ No canvass.

⁶ Not valued as ore; value of recoverable metal content included under the metals.

⁷ Exclusive of marble, value for which is included under "Miscellaneous."

⁸ Includes minerals indicated by "()" and "()" above.

Mineral production of West Virginia, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Briquets, fuel.....short tons..	57,723	¹ \$180,865	94,745	¹ \$325,432
Bromine.....pounds..	219,560	31,784	406,765	63,690
Calcium chloride.....short tons..	3,272	21,189	4,701	38,529
Cement.....barrels..	(²)	(²)	(²)	(²)
Clay:				
Products.....		³ 10,753,559		⁴ 13,065,783
Raw.....short tons..	31,765	¹ 43,783	28,658	¹ 51,250
Coal.....do.....	94,343,535	107,124,000	98,134,393	167,104,000
Coke.....do.....	1,186,885	¹ 2,531,923	1,515,432	¹ 4,231,663
Ferro-alloys.....long tons..	(¹ ²)	(¹ ²)	(¹ ²)	(¹ ²)
Grindstones and pulpstones.....short tons..	4,753	172,656	4,260	208,174
Iron, pig.....long tons..	449,219	(¹ ²)	445,688	(¹ ²)
Lime.....short tons..	121,473	655,303	143,071	904,438
Manganese ore.....long tons..	95	(²)		
Marl, calcareous.....short tons..	(²)	(²)	(²)	(²)
Mineral waters.....gallons sold	(⁴)	(⁴)	(⁴)	(⁴)
Natural gas.....M cubic feet.	100,653,000	42,198,000	109,161,000	44,263,000
Natural gasoline.....gallons..	39,848,000	1,803,000	41,854,000	1,706,000
Petroleum.....barrels..	3,815,000	5,860,000	4,095,000	8,600,000
Salt.....short tons..	63,818	329,051	66,766	354,342
Sand and gravel.....do.....	1,493,483	1,529,031	1,836,495	1,886,405
Sand and sandstone (finely ground).....do.....	(²)	(²)	(²)	(²)
Stone.....do.....	1,437,090	1,252,672	2,106,130	1,912,766
Sulphuric acid ⁵.....do.....	(¹ ²)	(¹ ²)	(¹ ²)	(¹ ²)
Miscellaneous ⁶.....do.....		8,486,890		10,419,507
Total value, eliminating duplications.....		172,726,695		241,473,621

¹ Value not included in total value for State.
² Value included under "Miscellaneous"
³ Figures obtained through cooperation with Bureau of the Census.
⁴ No canvass.
⁵ From zinc smelting.
⁶ Includes minerals indicated by "2" above.

Mineral production of Wisconsin, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Briquets, fuel.....short tons..	275,758	¹ \$1,867,619	329,942	¹ \$2,174,168
Cement.....barrels..	(²)	(²)	(²)	(²)
Clay:				
Products.....		³ 906,019		³ 923,557
Raw.....short tons..	60	¹ 60		
Coke.....do.....	(¹ ²)	(¹ ²)	(¹ ²)	(¹ ²)
Iron ore—				
Sold to furnaces.....long tons..	613,011	1,646,076	595,891	1,565,958
Sold for paint.....do.....			283	(²)
Lead.....short tons..	540	39,960	234	17,316
Lime.....do.....	28,909	220,465	33,856	296,655
Manganiferous ore.....long tons..			343	1,029
Marl, calcareous.....short tons..	500	450	1,505	1,906
Mineral waters.....gallons sold	(⁴)	(⁴)	(⁴)	(⁴)
Ores (crude), etc.:				
Lead-zinc.....short tons..	256,400	(⁵)	287,800	(⁵)
Zinc.....do.....			20,800	(⁵)
Pyrites.....long tons..	(²)	(²)	(²)	(²)
Sand and gravel.....short tons..	3,368,516	1,377,325	4,773,302	1,836,722
Sand and sandstone (finely ground).....do.....	(²)	(²)	(²)	(²)
Silica (quartz).....do.....	(²)	(²)	(²)	(²)
Stone.....do.....	1,198,630	1,805,201	2,679,860	3,114,882
Sulphuric acid ⁶.....do.....	(¹ ²)	(¹ ²)	(¹ ²)	(¹ ²)
Zinc.....do.....	7,800	655,200	9,807	843,402
Miscellaneous ⁷.....do.....		3,804,303		4,743,661
Total value, eliminating duplications.....		7,153,881		9,752,431

¹ Value not included in total value for State.
² Value included under "Miscellaneous."
³ Figures obtained through cooperation with Bureau of the Census.
⁴ No canvass.
⁵ Not valued as ore; value of recoverable metal content included under the metals.
⁶ From zinc smelting.
⁷ Includes minerals indicated by "2" above.

SUMMARY OF MINERAL PRODUCTION

A45

Mineral production of Wyoming, 1933-34

Product	1933		1934	
	Quantity	Value	Quantity	Value
Cement.....barrels..	(1)	(1)	(1)	(1)
Clay:				
Products.....		(1) ²		(1) ²
Raw.....short tons..	21,327	³ \$166,837	27,162	³ \$246,562
Coal.....do.....	4,013,167	8,636,000	4,367,961	9,591,000
Copper.....pounds..			3,500	280
Gold ⁴.....troy ounces..	2,200	56,231	4,871	170,254
Gypsum.....short tons..	(1)	(1)	(1)	(1)
Iron ore.....long tons..	288,640	(1)	116,562	(1)
Lead.....short tons..			1	74
Mineral waters.....gallons sold..	(5)	(5)	(5)	(5)
Natural gas.....M cubic feet..	25,830,000	3,409,000	23,148,000	3,446,000
Natural gasoline.....gallons..	34,103,000	1,387,000	34,799,000	1,598,000
Ores (crude), etc.:				
Copper.....short tons..			3	(5)
Dry and siliceous (gold and silver).....do.....	1,071	(5)	8,164	(5)
Lead.....do.....			6	(5)
Petroleum.....barrels..	11,227,000	6,570,000	12,556,000	10,550,000
Potassium salts.....short tons..	(1)	(1)	(1)	(1)
Sand and gravel.....do.....	1,358,510	728,836	1,589,156	822,931
Silver.....troy ounces..	260	91	710	459
Sodium sulphate from natural sources.....short tons..	(1)	(1)	(1)	(1)
Stone.....do.....	364,270	364,769	655,030	658,375
Miscellaneous ⁷.....do.....		873,466		802,921
Total value, eliminating duplications.....		22,025,393		27,640,294

¹ Value included under "Miscellaneous."

² Figures obtained through cooperation with Bureau of the Census.

³ Value not included in total value for State.

⁴ Gold valued at average weighted price per ounce, as follows: 1933, \$25.56; 1934, \$34.95.

⁵ No canvass.

⁶ Not valued as ore; value of recoverable metal content included under the metals.

⁷ Includes minerals indicated by "1" above.

SAND AND GRAVEL

(DETAILED STATISTICS)

By H. H. HUGHES AND M. ALLAN ¹

SUMMARY OUTLINE

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Production.....	2	Imports and exports.....	8

The total sand and gravel reported as sold or used by 1,925 commercial producers in the United States in 1934 was 75,322,909 short tons valued at \$48,364,767, increases of 13.9 percent in quantity and 6.7 percent in average value per ton over 1933. In addition, production of sand and gravel from about 400 State, county, and municipal operations was reported to the Bureau of Mines; this material totaled 41,288,780 short tons valued at \$12,882,406, decreases of 0.9 percent in tonnage and 6.1 percent in average value per ton from 1933. The total output of sand and gravel accounted for in the Bureau of Mines canvass was therefore 116,611,689 short tons valued at \$61,247,173.

Production by commercial operations was virtually identical with the preliminary figure released early in 1934, but the output by noncommercial operations was greater than preliminary data indicated; consequently, the total sand and gravel production for the year exceeded the preliminary figure by 3 percent.

Noncommercial production.—Although a smaller number of schedules were returned from noncommercial operations in 1934 than in 1933 the output of this material was about the same in the 2 years. The decline in number of returns was due partly to a trend toward consolidating individual county reports with State reports.

As in previous years, only a small part (23 percent in 1934) of the sand and gravel produced by noncommercial operations was washed, screened, or otherwise prepared to make it comparable in quality with the output of the average commercial plant. By far the larger part consisted of pit-run material having a low unit value.

Additional data regarding the output of noncommercial operations were collected for 1934. Noncommercial production included 20,314,296 short tons valued at \$0.22 a ton produced directly by construction and maintenance crews of States, counties, municipalities, and other Government agencies and 20,974,484 tons valued at \$0.40 a ton produced by contractors expressly for the use of such agencies. Furthermore, 68 percent of the total was reported by State highway officials, 28 percent by counties, 1 percent by municipalities, and 3 percent by other agencies.

¹ Figures on imports and exports compiled by Claude Galiber, of the Bureau of Mines, from records of the Bureau of Foreign and Domestic Commerce.

PRODUCTION

Sand and gravel sold or used by producers in the United States, 1930-34

Year	Sand		Gravel (including railroad ballast)		Total	
	Short tons	Value	Short tons	Value	Short tons	Value
1930.....	83,658,618	\$49,721,553	113,393,108	\$65,454,990	197,051,726	\$115,176,543
1931.....	64,492,826	36,696,746	88,986,218	49,533,574	153,479,044	86,280,320
1932.....	42,794,875	22,497,074	77,243,022	35,025,002	120,037,897	57,522,076
1933.....	33,160,846	19,676,672	74,594,503	33,396,238	107,755,349	53,072,910
1934.....	38,400,090	24,881,071	78,211,599	36,366,102	116,611,689	61,247,173

Sand and gravel sold or used by producers in the United States, 1930-34, by commercial and noncommercial operations

[Figures for "noncommercial operations" represent tonnages reported by States, counties, municipalities, and other Government agencies, produced either by themselves or by contractors expressly for their consumption, often with publicly owned equipment; they do not include purchases from commercial producers. Figures for "commercial operations" represent tonnages reported by all other producers, including relatively small amounts of railroad ballast and fill produced directly by railroad carriers for their own use]

Year	Commercial operations		Noncommercial operations ¹		Total accounted for	
	Short tons	Percent of change from preceding year	Short tons	Percent of change from preceding year	Short tons	Percent of change from preceding year
1930.....	176,880,106	-14.2	20,171,620	+23.3	197,051,726	-11.5
1931.....	128,938,689	-27.1	24,540,355	+21.7	153,479,044	-22.1
1932.....	85,289,076	-33.9	34,748,821	+41.6	120,037,897	-21.8
1933.....	66,106,472	-22.5	41,648,877	+19.9	107,755,349	-10.2
1934.....	75,322,909	+13.9	41,288,780	-9	116,611,689	+8.2

¹ Part of the apparently large increase in noncommercial production is due to more nearly complete reports in the later years.

² Includes 20,314,296 tons valued at \$0.22 a ton produced directly by construction and maintenance crews of States, counties, municipalities, and other Government agencies and 20,974,484 tons valued at \$0.40 a ton produced by contractors expressly for the use of such agencies. Various agencies reported production as follows: States, 27,950,916 tons valued at \$0.35 per ton; counties, 11,382,718 tons at \$0.18; municipalities, 631,461 tons at \$0.23; and others, 1,323,685 tons at \$0.67.

Sand and gravel (prepared or unprepared) sold or used by producers in the United States, 1933-34, by commercial and noncommercial operations

	1933			1934		
	Short tons	Average value per ton	Percent of total	Short tons	Average value per ton	Percent of total
Commercial operations:						
Prepared.....	58,413,222	\$0.63	88.4	66,865,755	\$0.68	88.8
Unprepared.....	7,693,250	.33	11.6	8,457,154	.36	11.2
	66,106,472	.60	100.0	75,322,909	.64	100.0
Noncommercial operations:						
Prepared.....	13,645,409	.59	32.8	9,411,195	.56	22.8
Unprepared.....	28,003,468	.20	67.2	31,877,585	.24	77.2
	41,648,877	.33	100.0	41,288,780	.31	100.0

*Sand and gravel sold or used by commercial producers in the United States, 1933-34, by methods of transport*¹

	1933		1934	
	Short tons	Percent of total	Short tons	Percent of total
Shipped by—				
Truck.....	18,077,954	31.7	21,447,749	31.7
Rail.....	31,252,918	54.7	38,762,817	57.4
Waterway.....	7,772,634	13.6	7,358,533	10.9
	57,103,506	100.0	67,569,099	100.0
Percent of total commercial production accounted for—	86.4	-----	89.7	-----

¹ For practical purposes the entire output of noncommercial operations commonly is moved by truck. Including noncommercial production, sand and gravel were moved as follows—1933: Truck 60 percent, rail 32 percent, and waterway 8 percent; 1934: Truck 53 percent, rail 35 percent, and waterway 7 percent.

Sand and gravel sold or used by producers in the United States, 1933-34, by commercial and noncommercial operations and by uses

	1933			1934			Percent of change in—	
	Short tons	Value		Short tons	Value		Ton-nage	Aver-age value
		Total	Aver-age		Total	Aver-age		
COMMERCIAL OPERATIONS								
Sand:								
Glass.....	1,781,423	\$3,011,023	\$1.69	1,923,614	\$3,326,538	\$1.73	+8.0	+2.4
Molding ¹	1,718,251	1,558,738	.91	2,167,731	2,169,254	1.00	+26.2	+9.9
Building ¹	13,024,174	6,496,180	.90	14,534,565	8,128,703	.56	+11.6	+12.0
Paving.....	10,903,447	5,544,368	.51	12,476,833	7,095,816	.57	+14.4	+11.8
Grinding and polishing.....	572,735	739,222	1.29	571,191	1,039,614	1.82	-3	+41.1
Fire or furnace ¹	106,133	121,149	1.14	137,000	169,424	1.24	+29.1	+8.8
Engine ¹	1,051,695	623,285	.59	1,211,033	795,648	.66	+15.2	+11.9
Filter.....	24,387	52,186	2.14	35,750	85,567	2.39	+46.6	+11.7
Railroad ballast ²	721,381	193,153	.27	607,380	166,918	.27	-15.8	-----
Other ¹	1,121,271	502,036	.45	959,217	620,512	.65	-14.5	+44.4
Total sand.....	31,024,897	18,841,340	.61	34,624,314	23,597,994	.68	+11.6	+11.5
Gravel:								
Building.....	11,934,080	8,084,995	.68	14,244,016	9,834,381	.69	+19.4	+1.5
Paving.....	17,119,859	10,403,150	.59	19,276,791	12,654,884	.66	+8.8	+11.9
Railroad ballast ³	4,928,031	1,777,163	.36	6,422,166	1,873,563	.29	+30.3	-19.4
Other ¹	499,605	288,379	.58	755,622	403,945	.53	+51.2	-8.6
Total gravel.....	35,081,575	20,553,687	.59	40,698,595	24,766,773	.61	+16.0	+3.4
Total sand and gravel.....	66,106,472	39,395,027	.60	75,322,909	48,364,767	.64	+13.9	+6.7
NONCOMMERCIAL OPERATIONS⁵								
Sand:								
Building.....	163,257	84,131	.52	334,946	213,304	.64	+105.2	+23.1
Paving.....	1,972,692	751,201	.38	3,440,830	1,069,773	.31	+74.4	-18.4
Total sand.....	2,135,949	835,332	.39	3,775,776	1,283,077	.34	+76.8	-12.8
Gravel:								
Building.....	650,873	253,529	.39	655,914	441,838	.67	+8	+71.8
Paving.....	38,862,055	12,589,022	.32	36,857,090	11,157,491	.30	-5.2	-6.3
Total gravel.....	39,512,928	12,842,551	.33	37,513,004	11,599,329	.31	-5.1	-6.1
Total sand and gravel.....	41,648,877	13,677,883	.33	41,288,780	12,882,406	.31	-9	-6.1
COMMERCIAL AND NONCOMMERCIAL OPERATIONS								
Sand.....	33,160,846	19,676,672	.59	38,400,090	24,881,071	.65	+15.8	+10.2
Gravel.....	74,594,503	33,396,238	.45	78,211,599	36,366,102	.46	+4.8	+2.2
Grand total.....	107,755,349	53,072,910	.49	116,611,689	61,247,173	.53	+8.2	+8.2

¹ To avoid disclosing confidential figures for 1933, small amounts of molding, engine, and fire or furnace sands are included with building and "other" sands.

² Includes some sand used for fills and similar purposes. The quantity of sand reported as used exclusively for railroad ballast in 1933 was 550,948 tons valued at \$160,576 (revised figures) and in 1934, 426,129 tons valued at \$138,459. The figures include sand produced by railroads for their own use as follows—1933: Ballast, 50,811 tons valued at \$7,694, and fills and similar purposes, 170,433 tons valued at \$23,577; 1934: Ballast, 59,164 tons valued at \$8,194, and fills and similar purposes, 181,251 tons valued at \$28,459.

³ Includes some gravel used for fills and similar purposes. The quantity of gravel reported as used exclusively for railroad ballast in 1933 was 4,668,597 tons valued at \$1,747,452 and in 1934, 6,664,587 tons valued at \$1,804,991. The figures include gravel produced by railroads for their own use as follows—1933: Ballast, 1,232,795 tons valued at \$247,522, and fills and similar purposes, 259,434 tons valued at \$29,711; 1934: Ballast, 2,205,513 tons valued at \$321,892, and fills and similar purposes, 757,579 tons valued at \$68,572.

⁴ May include some gravel used by railroads for fills and miscellaneous purposes.

⁵ By States, counties, municipalities, and other Government agencies, directly or under lease.

Sand and gravel sold or used by commercial and noncommercial producers in the United States in 1934, by States and uses

State	Sand															
	Glass		Molding		Building 1		Paving 1		Grinding and polishing		Fire or furnace		Engine		Filter	
	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value
Alabama.....			(?)	(?)	119,222	\$55,891	106,465	\$66,370			1,298	\$259	(?)	(?)		
Alaska.....					(?)	(?)										
Arizona.....					1,207,579	495,639							(?)	(?)		
Arkansas.....					82,525	53,673	147,964	78,915					18,964	\$10,265	(?)	(?)
California.....	58,584	\$243,518	24,743	\$50,865	1,500,994	827,116	900,857	440,526	9,762	\$28,396	(?)	(?)	9,949	4,504	(?)	(?)
Colorado.....			(?)	(?)	76,084	47,081	156,535	40,829	(?)	(?)			(?)	(?)		
Connecticut.....			186	91	174,203	108,720	33,864	18,413	1,056	2,358			(?)	375		
Delaware.....					16,304	11,642	38,298	22,000	(?)	(?)			(?)	(?)	(?)	(?)
Florida.....					175,470	100,825	146,263	92,919	(?)	(?)			5,311	1,711		
Georgia.....	(?)	(?)	(?)	(?)	79,973	54,840	179,031	101,311	6,995	6,983			(?)	(?)	705	\$4,281
Hawaii.....					(?)	(?)										
Idaho.....					21,751	10,378	225,457	181,111					70	21		
Illinois.....	448,804	449,832	347,078	320,242	606,354	302,558	1,014,805	419,832	107,366	334,953	(?)	(?)	39,000	21,546	(?)	(?)
Indiana.....	(?)	(?)	127,761	92,837	427,059	191,960	574,070	233,678			(?)	(?)	46,185	15,155		
Iowa.....			(?)	(?)	369,720	169,441	459,031	151,145	(?)	(?)			25,143	9,716	1,951	6,122
Kansas.....					442,143	234,542	319,051	148,989					47,901	25,889	(?)	(?)
Kentucky.....	(?)	(?)	2,805	5,500	35,846	25,289	306,798						(?)	(?)		
Louisiana.....					163,982	73,482	149,081	64,207	(?)	(?)			8,100	2,494		
Maine.....					19,305	10,362	425,400	32,948					(?)	(?)		
Maryland.....					160,914	127,674	648,600	517,692					(?)	(?)		
Massachusetts.....	366	1,098	(?)	(?)	499,408	284,511	347,906	143,260	153	459	828	1,035	56,368	33,251	(?)	(?)
Michigan.....	(?)	(?)	552,544	163,975	321,533	119,612	607,429	241,451	58,520	18,070	(?)	(?)	4,580	2,931		
Minnesota.....			14,590	18,005	494,116	180,363	307,606	100,829	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)
Mississippi.....					18,053	7,896	100,992	43,608					(?)	(?)		

Missouri.....	145, 104	193, 265	32, 695	24, 773	467, 542	246, 741	230, 340	139, 413	(?)	(?)	-----	-----	16, 834	10, 891	100	100
Montana.....	-----	-----	-----	-----	143, 782	69, 225	342, 953	148, 442	-----	-----	-----	-----	(?)	(?)	-----	-----
Nebraska.....	-----	-----	(?)	(?)	201, 764	77, 898	174, 372	58, 742	-----	-----	-----	-----	15, 217	4, 195	(?)	(?)
Nevada.....	(?)	(?)	(?)	(?)	22, 924	14, 769	14, 808	14, 458	-----	-----	-----	-----	-----	-----	-----	-----
New Hampshire.....	-----	-----	-----	-----	(?)	(?)	440, 229	50, 030	-----	-----	-----	-----	-----	-----	-----	-----
New Jersey.....	115, 990	194, 488	275, 778	354, 632	720, 857	366, 081	461, 793	239, 538	12, 054	29, 953	18, 576	24, 188	30, 723	13, 659	10, 148	29, 550
New Mexico.....	-----	-----	-----	-----	32, 860	44, 844	(?)	(?)	-----	-----	-----	-----	(?)	(?)	-----	-----
New York.....	-----	-----	198, 800	307, 169	2, 238, 466	1, 380, 958	1, 230, 234	748, 603	(?)	(?)	(?)	(?)	49, 120	27, 563	(?)	(?)
North Carolina.....	-----	-----	-----	-----	35, 001	11, 196	78, 938	28, 401	(?)	(?)	-----	-----	(?)	(?)	-----	-----
North Dakota.....	-----	-----	-----	-----	8, 241	3, 734	47, 297	3, 126	-----	-----	-----	-----	-----	-----	-----	-----
Ohio.....	(?)	(?)	257, 300	394, 799	587, 542	394, 881	1, 067, 583	741, 022	(?)	(?)	29, 984	61, 909	46, 689	40, 690	2, 876	8, 437
Oklahoma.....	(?)	(?)	-----	-----	102, 392	46, 613	156, 403	76, 615	(?)	(?)	-----	-----	19, 899	9, 831	(?)	(?)
Oregon.....	-----	-----	-----	-----	140, 546	96, 349	49, 221	28, 915	-----	-----	-----	-----	16, 120	4, 072	-----	-----
Pennsylvania.....	395, 466	734, 965	188, 593	281, 262	1, 026, 637	777, 867	850, 546	685, 120	194, 682	237, 022	33, 502	47, 534	218, 740	232, 901	7, 199	8, 739
Rhode Island.....	-----	-----	(?)	(?)	8, 488	1, 655	88, 447	8, 079	-----	-----	-----	-----	-----	-----	-----	-----
South Carolina.....	(?)	(?)	-----	-----	28, 221	8, 288	51, 533	21, 456	(?)	(?)	-----	-----	-----	-----	-----	-----
South Dakota.....	-----	-----	-----	-----	45, 558	24, 996	837, 720	301, 317	-----	-----	-----	-----	(?)	(?)	-----	-----
Tennessee.....	-----	-----	23, 513	31, 077	207, 842	160, 452	333, 011	229, 884	4, 500	5, 600	-----	-----	46, 746	33, 732	-----	-----
Texas.....	(?)	(?)	(?)	(?)	607, 596	432, 087	411, 859	254, 827	(?)	(?)	-----	-----	25, 962	12, 654	-----	-----
Utah.....	-----	-----	-----	-----	30, 345	21, 358	92, 020	94, 559	-----	-----	-----	-----	21, 355	7, 943	471	471
Vermont.....	-----	-----	-----	-----	(?)	(?)	10, 457	8, 423	(?)	(?)	-----	-----	(?)	(?)	-----	-----
Virginia.....	(?)	(?)	6, 382	7, 406	278, 415	176, 060	390, 886	270, 067	-----	-----	(?)	(?)	(?)	(?)	-----	-----
Washington.....	-----	-----	(?)	(?)	201, 064	108, 240	451, 246	203, 309	-----	-----	-----	-----	(?)	(?)	-----	-----
West Virginia.....	424, 651	784, 308	(?)	(?)	180, 739	162, 016	269, 958	200, 940	8, 604	17, 718	(?)	(?)	201, 037	160, 709	(?)	(?)
Wisconsin.....	-----	-----	42, 396	26, 085	505, 913	200, 550	567, 794	220, 999	24, 094	48, 297	-----	-----	18, 723	5, 329	(?)	(?)
Wyoming.....	-----	-----	-----	-----	17, 664	11, 370	(?)	(?)	-----	-----	-----	-----	-----	-----	-----	-----
Undistributed ²	334, 649	725, 064	72, 567	90, 536	16, 674	10, 284	72, 502	12, 608	143, 405	309, 805	52, 812	34, 499	221, 360	103, 721	12, 300	27, 867
Average value.....	1, 923, 614	3, 326, 533	2, 167, 731	2, 169, 254	14, 869, 511	8, 342, 007	15, 917, 663	8, 165, 589	571, 191	1, 039, 614	137, 000	169, 424	1, 211, 033	795, 643	35, 750	85, 567
	-----	1. 73	-----	1. 00	-----	0. 56	-----	0. 51	-----	1. 82	-----	1. 24	-----	0. 66	-----	2. 39

Footnotes at end of table.

Sand and gravel sold or used by commercial and noncommercial producers in the United States in 1934, by States and uses—Continued

State	Sand—Continued				Gravel								Total sand and gravel ¹	
	Railroad ballast ⁴		Other		Building ¹		Paving ¹		Railroad ballast ⁵		Other ⁶			
	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value
Alabama.....					111,912	\$71,630	235,734	\$131,552	(?)	(?)	22,964	\$9,186	660,633	\$348,978
Alaska.....							(?)	(?)					(?)	(?)
Arizona.....					2,608,839	1,048,868	325,982	185,237	(?)	(?)			4,152,689	1,730,874
Arkansas.....	(?)	(?)			31,564	22,171	696,685	332,612	131,461	\$60,704	(?)	(?)	1,122,099	565,190
California.....	6,914	\$3,667	53,280	\$28,158	1,474,323	1,079,945	2,585,265	1,358,245	148,902	39,388	31,144	30,727	6,811,109	4,147,509
Colorado.....			42,360	36,910	67,186	61,903	1,009,134	482,603	(?)	(?)	(?)	(?)	1,367,187	684,650
Connecticut.....	(?)	(?)	225	90	46,740	45,760	52,146	9,849	(?)	(?)	(?)	(?)	326,218	193,937
Delaware.....			(?)	(?)	(?)	(?)	84	40					84,820	52,625
Florida.....			(?)	(?)	(?)	(?)	(?)	(?)					402,981	269,938
Georgia.....			(?)	(?)	(?)	(?)	(?)	(?)			(?)	(?)	325,526	229,849
Hawaii.....													(?)	(?)
Idaho.....	(?)	(?)			25,081	6,542	310,976	38,031	(?)	(?)			632,485	237,896
Illinois.....	161,348	65,774	112,857	112,959	602,212	315,864	2,265,690	872,444	291,166	62,193	167,250	82,777	6,174,202	3,373,690
Indiana.....	13,863	1,951	78,379	27,515	341,514	232,303	1,407,583	672,577	819,963	362,667	80,454	44,747	3,957,548	1,890,185
Iowa.....	17,313	3,944	18,880	7,412	266,272	216,733	3,011,973	776,670	(?)	(?)	35,286	17,399	4,348,862	1,393,800
Kansas.....	7,370	1,025	16,565	7,366	88,739	49,511	759,373	229,730			(?)	(?)	1,681,619	698,461
Kentucky.....					25,219	21,058	598,268	394,072	57,773	21,002			1,069,656	789,748
Louisiana.....					202,922	151,977	434,865	311,896	129,954	42,492	(?)	(?)	1,090,331	646,883
Maine.....			(?)	(?)	24,175	21,879	1,411,904	132,629	(?)	(?)	(?)	(?)	2,030,222	238,761
Maryland.....			(?)	(?)	217,245	637,771	637,771	779,788					1,693,112	1,708,519
Massachusetts.....			8,394	4,266	400,977	338,248	588,798	254,314	(?)	(?)	59,965	13,052	2,033,201	1,109,066
Michigan.....	(?)	(?)	76,916	22,715	348,766	207,435	3,120,710	1,122,246	212,769	88,746	19,205	10,098	5,432,071	2,197,838
Minnesota.....	(?)	(?)	12,836	4,740	506,910	498,816	3,535,887	1,214,525	314,348	37,796	(?)	(?)	5,217,222	2,064,876
Mississippi.....	1,517	455			62,319	34,594	403,952	245,680	89,495	17,032	(?)	(?)	6,777,828	349,800
Missouri.....	(?)	(?)	40,951	20,421	337,385	173,667	986,569	550,146	85,682	47,078	5,314	1,916	2,381,453	1,462,740
Montana.....	(?)	(?)			242,107	167,536	3,601,179	1,431,527	839,286	213,394	83,008	41,504	5,257,164	2,073,513
Nebraska.....	(?)	(?)	12,027	2,117	262,950	122,376	732,274	317,571	(?)	(?)			1,433,407	591,513
Nevada.....	(?)	(?)	(?)	(?)	17,249	24,135	1,308,579	525,607	6,337	796			1,377,496	597,453
New Hampshire.....					25,024	25,020	2,332,243	219,118	(?)	(?)			2,810,674	300,213
New Jersey.....			27,890	20,822	409,878	334,465	201,641	134,665	22,798	8,527	4,668	5,725	5,312,794	1,756,293
New Mexico.....					63,877	81,759	35,886	46,082	(?)	(?)			161,325	190,879
New York.....	(?)	(?)	113,599	57,599	1,836,533	61,918	1,760,088	933,088	2,184	433	98,091	64,421	7,619,456	4,964,440
North Carolina.....			(?)	(?)	57,072	(?)	88,198	77,579	20,386	13,167	(?)	(?)	338,381	225,588
North Dakota.....					(?)	(?)	1,229,375	98,449	(?)	(?)			1,605,382	130,813

Ohio.....	(?)	(?)	34,440	37,093	525,690	368,757	1,893,852	1,269,735	552,208	250,335	21,574	19,801	5,257,514	4,134,006
Oklahoma.....			2,667	1,068	34,125	18,200	368,123	161,935	2,207	1,019	(?)	(?)	703,789	343,704
Oregon.....	1,710	427	3,638	898	214,803	129,667	1,145,479	544,251	4,365	14,998	1,350	500	1,617,222	820,077
Pennsylvania.....	(?)	(?)	111,568	121,836	792,717	631,557	2,131,272	1,299,763	(?)	(?)	16,643	5,290	5,970,517	5,064,807
Rhode Island.....			786	330	3,293	1,205	310,397	32,522			(?)	(?)	423,624	69,149
South Carolina.....	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	144,953	90,871
South Dakota.....	18,000	4,080	3,075	1,523	27,379	20,758	2,886,727	412,850	42,046	7,365	(?)	(?)	3,863,410	773,559
Tennessee.....	(?)	(?)	(?)	(?)	140,617	112,232	833,180	493,537	117,633	40,853	(?)	(?)	1,713,539	1,115,891
Texas.....	126,999	30,639	11,692	3,809	795,081	703,408	1,811,980	866,075	759,277	295,242	13,115	8,602	4,572,594	2,621,360
Utah.....			26,228	5,171	41,850	29,539	1,603,479	1,533,297	21,566				1,837,314	1,494,700
Vermont.....					4,453	4,201	356,266	160,432					395,577	196,469
Virginia.....	(?)	(?)	(?)	(?)	377,992	387,144	512,055	399,026	22,320	13,723			1,731,086	1,359,081
Washington.....	(?)	(?)	5,608	3,140	327,845	177,092	2,012,131	760,621	281,332	25,214	10,402	6,541	3,311,009	1,288,918
West Virginia.....			(?)	(?)	289,917	163,246	449,393	361,681	(?)	(?)			1,836,495	1,886,405
Wisconsin.....	(?)	(?)	26,545	4,640	501,066	297,489	2,653,251	954,537	357,784	48,816	61,775	21,850	4,773,302	1,836,722
Wyoming.....	(?)	(?)	(?)	(?)	39,236	33,819	1,216,873	717,384	311,390	56,296	(?)	(?)	1,589,156	822,931
Undistributed ¹	252,341	54,956	117,805	88,424	80,786	96,380	275,576	166,157	737,634	101,925	23,414	19,809	280,882	112,005
Average value.....	607,380	166,918 0.27	959,217	620,512 0.65	14,899,930	10,276,219 0.69	56,133,881	23,812,375 0.42	6,422,166	1,873,563 0.29	755,622	403,945 0.53	116,611,689	61,247,173 0.53

¹ Includes noncommercial production.

² Included under "Undistributed."

³ Includes items entered as "(?)" and such output as could not be allocated to State of origin.

⁴ Includes some sand used for fills and similar purposes. The quantity of sand reported as used exclusively for ballast was 426,129 tons valued at \$138,459. The figures include sand produced by railroads for their own use as follows: Ballast, 59,164 tons valued at \$8,194; fills and similar purposes, 181,251 tons valued at \$28,459.

⁵ Includes some gravel used for fills and similar purposes. The quantity of gravel reported as used exclusively for ballast was 5,664,687 tons valued at \$1,804,991. The figures include gravel produced by railroads for their own use as follows: Ballast, 2,205,513 tons valued at \$321,892; fills and similar purposes, 757,579 tons valued at \$68,572.

⁶ May include some gravel used by railroads for fills and miscellaneous purposes.

GLASS SAND

Glass sand sold or used by producers in the United States, 1930-34

Year	Short tons	Value		Year	Short tons	Value	
		Total	Average			Total	Average
1930.....	1,849,101	\$3,210,973	\$1.74	1933.....	1,781,423	\$3,011,023	\$1.69
1931.....	1,677,882	2,779,245	1.66	1934.....	1,923,614	3,326,538	1.73
1932.....	1,370,255	2,266,564	1.65				

MOLDING SAND

Molding sand sold or used by producers in the United States, 1930-34

Year	Short tons	Value		Year	Short tons	Value	
		Total	Average			Total	Average
1930.....	3,336,855	\$3,547,154	\$1.06	1933 ¹	1,718,251	\$1,558,738	\$0.91
1931.....	2,138,305	2,122,049	.99	1934.....	2,167,731	2,169,254	1.00
1932.....	1,118,146	1,051,702	.94				

¹ Exclusive of small quantity included with building sand to avoid disclosing confidential figures.

IMPORTS AND EXPORTS

Sand and gravel imported for consumption in the United States, 1930-34

Year	Short tons	Value	Year	Short tons	Value
1930.....	1,832,850	\$719,345	1933.....	120,566	\$109,544
1931.....	420,721	303,901	1934.....	135,290	98,015
1932.....	212,458	164,461			

Sand and gravel imported for consumption in the United States, 1932-34, by classes

Class	1932		1933		1934	
	Short tons	Value	Short tons	Value	Short tons	Value
Glass sand ¹	26,574	\$51,016	26,275	\$57,682	24,516	\$46,094
Other sand ²	140,793	94,728	61,597	42,155	36,016	33,635
Gravel.....	45,091	18,717	32,694	9,707	74,758	18,286
	212,458	164,461	120,566	109,544	135,290	98,015

¹ Classification reads "Sand containing 95 percent silica and not more than 0.6 percent oxide of iron and suitable for manufacture of glass."² Classification reads "Sand, n. s. p. t."

SAND AND GRAVEL

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Sand and gravel imported into the United States, 1932-34, by countries

Country	1932		1933		1934	
	Short tons	Value	Short tons	Value	Short tons	Value
North America:						
Canada.....	166,768	\$65,447	85,728	\$27,244	107,451	\$29,324
Mexico.....	28	60	88	95	90	80
Nicaragua.....	2	8				
Europe:						
Belgium.....	35,238	77,249	26,446	58,180	24,538	46,279
Czechoslovakia.....			2	3		
France.....	9,538	18,417	4,462	8,157	241	2,301
Germany.....	294	2,103	393	5,123	432	6,078
Irish Free State.....			728	650		
Netherlands.....	57	602	238	2,937	241	2,904
United Kingdom.....	11	50	2,464	6,869	672	1,368
U. S. S. R. (Russia in Europe).....			16	272	1,624	9,644
Asia:						
China.....	522	525				
Japan.....					1	37
Oceania: Australia.....			1	14		
	212,458	164,461	120,566	109,544	135,290	98,015

Sand and gravel exported from the United States, 1930-34

Year	Short tons	Value	Year	Short tons	Value
1930.....	323,090	\$570,107	1933.....	82,453	\$54,557
1931.....	217,870	418,441	1934.....	33,550	41,649
1932.....	96,015	211,558			

INTERNATIONAL BANKING

DATE	DESCRIPTION	AMOUNT	CHECK NO.	BANK	REMARKS
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STATE OF NEW YORK

DATE	DESCRIPTION	AMOUNT	CHECK NO.	BANK	REMARKS
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LIME

(DETAILED STATISTICS)

By A. T. COONS

SUMMARY OUTLINE

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PRODUCTION

Lime sold or used by producers in the United States, 1930-34

Year	Number of plants in operation	Short tons	Value ¹	
			Total	Average
1930.....	375	3,387,880	\$25,616,486	\$7.56
1931.....	345	2,707,614	18,674,913	6.90
1932.....	343	1,959,990	12,302,231	6.28
1933.....	352	2,269,280	14,253,659	6.28
1934.....	324	*2,397,087	†17,164,024	7.16

¹ Value given represents value of bulk lime f. o. b. at point of shipment and does not include cost of barrel or package.

† Includes 129,290 tons, valued at \$671,864, used by producers (captive tonnage). Comparable separate figures for earlier years not recorded.

Lime sold or used by producers in the United States in 1934, by States

State	Number of plants in operation	Short tons	Value	State	Number of plants in operation	Short tons	Value
Alabama.....	9	123,881	\$746,232	New Jersey.....	3	720	\$6,090
Arizona.....	4	16,003	163,748	New Mexico.....	2	(¹)	(¹)
Arkansas.....	2	(¹)	(¹)	New York.....	10	36,050	300,328
California.....	8	34,733	342,621	North Carolina.....	1	(¹)	(¹)
Colorado.....	4	3,712	37,506	Ohio.....	24	562,041	4,282,510
Connecticut.....	1	(¹)	(¹)	Oregon.....	2	(¹)	(¹)
Florida.....	3	14,207	121,247	Pennsylvania.....	94	434,519	3,165,539
Georgia.....	1	2,664	21,674	Puerto Rico.....	6	6,255	61,868
Hawaii.....	1	6,053	63,224	Rhode Island.....	1	1,884	18,752
Idaho.....	2	(¹)	(¹)	South Dakota.....	2	(¹)	(¹)
Illinois.....	6	86,679	655,359	Tennessee.....	9	122,818	650,625
Indiana.....	8	72,606	443,398	Texas.....	8	36,620	325,499
Kentucky.....	1	(¹)	(¹)	Utah.....	9	9,611	97,363
Louisiana.....	1	(¹)	(¹)	Vermont.....	6	31,218	242,551
Maine.....	2	(¹)	(¹)	Virginia.....	28	94,041	610,649
Maryland.....	13	28,167	191,071	Washington.....	5	22,764	247,151
Massachusetts.....	6	52,518	452,494	West Virginia.....	12	143,071	904,438
Michigan.....	3	32,844	240,181	Wisconsin.....	11	33,856	296,685
Minnesota.....	2	(¹)	(¹)	Undistributed.....		115,316	936,321
Missouri.....	10	272,236	1,538,900				
Montana.....	2	(¹)	(¹)				
Nevada.....	2	(¹)	(¹)				
					324	2,397,087	17,164,024

¹ Included under "Undistributed."

Lime sold or used by producers in the United States in 1934, by uses

Use	Quantity		Value	
	Percent of total	Short tons	Total	Average
Agricultural.....	9.3	222,077	\$1,478,128	\$6.66
Building.....	21.3	511,419	4,260,865	8.33
Chemical:				
Glass works.....	3.2	76,232	507,031	6.65
Metallurgy.....	13.9	334,406	2,003,788	5.99
Paper mills.....	12.3	293,798	1,899,053	6.46
Refractory lime (dead-burned dolomite).....	13.5	324,868	2,698,414	8.31
Sugar refineries.....	.9	20,528	183,098	8.92
Tanneries.....	2.6	62,745	484,410	7.72
Water purification.....	7.7	183,581	1,229,435	6.70
Other uses ¹	15.3	367,433	2,419,802	6.59
Total chemical.....	69.4	1,663,591	11,425,031	6.87
Hydrated lime (included in above totals).....	100.0	² 2,397,087	³ 17,164,024	7.16
	34.6	829,430	6,324,623	7.63

¹ Details of distribution shown in last table on p. 14.² Includes 129,290 tons, valued at \$671,864, used by producers (captive tonnage).

Lime sold or used by producers in the United States in 1934, by States and uses

State	Building		Agricultural		Chemical										Total			
	Short tons	Value	Short tons	Value	Glass works		Paper mills		Sugar refineries		Tanneries		Metallurgy		Other chemical		Short tons	Value
					Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value		
Alabama.....	23,201	\$169,891	27	\$149			30,343	\$173,182	2,744	\$16,301	183	\$1,251	41,824	\$231,958	25,559	\$153,500	123,881	\$746,232
Arizona.....	6,366	62,686									(1)	(1)	5,370	44,614	(1)	(1)	16,003	163,748
Arkansas.....	(1)	(1)					(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
California.....	12,595	129,180	1,617	14,717			3,253	29,244	1,147	9,917	287	2,865	6,138	63,313	9,716	93,385	34,733	342,621
Colorado.....	1,180	10,689											2,198	23,049	(1)	3,868	3,712	37,506
Connecticut.....	(1)	(1)	(1)	(1)			(1)	(1)							(1)	(1)	(1)	(1)
Florida.....	4,895	43,294	2,580	21,296					818	6,808					5,914	49,849	14,207	121,247
Georgia.....	2,664	21,674															2,664	21,674
Hawaii.....	327	3,452	50	174					5,676	59,598							6,053	63,224
Idaho.....	(1)	(1)	(1)	(1)													(1)	(1)
Illinois.....	14,113	120,079	(1)	(1)	(1)	(1)	3,121	20,427			(1)	(1)	(1)	(1)	38,639	300,318	86,679	655,359
Indiana.....	4,740	34,104	1,709	12,276	(1)	(1)	11,329	65,395	(1)	(1)	2,907	19,928	6,377	35,413	45,502	275,988	72,606	443,398
Kentucky.....	(1)	(1)	(1)	(1)											(1)	(1)	(1)	(1)
Louisiana.....	(1)	(1)					(1)	(1)	(1)	(1)					(1)	(1)	(1)	(1)
Maine.....	(1)	(1)	(1)	(1)			(1)	(1)			(1)	(1)			(1)	(1)	(1)	(1)
Maryland.....	(1)	(1)	26,287	176,740											(1)	(1)	(1)	28,167
Massachusetts.....	29,822	276,184	4,136	31,374			3,616	29,227		(1)	3,068	23,587	(1)	(1)	11,399	88,082	52,518	452,494
Michigan.....	(1)	(1)	(1)	(1)			(1)	(1)	(1)	(1)	(1)	(1)			5,246	34,573	32,844	240,181
Minnesota.....	(1)	(1)					(1)	(1)			(1)	(1)			(1)	(1)	(1)	(1)
Missouri.....	32,944	259,604	1,657	11,279	787	\$4,488	39,121	220,812	635	4,152	2,367	14,333	24,898	116,727	169,827	916,505	272,236	1,538,900
Montana.....	(1)	(1)													(1)	(1)	(1)	(1)
Nevada.....	(1)	(1)	(1)	(1)											(1)	(1)	(1)	(1)
New Jersey.....	(1)	6,090															720	6,090
New Mexico.....	(1)	(1)													(1)	(1)	(1)	(1)
New York.....	3,822	32,210	4,896	35,470			4,517	41,110	125	967	2,982	26,291	11,828	96,743	7,880	67,537	36,050	300,328
North Carolina.....	(1)	(1)	(1)	(1)														
Ohio.....	185,660	1,498,870	32,219	198,706	71,501	476,294	(1)	(1)			(1)	(1)	48,372	267,359	197,045	1,684,913	562,041	4,282,510
Oregon.....	(1)	(1)																
Pennsylvania.....	39,822	324,775	110,151	755,164	(1)	(1)	35,574	268,736			28,735	237,496	67,608	407,298	152,288	1,169,697	434,519	3,165,539
Puerto Rico.....	(1)	(1)							6,017	59,798							6,255	61,868
Rhode Island.....	(1)	7,992	1,056	7,857													1,884	18,752
South Dakota.....	(1)	(1)													214	2,903	(1)	(1)
Tennessee.....	26,856	199,419	54	108			47,452	219,528	290	1,930	2,075	12,965	25,041	97,857	21,050	118,818	122,818	650,625
Texas.....	17,831	158,664	(1)	(1)	(1)	(1)			(1)	(1)	(1)	(1)	2,187	11,878	15,938	142,894	36,620	325,499
Utah.....	1,744	23,590									13	143	7,344	66,490	510	7,170	9,611	97,363
Vermont.....	7,280	62,754	2,870	17,767			5,822	44,552			1,414	12,757	434	2,759	13,398	101,962	31,218	242,551
Virginia.....	27,773	207,284	13,027	75,295	50	300	4,192	27,455	(1)	(1)	(1)	(1)	19,966	113,388	27,856	185,008	94,041	610,649
Washington.....	5,460	82,569	834	7,932			11,878	108,398							(1)	(1)	22,764	247,151
West Virginia.....	10,789	74,563	10,000	52,446	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)			92,091	601,745	143,071	904,438
Wisconsin.....	16,597	136,000	1,023	5,006			8,765	62,808			527	3,886	6,944	88,985	33,856	296,685	33,856	296,685
Undistributed.....	33,624	358,578	7,884	54,402	3,894	25,949	84,815	588,179	3,076	23,927	18,157	128,908	64,821	424,942	28,532	259,951	115,316	936,321
	511,419	4,266,865	222,077	1,478,128	76,232	597,031	293,798	1,899,053	20,528	183,098	62,745	484,410	334,406	2,008,788	875,882	6,347,651	2,397,087	17,164,024

¹ Included under "Undistributed."

OHIO BUILDING LIME

Lime sold or used by Ohio producers for construction, 1932-34¹

	1932		1933		1934	
	Short tons	Value	Short tons	Value	Short tons	Value
Quicklime.....	2,618	\$14,705	1,841	\$11,807	2,628	\$17,080
Hydrated lime.....	245,090	1,137,117	214,019	1,294,394	183,032	1,472,590
	247,708	1,151,822	215,860	1,306,201	185,660	1,489,670

¹ Ohio produced 41.5 percent of the total building lime sold by producers in 1932, 40.5 percent in 1933, and 36.3 percent in 1934.

Shipments of hydrated lime from plants in the United States and in Ohio in 1934, by destinations

Destination	From all plants		From Ohio plants		
	Short tons	Distribution (percent)	Short tons	Distribution (percent)	Group total (percent)
Illinois, Indiana, Michigan, Ohio.....	180,419	21.8	98,610	43.3	54.7
Delaware, District of Columbia, Maryland, New Jersey, New York, Pennsylvania, West Virginia.....	311,486	37.6	87,134	38.2	28.0
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont.....	41,062	4.9	10,327	4.5	25.1
Florida, Georgia, North Carolina, South Carolina, Virginia.....	79,480	9.6	14,546	6.4	18.3
Alabama, Kentucky, Louisiana, Mississippi, Tennessee.....	42,229	5.1	6,557	2.9	15.5
Arkansas, Kansas, Nebraska, Oklahoma, Texas.....	47,558	5.7	1,612	.7	3.4
Iowa, Minnesota, Missouri, Wisconsin.....	68,047	8.2	7,756	3.4	11.4
Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, Wyoming.....	51,459	6.2	1,204	.5	2.3
Undistributed and exports.....	7,690	.9	176	.1	2.3
	829,430	100.0	227,922	100.0	27.5

MISCELLANEOUS CHEMICAL LIME

Chemical lime sold or used by producers in the United States for "other uses" in 1934

Use	Short tons	Value	Use	Short tons	Value
Acid neutralization.....	8,635	\$72,746	Oil and fat manufacture.....	15,850	\$110,554
Alkali works (ammonia, soda, potash).....	27,695	152,806	Paint (calcimine, whitewash, varnish, etc.).....	11,818	73,270
Bleach, liquid.....	13,281	84,386	Polishing and buffing.....	2,427	49,534
Calcium acetate.....	5,074	31,470	Rubber.....	2,774	23,163
Calcium carbide.....	35,803	162,731	Salt refining.....	7,158	38,089
Coke and gas manufacture (gas purification and plant byproducts).....	23,446	159,508	Sand-lime brick.....	8,446	54,683
Food products.....	8,634	46,318	Silica brick.....	7,396	54,684
Gelatin (edible).....	1,150	8,664	Soap.....	7,074	37,520
Glue.....	6,230	44,937	Tobacco curing.....	3,392	16,534
Insecticides (spraying materials).....	29,319	233,308	Wood distillation.....	3,458	25,728
Magnesia works.....	4,360	26,646	Undistributed ¹	32,348	235,936
			Unspecified.....	101,665	676,587
				367,433	2,419,802

¹ Lime used in alcohol manufacture, asphalt filler, bichromates, bleaching powder, calcium phosphate, ceramics, corn products, cosmetics, creameries and dairies, depilatories, disinfectants (chloride of lime, etc.), dyes, explosives, flour mills, fruit juices, gasoline, lubricants, mold wash, oxygen purification, retarder, roads, sanitation, slag cements, textiles, wire drawing, and wool cleaning.

AGRICULTURAL LIME AND OTHER LIMING MATERIALS

Agricultural lime and other liming materials sold or used by producers in the United States in 1934, by kinds

Kind	Short tons		Value	
	Gross	Effective lime content ¹	Total	Average
Lime from limestone:				
Quicklime.....	59,668	50,300	\$300,288	\$5.03
Hydrated.....	162,409	107,600	1,177,840	7.25
Lime from oyster shells ²	9,027	7,600	50,135	5.55
Oyster shells (crushed) ²	41,503	20,000	100,136	2.41
Limestone.....	1,612,380	694,000	1,788,142	1.11
Calcareous marl.....	11,240	4,960	22,236	1.98

¹ Estimated.

² Bureau of Fisheries, Statistical Bull. 1133 for 1934, p. 7.

HYDRATED LIME

[See also second table on p. 14]

Hydrated lime sold or used by producers in the United States, 1930-34

Year	Number of plants in operation	Short tons	Value	
			Total	Average
1930.....	163	1,329,562	\$10,357,445	\$7.79
1931.....	157	1,119,266	7,729,047	6.91
1932.....	158	852,251	5,370,273	6.30
1933.....	157	840,007	5,622,026	6.69
1934.....	165	829,430	6,324,623	7.63

Hydrated lime sold or used by producers in the United States in 1934, by States ¹

State	Short tons	Value	State	Short tons	Value
Alabama.....	19,658	\$143,144	Pennsylvania.....	136,665	\$1,086,465
Arizona.....	7,769	86,324	Rhode Island.....	1,396	11,676
California.....	9,520	96,226	Tennessee.....	27,800	201,568
Colorado.....	2,667	27,630	Texas.....	19,790	191,303
Florida.....	9,457	81,018	Utah.....	3,156	41,572
Georgia.....	2,664	21,674	Vermont.....	9,813	72,524
Hawaii.....	6,041	63,080	Virginia.....	41,548	286,690
Illinois.....	24,282	184,526	Washington.....	2,571	28,257
Indiana.....	32,770	219,582	West Virginia.....	32,011	205,420
Maryland.....	17,025	124,168	Wisconsin.....	9,063	71,667
Massachusetts.....	19,578	156,813	Undistributed ²	53,416	408,721
Missouri.....	98,008	631,562			
New York.....	14,840	121,142		829,430	6,324,623
Ohio.....	227,922	1,761,871			

¹ For shipments from plants in the United States and in Ohio, by destinations, see p. 14.

² Arkansas, Connecticut, Kentucky, Louisiana, Maine, Michigan, Minnesota, Montana, Nevada, and South Dakota.

Hydrated lime sold or used by producers in the United States in 1934, by uses

Use	Short tons	Value	Use	Short tons	Value			
Agricultural.....	162,409	\$1,177,840	Chemical—Continued.	26,682	\$196,152			
Building.....	367,823	2,942,369				Tanneries.....	91,277	668,376
Chemical:						Water purification.....	123,437	908,492
Glass works.....	6,132	40,069	Other uses.....					
Metallurgy.....	17,598	127,848	Total chemical.....	299,198	2,204,414			
Paper mills.....	23,593	171,082		829,430	6,324,623			
Sugar refineries.....	10,479	92,395						

FOREIGN TRADE ¹*Lime imported for consumption in the United States, 1930-34*

Year	Hydrated lime		Other lime		Dead-burned dolomite		Total	
	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value
1930.....	3,336	\$40,381	17,370	\$238,516	3,024	\$77,918	23,730	\$356,815
1931.....	2,268	26,622	12,190	155,245	6,051	152,795	20,509	334,662
1932.....	1,677	18,756	7,100	77,279	5,120	115,808	13,897	211,843
1933.....	1,200	11,865	9,305	93,399	6,763	163,081	17,268	268,345
1934.....	923	8,872	8,309	74,447	6,473	166,912	15,705	250,231

¹ Figures on imports and exports compiled by Claude Galihier, of the Bureau of Mines, from records of the Bureau of Foreign and Domestic Commerce.

² June 18 to Dec. 31; not separately recorded prior to change in tariff.

Lime (exclusive of dead-burned dolomite) imported into the United States, 1933-34, by countries and districts ¹

Country	District	1933		1934	
		Short tons	Value	Short tons	Value
Belgium.....	Massachusetts.....	(²)	\$4		
Canada.....	Buffalo.....			61	\$426
	Maine and New Hampshire.....	174	2,204	89	1,292
	San Francisco.....	906	8,841	1,138	11,717
Germany.....	Vermont.....	2	12	8	61
	Washington.....	9,349	92,700	7,850	67,374
Mexico.....	New York.....	15	747	10	1,268
	Arizona.....	1	12		
United Kingdom.....	El Paso.....			2	17
	New York.....	6	139	40	701
	Philadelphia.....	52	581	34	460
	Pittsburgh.....	(²)	24		
	Wisconsin.....			(²)	3
		10,505	105,204	9,232	83,319

¹ Data on total imports in 1934 and 1933 may not be strictly comparable due to the change made by the Bureau of Foreign and Domestic Commerce, beginning January 1934, in its system of reporting imports. For 1933 and earlier years the figures represent "general imports," and cover goods imported for immediate consumption plus goods entering the country under bond, whereas totals for 1934 represent "imports for consumption" and include goods imported for immediate consumption plus withdrawals from bonded warehouses.

² Less than 1 ton.

Lime exported from the United States, 1930-34

Year	Short tons	Value	Year	Short tons	Value
1930.....	14,536	\$192,421	1933.....	3,710	\$58,095
1931.....	11,924	129,943	1934.....	3,752	60,167
1932.....	3,579	56,479			

Lime exported from the United States in 1934, by countries

Country	Short tons	Value	Country	Short tons	Value
North America:			South America:		
Barbados.....	6	\$126	Argentina.....	3	\$84
Bermuda.....	1	20	Chile.....	7	179
Canada.....	571	10,821	Colombia.....	69	1,260
Central America:			Ecuador.....	35	578
British Honduras.....	(1)	5	Peru.....	640	8,960
Honduras.....	2	49	Venezuela.....	138	1,834
Nicaragua.....	33	1,161	Europe:		
Panama.....	63	1,931	France.....	7	289
Salvador.....	17	278	Italy.....	10	205
Mexico.....	150	2,555	Spain.....	56	2,300
Newfoundland and Labrador.....	170	3,036	Sweden.....	32	1,250
West Indies:			United Kingdom.....	10	433
British:			Asia:		
Jamaica.....	90	1,265	China.....	3	55
Other British.....	55	1,005	Japan.....	315	8,023
Cuba.....	144	2,121	Other Asia.....	(1)	15
Dominican Republic.....	1,003	8,214			
Netherland.....	55	854			
Virgin Islands of the United States.....	67	1,261			
				3,752	60,167

¹ Less than 1 ton.

SHIPMENTS

Lime supplies available for consumption in continental United States in 1934, by States, in short tons

State	Sold or used by producers	Shipments from State	Shipments into State	Supply			Pounds per capita ¹
				Hydrated	Quicklime	Total	
Alabama.....	123,881	37,433	9,355	10,152	85,651	95,803	71
Arizona.....	16,003	6,608	65	3,980	5,480	9,460	41
Arkansas.....	(?)	(?)	(?)	4,840	8,626	13,466	14
California.....	34,733	5,980	19,325	14,999	33,079	48,078	16
Colorado.....	3,712	.....	3,624	3,788	3,548	7,336	14
Connecticut.....	(?)	(?)	(?)	6,813	10,882	17,695	21
Delaware.....	.....	.....	17,723	8,223	9,500	17,723	146
District of Columbia.....	.....	.....	9,875*	8,729	1,146	9,875	40
Florida.....	14,207	75	14,746	15,651	13,227	28,878	37
Georgia.....	2,664	320	15,636	14,758	3,222	17,980	12
Idaho.....	(?)	(?)	(?)	635	1,142	1,777	8
Illinois.....	86,679	36,200	77,647	45,718	82,408	128,126	33
Indiana.....	72,606	45,327	52,837	32,440	47,676	80,116	48
Iowa.....	.....	.....	45,480	12,485	32,995	45,480	37
Kansas.....	.....	.....	21,224	10,557	10,667	21,224	22
Kentucky.....	(?)	.....	(?)	8,953	34,748	43,701	33
Louisiana.....	(?)	(?)	(?)	7,341	39,020	46,361	43
Maine.....	(?)	(?)	(?)	7,018	34,389	41,407	103
Maryland.....	28,167	9,509	32,705	27,236	24,127	51,363	61
Massachusetts.....	52,518	37,842	29,250	19,331	24,695	43,926	20
Michigan.....	32,844	19,736	106,734	33,654	86,188	119,842	47
Minnesota.....	(?)	(?)	(?)	8,465	11,960	20,425	16
Mississippi.....	.....	.....	9,867	3,381	6,486	9,867	10
Missouri.....	272,236	217,414	7,568	29,770	32,620	62,390	34
Montana.....	(?)	(?)	(?)	2,166	1,624	3,790	14
Nebraska.....	.....	.....	7,074	5,767	1,307	7,074	10
Nevada.....	(?)	(?)	(?)	10,661	1,288	11,949	254
New Hampshire.....	.....	.....	6,359	2,225	4,134	6,359	27
New Jersey.....	720	.....	84,906	53,141	32,485	85,626	40
New Mexico.....	(?)	(?)	(?)	724	3,961	4,685	21
New York.....	36,050	9,645	153,483	94,031	85,857	179,888	28
North Carolina.....	(?)	(?)	(?)	17,192	24,842	42,034	25
North Dakota.....	.....	.....	5,085	4,792	333	5,085	15
Ohio.....	562,041	371,659	97,141	68,607	218,916	287,523	84
Oklahoma.....	.....	.....	10,459	5,616	4,843	10,459	8
Oregon.....	(?)	(?)	(?)	913	7,202	8,115	16
Pennsylvania.....	434,519	185,292	128,364	109,210	269,351	378,591	77
Rhode Island.....	1,884	450	7,214	4,627	4,021	8,648	25
South Carolina.....	.....	.....	8,941	6,648	2,293	8,941	10
South Dakota.....	(?)	.....	(?)	2,305	2,195	4,500	13
Tennessee.....	122,818	100,960	8,766	12,402	18,222	30,624	23
Texas.....	36,620	3,190	1,987	20,778	14,639	35,417	12
Utah.....	9,611	290	44	2,890	6,475	9,365	36
Vermont.....	31,218	28,595	430	1,048	2,005	3,053	17
Virginia.....	94,041	65,907	42,052	25,231	44,955	70,186	57
Washington.....	22,764	7,076	1,309	2,812	14,185	16,997	21
West Virginia.....	143,071	109,827	82,293	10,916	104,621	115,537	129
Wisconsin.....	33,856	10,909	38,462	17,327	44,082	61,409	41
Wyoming.....	.....	.....	1,011	884	127	1,011	9
Undistributed.....	115,316	49,002	193,591	.....	.....	.....	.....
	2,384,779	1,359,246	1,353,582	821,740	1,557,375	2,379,115	38

¹ Based on Bureau of the Census preliminary statement.

* Included under "Undistributed."

* Includes 5,664 tons exported or unspecified by producers as to destination.

Lime shipped (supply) in continental United States in 1934, by origin and destination of shipments, in short tons

Destination	Illinois, Indiana, Michigan, Ohio			Maryland, New Jersey, New York, Pennsylvania, West Virginia			Connecticut, Maine, Massachusetts, Rhode Island, Vermont			Florida, Georgia, North Carolina, Virginia			Alabama, Kentucky, Louisiana, Tennessee		
	Hydrated lime	Quick-lime	Total	Hydrated lime	Quick-lime	Total	Hydrated lime	Quick-lime	Total	Hydrated lime	Quick-lime	Total	Hydrated lime	Quick-lime	Total
Illinois, Indiana, Michigan, Ohio	148,265	296,065	444,330	3,700	46,760	50,460	60	-----	60	310	3,328	3,638	915	18,062	18,967
Delaware, District of Columbia, Maryland, New Jersey, New York, Pennsylvania, West Virginia	87,615	111,267	198,882	187,569	356,584	544,153	17,605	23,937	41,542	13,803	31,740	45,543	30	-----	30
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont	10,327	1,544	11,871	3,491	30,041	33,532	26,940	46,230	73,170	200	2,149	2,349	-----	-----	-----
Florida, Georgia, North Carolina, South Carolina, Virginia	14,596	1,206	15,802	4,493	7,062	11,555	1	4	5	39,331	20,605	59,936	20,575	51,208	71,783
Alabama, Kentucky, Louisiana, Mississippi, Tennessee	9,833	24,283	34,116	401	155	556	-----	-----	-----	25	3	28	27,810	136,597	164,407
Arkansas, Kansas, Nebraska, Oklahoma, Texas	1,759	625	2,384	-----	-----	-----	-----	-----	-----	-----	-----	-----	11	2	13
Iowa, Minnesota, Missouri, Wisconsin	16,095	26,952	43,047	19	-----	19	-----	-----	-----	-----	-----	-----	-----	-----	-----
Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, Wyoming	1,395	1,029	2,424	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Destination	Arkansas and Texas			Minnesota, Missouri, Wisconsin			Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, South Dakota, Utah, Washington			United States		
	Hydrated lime	Quick-lime	Total	Hydrated lime	Quick-lime	Total	Hydrated lime	Quick-lime	Total	Hydrated lime	Quick-lime	Total
Illinois, Indiana, Michigan, Ohio	-----	-----	-----	27,169	70,983	98,152	-----	-----	-----	180,419	435,188	615,607
Delaware, District of Columbia, Maryland, New Jersey, New York, Pennsylvania, West Virginia	-----	-----	-----	4,864	3,589	8,453	-----	-----	-----	311,486	527,117	838,603
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont	-----	-----	-----	104	62	166	-----	-----	-----	41,062	80,026	121,088
Florida, Georgia, North Carolina, South Carolina, Virginia	-----	-----	-----	484	8,454	8,938	-----	-----	-----	79,480	88,539	168,019
Alabama, Kentucky, Louisiana, Mississippi, Tennessee	1,363	10,670	12,033	2,797	12,419	15,216	-----	-----	-----	42,229	184,127	226,356
Arkansas, Kansas, Nebraska, Oklahoma, Texas	25,137	21,955	47,092	20,435	17,500	37,935	-----	216	-----	47,558	40,082	87,640
Iowa, Minnesota, Missouri, Wisconsin	328	265	593	51,605	94,440	146,045	-----	-----	-----	68,047	121,657	189,704
Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, Wyoming	170	2,337	2,507	9,330	3,202	12,532	40,564	74,071	114,635	51,459	80,639	132,098

LIME

NATURAL GASOLINE

(DETAILED STATISTICS)

By G. R. HOPKINS AND E. M. SEELEY

SUMMARY OUTLINE

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SUMMARY

Salient statistics for natural gasoline in the United States, 1924 and 1931-34

	1924	1931	1932	1933	1934 ¹
Number of plants operating.....	1,096	937	830	779	766
Production:					
By States:					
California..... millions of gallons.....	233	680	552	496	506
Texas..... do.....	187	427	371	367	467
Oklahoma..... do.....	301	455	379	360	355
West Virginia..... do.....	62	53	44	40	42
Louisiana..... do.....	48	58	46	37	41
Other..... do.....	103	159	132	120	124
	934	1,832	1,524	1,420	1,535
By types of process:					
Compression process..... do.....	258	212	182	161	148
Absorption and combination processes..... do.....	672	1,609	1,333	1,251	1,380
Charcoal..... do.....	4	11	9	8	7
	934	1,832	1,524	1,420	1,535
Stocks at natural-gasoline plants at end of year..... do.....	(¹)	27	19	{ 28 42}	36
Value:					
Total (at plants)..... millions of dollars.....	82	64	49	54	61
Average per gallon (at plant)..... cents.....	8.8	3.5	3.2	3.8	3.9
Average spot price, Oklahoma natural gasoline..... do.....	8.8	3.2	2.3	2.9	2.6
Natural gas treated..... millions of cubic feet.....	1,016,276	1,790,119	1,499,756	1,551,464	1,776,172
Average yield per thousand cubic feet..... gallons.....	0.92	1.02	1.02	0.92	0.86

¹ Figures not available.
² For comparison with 1934.

³ Grade A.
⁴ Grade 26-70.

PRODUCTION

Natural gasoline produced in the United States, 1924 and 1931-34, by States, in thousands of gallons

Year	Alaska	Arkansas	California	Colorado	Illinois	Indiana	Kansas	Kentucky	Louisiana	Michigan	Montana	New Mexico
1924		17,533	232,579		9,091		11,658	7,274	48,098			
1931	32	26,282	680,339	659	5,624	1	32,690	5,464	58,034			17,775
1932	25	18,653	551,897	472	4,558	1	24,792	4,877	46,199			17,507
1933	25	15,215	496,293	468	3,673		24,869	4,514	36,973	188	1,295	19,149
1934		13,033	506,272	643	3,810		27,891	4,171	40,558	589	1,237	21,748

Year	New York	Ohio	Oklahoma	Pennsylvania	Texas	West Virginia	Wyoming	Total		
								Thousands of gallons	Value at plant	
									Thousands of dollars	Average per gallon (cents)
1924	477	9,443	301,062	19,254	186,571	61,549	29,272	933,861	82,233	8.8
1931	132	5,199	454,886	14,339	426,695	52,844	51,523	1,831,918	63,732	3.5
1932	117	5,163	378,584	11,685	371,106	43,773	44,391	1,523,800	49,244	3.2
1933	96	4,662	360,488	11,686	366,515	39,848	34,103	1,420,000	54,368	3.8
1934	85	5,881	355,438	10,781	466,570	41,854	34,799	1,535,360	60,523	3.9

Natural gasoline produced and natural gas treated in the United States in 1934, by States

State	Number of operators ¹	Number of plants operating	Natural gasoline produced			Natural gas treated	
			Thousands of gallons	Value at plants		Millions of cubic feet	Average yield per M cubic feet (gallons)
				Thousands of dollars	Average per gallon (cents)		
Arkansas	8	10	13,033	450	3.5	3,250	4.01
California	37	92	506,272	29,931	5.9	325,629	1.55
Colorado	2	3	643	18	2.8	511	1.26
Illinois	22	75	3,810	183	4.8	1,512	2.52
Kansas	14	20	27,891	796	2.9	69,859	.46
Kentucky	5	6	4,171	177	4.2	21,704	.19
Louisiana	15	28	40,558	1,141	2.8	70,534	.58
Michigan	1	1	589	15	2.5	410	1.44
Montana	1	1	1,237	83	6.7	4,114	.30
New Mexico	3	2	21,748	570	2.6	11,904	1.83
New York	2	2	85	5	5.9	375	.23
Ohio	11	14	5,881	289	4.9	25,100	.23
Oklahoma	71	177	355,438	10,728	3.0	299,183	1.19
Pennsylvania	63	110	10,781	467	4.3	29,346	.37
Texas	67	126	466,570	12,366	2.7	787,073	.59
West Virginia	28	90	41,854	1,706	4.1	108,097	.39
Wyoming	6	9	34,799	1,598	4.6	17,566	1.98
Total, 1934	288	766	1,535,360	60,523	3.9	1,776,172	.86
Total, 1933	291	779	1,420,000	54,368	3.8	1,551,464	.92

¹ A producer operating in more than 1 State is counted only once.

Summary of monthly natural-gasoline statistics in the United States in 1934, in millions of gallons

	1934													1933 (total)	
	Janu- ary	Febru- ary	March	April	May	June	July	August	Sep- tember	Octo- ber	No- vember	De- cember	Total		
Production by fields:															
Appalachian.....	6.1	6.4	6.2	5.1	4.3	3.3	3.0	3.2	3.8	5.1	5.5	6.6	58.6	56.3	
Kentucky, Illinois, and Michigan.....	.9	.8	.9	.7	.6	.5	.5	.6	.6	.8	.8	.9	8.6	8.4	
Oklahoma:															
Oklahoma City.....	9.0	8.5	9.2	9.4	8.1	7.5	7.6	7.4	7.9	9.0	9.5	9.5	102.6	96.5	
Osage County.....	3.8	3.7	3.9	3.6	3.6	3.3	3.5	4.0	4.2	4.5	4.4	4.1	46.6	41.1	
Seminole.....	8.7	7.8	8.6	8.1	7.7	8.1	8.0	8.0	7.2	8.1	7.8	7.1	95.2	110.8	
Rest of State.....	9.9	8.9	9.6	9.3	9.2	8.6	8.9	8.8	9.1	9.7	9.5	9.5	111.0	112.1	
Total, Oklahoma.....	31.4	28.9	31.3	30.4	28.6	27.5	28.0	28.2	28.4	31.3	31.2	30.2	355.4	360.5	
Kansas.....	2.5	2.4	2.3	2.3	2.3	2.0	1.9	2.1	2.3	2.4	2.7	2.7	27.9	24.9	
Texas:															
East Texas.....	2.3	2.4	2.5	2.6	3.3	4.1	4.9	5.1	4.9	4.9	4.9	4.4	46.3	20.2	
North Texas.....	2.3	2.1	2.3	2.2	2.1	2.0	1.9	1.8	1.8	2.0	2.1	2.1	24.7	25.7	
Panhandle.....	19.1	17.9	20.5	20.0	20.0	19.3	19.2	21.4	23.4	24.6	25.5	25.3	256.2	183.8	
West central.....	7.2	6.4	7.0	6.8	6.8	6.2	6.6	6.3	6.1	6.2	6.3	6.8	78.7	77.8	
Rest of State.....	4.7	4.5	4.2	4.5	5.0	5.3	5.7	5.7	5.5	5.5	5.1	5.0	60.7	59.0	
Total, Texas.....	35.6	33.3	36.5	36.1	37.2	36.9	38.3	40.3	41.7	43.2	43.9	43.6	466.6	366.5	
Louisiana.....	3.4	3.4	3.4	3.4	3.1	3.2	3.0	3.1	3.3	3.6	3.8	3.9	40.6	37.0	
Arkansas.....	1.1	1.0	1.1	1.1	1.2	1.0	1.2	1.1	1.1	1.1	1.0	1.0	13.0	15.2	
Rocky Mountain.....	4.7	4.6	4.8	4.9	4.7	4.6	4.7	4.9	4.8	6.4	5.1	5.2	58.4	54.9	
California:															
Huntington Beach.....	3.1	2.9	3.4	3.3	3.6	3.7	4.0	3.9	3.6	3.7	3.5	3.6	42.3	25.4	
Kettleman Hills.....	13.6	11.6	11.5	11.1	10.9	10.9	12.4	13.8	14.4	15.1	13.2	13.9	152.4	133.5	
Long Beach.....	5.9	5.5	6.5	6.4	6.8	6.8	7.0	6.6	6.2	6.2	6.1	6.2	76.2	88.4	
Santa Fe Springs.....	5.8	5.1	5.6	5.3	5.8	5.5	5.6	5.5	5.1	5.0	5.0	5.0	64.3	30.4	
Ventura Avenue.....	4.0	3.6	4.2	3.4	3.6	3.6	3.8	3.7	3.4	3.6	4.0	4.2	45.1	45.0	
Rest of State.....	10.3	9.2	10.3	10.4	10.7	10.8	11.4	11.4	10.4	10.7	10.3	10.1	126.0	123.6	
Total, California.....	42.7	37.9	41.5	39.9	41.4	41.3	44.2	44.9	43.1	44.3	42.1	43.0	506.3	496.3	
Total, United States.....	128.4	118.7	128.0	123.9	123.4	120.3	124.8	128.4	129.1	137.2	136.1	137.1	1,635.4	1,420.0	
Daily average.....	4.1	4.2	4.1	4.1	4.0	4.0	4.0	4.1	4.3	4.4	4.5	4.4	4.2	3.9	
Stocks at plants at end of period.....	41.7	41.1	42.9	53.6	63.7	69.1	66.8	66.7	56.5	45.5	37.4	36.1	36.1	141.7	
Indicated deliveries.....	128.4	119.3	126.2	113.2	113.3	114.9	127.1	128.5	139.3	148.2	144.2	138.4	1,541.0	1,411.2	

¹ For comparison with 1934.

Natural gasoline produced in the United States in 1934, by States and by counties

State	County	Thousands of gallon	Thousands of dollars	
Arkansas	Ouachita	1,995	60	
	Union	11,038	390	
		13,033	450	
California	Fresno	26,589	1,818	
	Kern	37,786	2,266	
	Kings	125,846	8,616	
	Los Angeles	194,552	10,575	
	Orange	62,683	3,621	
	Santa Barbara	10,842	571	
	Ventura	47,974	2,464	
		506,272	29,931	
Colorado	Larimer and Las Animas	643	18	
Illinois	Clark and Cumberland	391	20	
	Crawford	1,809	91	
	Lawrence and Wabash	1,610	72	
		3,810	183	
Kansas	Anderson, Butler, and Chautauqua	1,306	45	
	Barber, Kingman, and McPherson	3,692	105	
	Cowley	4,050	121	
	Greenwood	5,117	142	
	Sedgwick, Stevens, and Sumner	13,726	383	
		27,891	796	
Kentucky	Boyd, Clark, and Martin	3,050	130	
	Estill and Lee	1,121	47	
		4,171	177	
Louisiana	Caddo	14,482	404	
	Claiborne	9,905	285	
	Jefferson Davis	1,292	52	
	Morehouse, Red River, and Webster	2,844	78	
	Ouachita	2,592	71	
	Richland	9,443	251	
		40,558	1,141	
Michigan	Midland	589	15	
Montana	Glacier	1,237	83	
New Mexico	Lea	21,748	570	
New York	Allegany	85	5	
Ohio	Fairfield, Licking, and Wayne	5,004	252	
	Jefferson, Noble, and Washington	819	35	
	Monroe	58	2	
		5,881	289	
Oklahoma	Beckham, Custer, and Harmon	6,511	166	
	Carter	7,478	198	
	Creek	55,845	1,627	
	Garfield	5,287	157	
	Hughes	5,462	178	
	Kay	2,591	70	
	Lincoln	3,556	103	
	Logan	3,500	119	
	Muskogee	350	10	
	Noble	5,840	155	
	Nowata	342	13	
	Okfuskee	2,221	63	
	Oklahoma	102,591	3,104	
	Okmulgee	4,340	124	
	Osage	46,592	1,485	
	Pawnee	3,075	89	
	Payne	3,015	78	
	Pottawatomie	18,653	517	
	Seminole	76,533	2,421	
	Tulsa	806	23	
	Wagoner and Washington	850	28	
			355,438	10,728

Natural gasoline produced in the United States in 1934, by States and by counties—
Continued

State	County	Thousands of gallons	Thousands of dollars
Pennsylvania	Allegheny	841	40
	Armstrong, Elk, and Lawrence	45	2
	Beaver	97	4
	Butler	273	13
	Clarion	376	15
	Crawford	74	3
	Forest	218	12
	Greene	3,969	143
	McKean	533	24
	Venango	2,075	100
	Warren	1,475	75
	Washington	805	36
			10,781	467
Texas	Anderson, Panola, and Van Zandt	14,052	384
	Archer, Clay, and Jack	2,486	61
	Austin and Montgomery	9,075	249
	Brazoria, Nueces, and Refugio	18,921	548
	Brown and Comanche	2,464	63
	Carson	40,806	1,209
	Coleman and Shackelford	4,616	108
	Crane, Ector, Pecos, and Reagan	18,694	460
	Eastland	31,355	812
	Erath and Palo Pinto	3,754	89
	Foard and Wilbarger	3,104	73
	Gray	71,840	1,959
	Gregg	19,803	572
	Hutchinson	96,309	2,688
	Moore and Potter	21,281	520
	Rusk	26,477	725
	Stephens	36,554	855
	Wheeler	19,894	499
	Wichita	14,559	378
	Young	4,586	114
		466,570	12,366
West Virginia	Brooke, Hancock, and Marshall	207	6
	Clay, Doddridge, and Gilmer	578	22
	Harrison	1,600	84
	Jackson and Lincoln	3,063	129
	Kanawha	15,611	644
	Lewis	3,590	119
	Marion	1,049	40
	Monongalia	626	25
	Pleasants	1,117	47
	Ritchie	1,230	48
	Roane	1,460	57
	Tyler	920	39
	Wetzel	10,803	443
		41,854	1,706
Wyoming	Carbon and Sweetwater	3,595	182
	Fremont, Hot Springs, and Niobrara	431	37
	Natrona	30,773	1,379
		34,799	1,598
United States		1,535,360	60,523

Natural gasoline produced in the United States in 1934, by States and by methods of manufacture

State	Number of plants operating			Production (thousands of gallons)		
	Com- pression	Absorp- tion ¹	Charcoal	Com- pression	Absorption ¹	Charcoal
Arkansas.....	3	6	1	3,574	9,393	66
California.....	2	90		2,374	503,898	
Colorado.....	1	2		303	340	
Illinois.....	75			3,810		
Kansas.....	7	13		2,485	25,406	
Kentucky.....	2	3	1	121	3,524	526
Louisiana.....	6	22		3,439	37,119	
Michigan.....	1			589		
Montana.....		1			1,237	
New Mexico.....		2			21,748	
New York.....	1	1		29	56	
Ohio.....	9	4	1	75	4,934	872
Oklahoma.....	55	122		42,142	313,296	
Pennsylvania.....	94	15	1	3,172	7,487	122
Texas.....	26	100		46,853	419,717	
West Virginia.....	59	24	7	11,502	24,376	5,976
Wyoming.....	3	6		27,682	7,117	
Total, 1934.....	344	411	11	148,150	1,379,648	7,562
Total, 1933.....	360	407	12	160,886	1,250,914	8,200

¹ Includes combination of absorption process with compression and charcoal processes.

CONSUMPTION

Distribution of natural gasoline in 1934, by months, in thousands of gallons

	January	February	March	April	May	June
Production.....	128,400	118,700	128,000	123,900	123,400	120,300
Decrease in stocks.....		4,925				
	128,400	123,625	128,000	123,900	123,400	120,300
Blended at refineries.....	87,486	76,524	84,714	81,522	70,980	81,186
Run through pipe lines in California.....	5,838	4,914	4,998	4,074	5,166	5,082
Exports and sales to jobbers.....	10,122	23,898	18,270	13,188	24,486	16,044
Increase in stocks.....	8,961		5,870	14,407	6,383	6,513
Losses.....	15,993	18,289	14,148	10,709	16,385	11,475
	128,400	123,625	128,000	123,900	123,400	120,300

	July	August	Septem- ber	October	Novem- ber	Decem- ber	The year
Production.....	124,800	128,400	129,100	137,200	136,100	137,060	1,535,360
Decrease in stocks.....	629		7,536	14,943	22,705		
	125,429	128,400	136,636	152,143	158,805	137,060	1,535,360
Blended at refineries.....	85,470	82,866	97,608	127,386	142,758	113,652	1,132,152
Run through pipe lines in California.....	4,494	3,402	3,402	3,990	3,066	2,226	50,652
Exports and sales to jobbers.....	22,764	21,252	25,914	14,070	10,164	14,070	214,242
Increase in stocks.....		10,046				1,058	2,500
Losses.....	12,701	10,834	9,712	6,697	2,817	6,054	135,814
	125,429	128,400	136,636	152,143	158,805	137,060	1,535,360

NATURAL GASOLINE

27

Natural gasoline blended at refineries in the United States in 1934, by districts and months, in thousands of gallons

District	January	February	March	April	May	June
East coast.....	6,132	5,292	1,890	4,830	1,680	1,176
Appalachian.....	1,008	714	714	756	714	1,008
Indiana, Illinois, Kentucky, etc.	7,434	6,216	6,174	7,286	7,182	6,584
Oklahoma, Kansas, and Missouri.....	20,160	17,010	17,640	16,884	14,364	18,060
Texas:						
Gulf coast.....	4,704	4,116	5,376	5,544	5,754	6,090
Rest of State.....	16,884	12,684	12,474	11,298	7,812	11,214
Total, Texas.....	21,588	16,800	17,850	16,842	13,566	17,304
Louisiana-Arkansas:						
Louisiana Gulf coast.....	462	1,512	588	378	336	840
Northern Louisiana and Arkansas.....	1,554	1,764	1,890	1,890	2,268	1,848
Total, Louisiana and Arkansas.....	2,016	3,276	2,478	2,268	2,604	2,688
Rocky Mountain.....	2,940	2,478	2,772	2,688	2,478	2,772
California ¹	32,046	29,652	40,194	34,062	33,558	36,876
Total, United States, 1934.....	93,324	81,438	89,712	85,596	76,146	86,268
1933.....	95,004	73,920	77,532	77,406	73,122	85,638

District	July	August	Septem-ber	October	Novem-ber	Decem-ber	The year
East coast.....	2,478	1,512	3,864	6,804	11,088	8,148	54,894
Appalachian.....	840	966	840	1,092	1,680	1,596	11,928
Indiana, Illinois, Kentucky, etc.	7,350	6,426	8,946	12,978	12,348	9,912	98,616
Oklahoma, Kansas, and Mis-souri.....	18,522	19,698	24,108	24,696	30,156	25,410	246,708
Texas:							
Gulf coast.....	6,006	7,812	10,542	13,986	14,238	11,172	95,340
Rest of State.....	11,844	13,734	12,138	16,968	27,174	17,094	171,318
Total, Texas.....	17,850	21,546	22,680	30,954	41,412	28,266	266,658
Louisiana-Arkansas:							
Louisiana Gulf coast.....	714	714	1,764	1,176	504	714	9,702
Northern Louisiana and Arkansas.....	1,680	1,848	1,764	2,436	1,974	1,680	22,596
Total, Louisiana and Arkansas.....	2,394	2,562	3,528	3,612	2,478	2,394	32,298
Rocky Mountain.....	2,562	2,982	2,730	3,108	3,234	2,982	33,726
California ¹	37,968	30,576	34,314	48,132	43,428	37,170	437,976
Total, United States, 1934.....	89,964	86,268	101,010	131,376	145,824	115,878	1,182,804
1933.....	78,120	86,478	101,178	110,250	113,400	92,484	1,064,532

¹ Includes natural gasoline run through pipe lines.

STOCKS

Stocks of natural gasoline held at plants and at refineries in the United States at end of each month of 1934, by refining districts, in thousands of gallons

District	January	February	March	April	May	June
East coast:						
At refineries.....	8,400	7,014	9,576	10,248	8,526	8,946
Appalachian:						
At plants.....	3,910	5,293	6,103	7,138	6,985	5,825
At refineries.....	210	168	294	84	168	168
Indiana, Illinois, Kentucky, etc.:						
At plants.....	387	504	627	607	607	320
At refineries.....	1,848	1,218	1,680	1,134	2,016	1,554
Oklahoma, Kansas, and Missouri:						
At plants.....	22,214	19,169	20,305	21,936	25,598	28,387
At refineries.....	1,260	1,554	1,722	1,848	1,638	2,184
Texas:						
At plants.....	10,430	11,065	10,215	18,378	24,655	29,030
At refineries.....	11,886	6,426	8,736	10,752	7,686	8,232
Louisiana-Arkansas:						
At plants.....	917	854	1,093	801	744	844
At refineries.....	210	252	252	462	1,176	1,008
Rocky Mountain:						
At plants.....	1,270	1,243	1,186	1,169	1,345	1,362
At refineries.....	420	336	420	420	588	378
California:						
At plants.....	2,551	2,994	3,389	3,558	3,774	3,361
At refineries.....	97,608	100,506	98,868	100,338	99,750	100,170
Total, 1934:						
At plants.....	41,679	41,122	42,918	53,587	63,708	69,129
At refineries.....	121,842	117,474	121,548	125,286	121,548	122,640
Total, 1933:						
At plants.....	22,625	27,343	31,594	34,167	38,884	36,681
At refineries.....	111,426	115,080	117,138	116,382	123,354	121,170

District	July	August	September	October	November	December
East coast:						
At refineries.....	10,668	10,878	11,886	13,566	8,484	7,392
Appalachian:						
At plants.....	4,490	3,754	2,985	1,708	1,706	2,801
At refineries.....	210	168	42	126	84	378
Indiana, Illinois, Kentucky, etc.:						
At plants.....	335	238	252	235	241	290
At refineries.....	1,596	1,722	2,310	2,562	2,394	2,688
Oklahoma, Kansas, and Missouri:						
At plants.....	28,306	28,202	24,063	19,473	13,167	11,082
At refineries.....	3,276	3,444	3,486	3,612	3,108	3,822
Texas:						
At plants.....	27,336	26,905	23,046	18,197	17,131	14,103
At refineries.....	7,896	7,644	5,544	8,610	4,788	7,098
Louisiana-Arkansas:						
At plants.....	1,368	3,137	1,584	1,425	994	4,028
At refineries.....	84	546	546	126	210	210
Rocky Mountain:						
At plants.....	1,489	1,231	1,197	1,314	1,247	993
At refineries.....	378	294	336	756	630	882
California:						
At plants.....	3,454	3,277	3,393	3,131	2,866	2,803
At refineries.....	100,254	109,746	112,980	103,866	98,952	98,490
Total, 1934:						
At plants.....	66,778	66,744	56,520	45,483	37,352	36,100
At refineries.....	124,362	134,442	137,130	133,224	118,650	120,960
Total, 1933:						
At plants.....	39,911	35,577	27,760	24,043	25,854	27,584
At refineries.....	116,172	122,892	120,750	113,694	105,336	111,468
						112,896

¹ For comparison with 1934.

LIQUEFIED PETROLEUM GASES

Marketed production of liquefied petroleum gases in the United States, 1922-34

Year	Gallons	Year	Gallons	Year	Gallons	Year	Gallons
1922.....	222, 641	1926.....	465, 085	1929.....	9, 930, 964	1932.....	34, 114, 767
1923.....	276, 893	1927.....	1, 091, 005	1930.....	18, 017, 347	1933.....	33, 931, 008
1924.....	376, 498	1928.....	4, 522, 899	1931.....	23, 769, 576	1934.....	48, 173, 000
1925.....	403, 674						

Marketed production of liquefied petroleum gases in the United States in 1934, by classes, uses, and methods of shipment, in thousands of gallons

	1934					1933 (total)	
	Propane	Butane	Pentane and propane-butane mixtures	Total		Thousands of gallons	Percent
				Thousands of gallons	Percent		
Use:							
Domestic.....	15, 236	1, 046	1, 399	17, 681	36. 7	16, 626	42. 7
Gas manufacturing.....	326	5, 064	900	6, 290	13. 1	8, 318	21. 4
Industrial and miscellaneous.....	3, 119	19, 443	1, 640	24, 202	50. 2	13, 987	35. 9
Percent.....	18, 681	25, 553	3, 939	48, 173	100. 0	38, 931	100. 0
	38. 8	53. 0	8. 2	100. 0	100. 0	100. 0	100. 0
Shipped in—							
Cylinders or drums.....	14, 001	140	1, 238	15, 379	31. 9	14, 416	37. 0
Tank cars, tank wagons, and pipe lines.....	4, 680	25, 413	2, 701	32, 794	68. 1	24, 515	63. 0
Total.....	18, 681	25, 553	3, 939	48, 173	100. 0	38, 931	100. 0

PRICES

Spot price of Oklahoma natural gasoline, grade 26-70, on specified dates in 1934, with monthly and yearly averages, in cents per gallon

[National Petroleum News]

Date	Cents	Date	Cents	Date	Cents
Jan. 1.....	3. 50	May 7.....	2. 00-2. 13	Sept. 4.....	3. 00
Jan. 2.....	3. 38-3. 50	May 14.....	2. 13-2. 25	Sept. 10.....	3. 00
Jan. 8.....	3. 13-3. 25	May 21.....	2. 25	Sept. 17.....	3. 00
Jan. 15.....	2. 63	May 28.....	2. 38-2. 50	Sept. 24.....	3. 00
Jan. 22.....	2. 38-2. 50	Average.....	2. 23	Average.....	3. 00
Jan. 29.....	2. 50	June 4.....	2. 38-2. 50	Oct. 1.....	3. 00
Average.....	2. 84	June 11.....	2. 33	Oct. 8.....	3. 00
Feb. 5.....	2. 63	June 18.....	1. 38	Oct. 15.....	3. 00
Feb. 12.....	2. 75	June 25.....	1. 25	Oct. 22.....	2. 88-3. 00
Feb. 19.....	2. 50-2. 63	Average.....	1. 86	Oct. 29.....	3. 00
Feb. 26.....	2. 38-2. 50	July 2.....	1. 25	Average.....	2. 99
Average.....	2. 59	July 9.....	1. 50	Nov. 5.....	3. 00
Mar. 5.....	2. 13-2. 25	July 16.....	2. 38-2. 50	Nov. 12.....	3. 00
Mar. 12.....	1. 75-1. 88	July 23.....	3. 00	Nov. 19.....	3. 13
Mar. 19.....	1. 50	July 30.....	3. 00	Nov. 26.....	3. 25-3. 38
Mar. 26.....	1. 38	Average.....	2. 24	Average.....	3. 11
Average.....	1. 72	Aug. 6.....	3. 00	Dec. 3.....	3. 38
Apr. 2.....	1. 38	Aug. 13.....	3. 00	Dec. 10.....	3. 63-3. 75
Apr. 9.....	1. 63	Aug. 20.....	3. 00	Dec. 17.....	3. 75
Apr. 16.....	2. 50	Aug. 27.....	3. 00	Dec. 24.....	3. 75
Apr. 23.....	2. 50	Average.....	3. 00	Dec. 31.....	3. 63-3. 75
Apr. 30.....	2. 00			Average.....	3. 65
Average.....	2. 00			Average, 1934.....	2. 60
				1933.....	2. 93

SUMMARY OF STATISTICS FOR NATURAL GAS

Summary of statistics for natural gas in the United States, 1924 and 1931-34

	1924	1931	1932	1933	1934
Produced and delivered to consumers:					
Arkansas..... millions of cubic feet.....	36,616	13,300	10,235	8,288	7,024
California..... do.....	189,692	305,930	263,484	259,799	268,122
Kansas..... do.....	25,580	38,742	40,690	41,596	48,909
Kentucky..... do.....	12,875	27,870	29,005	31,380	33,124
Louisiana..... do.....	160,945	224,155	201,561	197,826	225,713
Ohio..... do.....	47,396	56,326	51,466	47,929	50,330
Oklahoma..... do.....	214,452	263,685	255,487	245,759	254,457
Pennsylvania..... do.....	105,863	74,797	61,611	63,579	86,238
Texas..... do.....	107,247	464,580	456,832	475,691	602,976
West Virginia..... do.....	182,285	124,797	100,540	100,653	109,161
Wyoming..... do.....	46,036	39,770	28,938	25,830	23,148
Other..... do.....	12,534	52,484	56,141	57,144	63,619
	1,141,521	1,686,436	1,555,990	1,555,474	1,770,721
Consumed:					
Domestic..... do.....	285,152	294,406	298,520	283,197	288,236
Commercial..... do.....		86,491	87,367	85,577	91,261
Industrial:					
Field..... do.....	393,437	571,365	529,378	1,491,159	554,542
Carbon-black plants..... do.....	156,514	195,396	168,237	1,190,081	229,933
Petroleum refineries..... do.....	(²)	75,548	67,467	66,333	79,965
Electric public-utility power plants ³ do.....	48,443	138,343	107,239	102,601	127,896
Portland cement plants ⁴ do.....	(²)	31,381	21,440	22,001	27,331
Other industrial..... do.....	257,936	291,319	274,687	312,450	365,824
	1,141,482	1,684,249	1,554,335	1,553,399	1,764,988
Domestic..... percent.....	25	18	19	18	16
Commercial..... do.....		5	5	6	5
Industrial..... do.....		75	77	76	76
Treated for natural gasoline:					
Total..... millions of cubic feet.....	1,016,276	1,790,119	1,499,756	1,551,464	1,776,172
Percent of total consumption.....	89	⁵ 106	96	100	⁵ 101
Consumers:					
Domestic..... thousands.....	3,443	6,443	6,506	1,6,691	6,984
Commercial..... do.....		518	531	1,541	582
Industrial..... do.....		(⁶) 728	730	730	731
Value (at wells) of gas produced:					
Total..... thousands of dollars.....	105,779	117,505	98,985	97,096	106,438
Average per M cubic feet..... cents.....	9.3	7.0	6.4	6.2	6.0
Value (at points of consumption) of gas consumed:					
Total..... thousands of dollars.....	253,830	392,156	384,123	368,119	394,257
Domestic..... do.....	154,075	208,262	223,377	209,699	215,029
Commercial..... do.....		41,347	44,000	42,582	45,287
Industrial..... do.....		99,755	142,547	116,746	115,838
Average per M cubic feet:					
Domestic..... cents.....	(⁶)	70.7	74.8	74.0	74.6
Commercial..... do.....	(⁶)	47.8	50.4	49.8	49.6
Industrial..... do.....		11.6	10.9	9.8	9.7
Domestic and commercial..... do.....		54.0	65.5	69.3	68.4
Domestic, commercial, and industrial..... do.....		22.2	23.3	24.7	22.3

¹ Revised figures.² Included under "Other industrial"; separate figures not available.³ U. S. Geological Survey.⁴ Bagley, B. W., Mineral Resources and Statistical Appendix to Minerals Yearbook, chapters on Cement.⁵ Exceeds 100 percent, as part of the natural gas treated for natural gasoline is blown to the air and not included in total consumption.⁶ Figures not available.⁷ Exclusive of oil- and gas-field operators.

NATURAL GAS

(DETAILED STATISTICS)

By G. R. HOPKINS AND H. BACKUS

SUMMARY OUTLINE

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Consumption.....	34	carbon black.....	44
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SUMMARY

Summary of statistics for natural gas in the United States, 1930-34

	1930	1931	1932	1933	1934
Natural gas:					
Production.....millions of cubic feet..	1,943,421	1,686,436	1,555,990	1,555,474	1,770,721
Exports:					
To Canada.....do.....	107	74	83	69	73
To Mexico.....do.....	1,691	2,157	1,610	2,089	5,728
Imports from Canada.....do.....	21	44	38	83	68
Consumption:					
Domestic.....do.....	295,700	294,406	298,520	283,197	288,236
Commercial.....do.....	80,707	86,491	87,367	85,577	91,261
Industrial:					
Field.....do.....	723,165	571,365	529,378	491,159	554,542
Carbon-black plants.....do.....	266,625	195,393	168,237	190,081	229,933
Petroleum refineries.....do.....	98,842	75,548	67,467	66,333	79,965
Electric public-utility power plants ²					
do.....do.....	120,290	138,343	107,239	102,601	127,896
Portland cement plants ³.....do.....	41,256	31,381	21,440	22,001	27,331
Other industrial.....do.....	315,059	291,319	274,687	312,450	365,824
	1,941,644	1,684,249	1,554,335	1,553,399	1,764,988
Domestic.....percent.....	16	18	19	18	16
Commercial.....do.....	4	5	6	6	5
Industrial.....do.....	80	77	75	76	79
Number of consumers:					
Domestic.....thousands.....	5,035	6,443	6,506	6,691	6,984
Commercial.....do.....	413	518	531	541	582
Industrial ⁴.....do.....	21	28	30	30	31
Number of producing gas wells	55,020	55,756	54,160	53,660	53,260
Value (at wells) of gas produced:					
Total.....thousands of dollars.....	147,048	117,505	98,985	97,096	106,438
Average per M cubic feet.....cents.....	7.6	7.0	6.4	6.2	6.0
Value (at points of consumption) of gas consumed:					
Total.....thousands of dollars.....	415,519	392,156	384,123	368,119	394,257
Domestic.....do.....	200,615	208,262	223,377	209,699	215,029
Commercial.....do.....	38,558	41,347	44,000	42,582	45,287
Industrial.....do.....	176,346	142,547	116,746	115,838	133,941
Average per M cubic feet:					
Domestic.....cents.....	67.8	70.7	74.8	74.0	74.6
Commercial.....do.....	47.8	47.8	50.4	49.8	49.6
Industrial.....do.....	11.3	10.9	10.0	9.8	9.7
Domestic and commercial.....do.....	63.5	65.5	69.3	68.4	68.6
Domestic, commercial, and industrial					
cents.....	21.4	23.3	24.7	23.7	22.3
Treated for natural gasoline:					
Quantity.....millions of cubic feet..	2,088,778	1,790,119	1,499,756	1,551,464	1,776,172
Percent of total consumption.....	^a 108	^b 106	96	100	^c 101

¹ Revised figures.

² U. S. Geological Survey.

³ Bagley, B. W., Mineral Resources and Statistical Appendix to Minerals Yearbook, chapters on Cement.

⁴ Exclusive of oil- and gas-field operators.

^a Exceeds 100 percent, as part of the natural gas treated for natural gasoline is blown to the air and not included in total consumption.

Summary of statistics for natural gas in the United States, 1930-34—Continued

	1930	1931	1932	1933	1934
Natural gasoline:					
Production.....thousands of gallons..	2,210,494	1,831,918	1,523,800	1,420,000	1,535,360
Value at plants:					
Total.....thousands of dollars..	128,160	63,732	49,244	54,368	60,523
Average per gallon.....cents..	5.8	3.5	3.2	3.8	3.9
Carbon black:					
Production.....thousands of pounds..	379,942	280,907	242,700	273,125	328,828
Value at plants:					
Total.....thousands of dollars..	14,852	8,621	6,664	7,602	11,654
Average per pound.....cents..	3.9	3.1	2.7	2.8	3.5

PRODUCTION

Natural gas produced in the United States and delivered to consumers, 1924-34, by States, in millions of cubic feet

Year	Arkan- sas	Califor- nia	Colo- rado	Illi- nois	Indi- ana	Kan- sas	Ken- tucky	Louis- iana	Mich- igan	Missis- sippi	Mont- ana	New Mexico
1924.....	36,616	189,692	48	4,072	998	25,580	12,875	160,945	1		1,071	
1925.....	41,878	187,789	574	4,165	1,168	26,917	10,770	152,620	(1)		1,496	(2)
1926.....	43,566	204,915	554	3,808	901	38,095	10,410	157,423	(1)		2,283	921
1927.....	30,450	212,364	1,725	3,741	1,124	42,646	10,206	186,961	1	(2)	4,253	1,019
1928.....	20,235	246,215	2,931	3,051	1,290	45,644	15,383	227,821	469	(2)	6,277	838
1929.....	19,928	342,214	2,787	2,983	1,012	38,469	27,588	261,138	4,526	90	9,659	3,054
1930.....	18,585	334,789	3,312	2,890	1,217	37,630	28,023	278,341	2,075	179	10,060	9,497
1931.....	13,300	305,930	2,536	2,130	1,337	38,742	27,870	224,155	472	6,048	10,949	19,354
1932.....	10,235	263,484	2,547	1,769	1,349	40,690	29,005	201,561	968	8,648	13,295	17,604
1933.....	8,288	259,799	2,449	1,631	1,544	41,596	31,380	197,826	1,528	8,679	14,391	19,148
1934.....	7,024	268,122	2,633	1,868	1,802	46,909	33,124	225,713	2,789	8,245	14,971	24,075

Year	New York	Ohio	Okla- homa	Penn- sylv- ania	Texas	West Vir- ginia	Wyo- ming	Oth- ers	Total	Value at points of consumption	
										Total (thous- ands of dollars)	Aver- age per M cubic feet (cents)
1924.....	6,196	47,396	214,452	105,863	107,247	182,285	46,036	148	1,141,521	253,856	22.2
1925.....	6,210	43,235	249,285	101,632	134,872	180,345	45,539	76	1,188,571	265,271	22.3
1926.....	7,027	47,363	286,421	107,089	175,392	180,223	46,567	61	1,313,019	300,168	22.9
1927.....	5,908	51,381	326,864	105,709	254,063	162,375	43,582	1,056	1,445,428	317,930	22.0
1928.....	7,224	56,341	320,861	99,466	301,990	163,018	47,490	1,595	1,568,139	363,726	23.2
1929.....	8,387	57,936	357,893	101,951	464,928	167,333	44,648	1,169	1,917,693	413,276	21.6
1930.....	9,624	63,394	348,116	88,706	517,880	144,180	43,219	1,704	1,943,421	416,090	21.4
1931.....	7,868	56,326	263,685	74,797	464,580	124,797	39,770	1,790	1,686,436	392,816	23.3
1932.....	8,813	51,466	255,487	61,611	456,832	100,540	28,938	1,148	1,555,990	384,632	24.7
1933.....	6,865	47,929	245,759	63,579	475,691	100,653	25,830	909	1,555,474	368,540	23.7
1934.....	6,278	50,330	254,457	86,238	602,976	109,161	23,148	858	1,770,721	395,378	22.3

¹ Less than 500,000 cubic feet.

² Included under "Others"; separate figures not available for publication.

Natural gas produced and consumed in the United States in 1934, by States

State	Produced and delivered to consumers, including deliveries in other States					Consumed, including receipts from other States				
	Quantity		Estimated value at the wells		Value at points of consumption		Quantity		Value at points of consumption	
	M cubic feet	Percent of total	Total	Average per M cubic feet (cents)	Total	Average per M cubic feet (cents)	M cubic feet	Percent of total	Total	Average per M cubic feet (cents)
Ala.....							7,932,000	0.4	\$2,373,000	29.9
Ariz.....							4,729,000	.3	1,626,000	34.4
Ark.....	7,024,000	0.4	\$485,000	6.9	\$1,574,000	22.4	25,075,000	1.4	5,618,000	22.4
Cal f.....	268,122,000	15.1	18,739,000	7.0	73,055,000	27.2	268,122,000	15.2	73,055,000	27.2
Colo.....	2,633,000	.1	83,000	3.2	667,000	25.3	16,449,000	.9	5,317,000	32.3
D. C.....							2,640,000	.1	2,089,000	79.1
Fla.....							554,000	(¹)	203,000	36.6
Ga.....							5,357,000	.3	3,552,000	66.3
Ill.....	1,868,000	.1	144,000	7.7	1,290,000	69.1	45,084,000	2.6	31,171,000	69.1
Ind.....	1,802,000	.1	483,000	26.8	1,060,000	58.8	12,864,000	.7	4,435,000	34.5
Iowa.....							16,636,000	.9	5,360,000	32.2
Kans.....	46,909,000	2.6	2,646,000	5.6	14,124,000	30.1	65,599,000	3.7	15,429,000	23.5
Ky.....	33,124,000	1.9	4,357,000	13.2	14,973,000	45.2	14,106,000	.8	6,347,000	45.0
La.....	225,713,000	12.7	7,850,000	3.5	42,531,000	18.8	137,413,000	7.8	14,806,000	10.8
Md.....							752,000	(¹)	613,000	81.5
Mich.....	2,789,000	.2	393,000	14.1	1,421,000	51.0	2,789,000	.2	1,421,000	51.0
Minn.....							7,125,000	.4	1,813,000	25.4
Miss.....	8,245,000	.5	340,000	4.1	2,021,000	24.5	7,219,000	.4	2,165,000	30.0
Mo.....	549,000	(¹)	47,000	8.6	278,000	50.6	29,792,000	1.7	13,224,000	44.4
Mont.....	14,971,000	.8	636,000	4.2	4,415,000	29.5	12,444,000	.7	3,438,000	27.6
Nebr.....							12,789,000	.7	4,083,000	31.9
N. Mex.....	24,075,000	1.4	657,000	2.7	3,674,000	15.3	15,625,000	.9	1,670,000	10.7
N. Y.....	6,278,000	.4	1,681,000	26.8	4,408,000	70.2	31,209,000	1.8	15,309,000	49.1
N. Dak.....							1,112,000	.1	420,000	37.8
Ohio.....	50,330,000	2.8	8,400,000	16.7	25,728,000	51.1	94,998,000	5.4	48,923,000	51.5
Okla.....	254,457,000	14.4	7,812,000	3.1	23,744,000	9.3	249,721,000	14.1	20,586,000	8.2
Pa.....	486,238,000	4.9	18,826,000	21.8	37,524,000	43.5	87,474,000	5.0	37,651,000	43.0
S. Dak.....	11,000	(¹)	700	6.4	4,000	36.4	3,901,000	.2	1,327,000	34.0
Tenn.....	12,000	(¹)	800	6.7	4,000	33.3	8,062,000	.5	2,996,000	37.2
Tex.....	602,976,000	34.1	13,145,000	2.2	95,056,000	15.8	501,047,000	28.4	48,311,000	9.6
Utah.....	182,000	(¹)	8,000	4.4	43,000	23.6	6,776,000	.4	1,606,000	23.7
Va.....							292,000	(¹)	308,000	105.5
Wash.....	104,000	(¹)	8,500	8.2	75,000	72.1	104,000	(¹)	75,000	72.1
W. Va.....	109,161,000	6.2	19,169,000	17.6	44,263,000	40.5	52,353,000	3.0	15,157,000	29.0
Wyo.....	23,148,000	1.3	527,000	2.3	3,446,000	14.9	16,844,000	1.0	1,780,000	10.6
Total:										
1934.....	1,770,721,000	100.0	106,438,000	6.0	395,378,000	22.3	1,764,988,000	100.0	394,257,000	22.3
1933.....	1,555,474,000	100.0	97,096,000	6.2	368,540,000	23.7	1,553,399,000	100.0	368,119,000	23.7

¹ Less than 0.05 percent.

² Includes 68,000 M cubic feet piped from Canada.

³ Includes 24,000 M cubic feet piped to Canada.

⁴ Includes 49,000 M cubic feet piped to Canada.

⁵ Includes 5,728,000 M cubic feet piped to Mexico.

CONSUMPTION

Natural gas consumed in the United States, 1924-34

Year	Domestic and commercial consumption							
	Consumers (thousands)			Billions of cubic feet			Average number of M cubic feet per domestic and commercial consumer	Average value at point of consumption per M cubic feet (cents)
	Domestic	Commercial	Total	Domestic	Commercial	Total		
1924.....	1 3, 443	(1)	3, 443	1 285	(1)	285	82. 8	54. 0
1925.....	1 3, 508	(1)	3, 508	1 272	(1)	272	77. 6	56. 0
1926.....	1 3, 731	(1)	3, 731	1 289	(1)	289	77. 5	58. 4
1927.....	1 3, 984	(1)	3, 984	1 296	(1)	296	74. 3	60. 8
1928.....	1 4, 344	(1)	4, 344	1 321	(1)	321	73. 9	62. 0
1929.....	1 5, 098	(1)	5, 098	1 360	(1)	360	70. 6	62. 0
1930.....	2 5, 035	2 413	2 5, 448	296	81	377	69. 1	63. 5
1931.....	2 6, 443	2 518	2 6, 961	294	87	381	54. 7	65. 5
1932.....	2 6, 506	2 531	2 7, 037	299	87	386	54. 8	69. 3
1933.....	2 6, 691	2 541	2 7, 232	283	86	369	51. 0	68. 4
1934.....	2 6, 984	2 582	2 7, 566	288	91	379	50. 2	68. 6

Year	Industrial consumption							Total consumption		
	Billions of cubic feet						Average value at points of consumption per M cubic feet (cents)	Billions of cubic feet	Average value at points of consumption per M cubic feet (cents)	
	Field	Carbon black	Petroleum refineries	Electric public-utility power plants 4	Portland cement plants 5	Other industrial				Total industrial
1924.....	393	157	(6)	48	(6)	258	856	11. 6	1, 141	22. 2
1925.....	424	140	88	46	(6)	218	916	12. 3	1, 188	22. 3
1926.....	478	131	122	53	(6)	240	1, 024	12. 8	1, 313	22. 9
1927.....	549	144	123	63	24	246	1, 149	12. 0	1, 445	22. 0
1928.....	574	175	115	77	31	275	1, 247	13. 2	1, 568	23. 2
1929.....	705	261	104	113	41	333	1, 557	12. 2	1, 917	21. 5
1930.....	723	267	99	120	41	315	1, 565	11. 3	1, 942	21. 4
1931.....	571	196	76	138	31	291	1, 303	10. 9	1, 684	23. 3
1932.....	529	168	68	107	21	275	1, 168	10. 0	1, 554	24. 7
1933.....	3 491	3 190	66	103	22	312	1, 184	9. 8	1, 553	23. 7
1934.....	555	230	80	128	27	366	1, 386	9. 7	1, 765	22. 3

1 Domestic includes commercial; separate figures not available.

2 Includes consumers served with mixed gas; see following table.

3 Revised figures.

4 U. S. Geological Survey.

5 Bagley, B. W., Mineral Resources and Statistical Appendix to Minerals Yearbook, chapters on Cement.

6 Included under "Other industrial"; separate figures not available.

Consumption of natural gas used with manufactured gas in the United States in 1934, by States

State	Domestic		Commercial		Industrial		Total	
	Consumers	M cubic feet	Consumers	M cubic feet	Field (M cubic feet)	Other (M cubic feet)	M cubic feet	Value at points of consumption
District of Columbia.....	120,520	2,052,000	6,560	272,000	-----	316,000	2,640,000	\$2,089,000
Illinois.....	953,130	14,455,000	54,660	2,809,000	-----	3,186,000	20,450,000	23,413,000
Indiana.....	125,270	760,000	6,970	147,000	-----	341,000	1,248,000	1,325,000
Iowa.....	62,260	1,257,000	4,030	203,000	-----	1,150,000	2,610,000	1,862,000
Kentucky.....	67,220	2,610,000	7,200	714,000	-----	535,000	3,859,000	1,991,000
Maryland.....	10,500	178,000	240	5,000	-----	12,000	195,000	185,000
Missouri.....	210,640	2,060,000	11,000	310,000	-----	182,000	2,552,000	2,856,000
Nebraska.....	430	4,000	30	1,000	-----	-----	5,000	6,000
New York.....	258,400	8,956,000	24,840	928,000	-----	833,000	10,717,000	8,515,000
Ohio.....	148,390	2,088,000	14,510	689,000	-----	401,000	3,178,000	1,968,000
Pennsylvania.....	47,350	1,087,000	4,040	264,000	-----	79,000	1,430,000	1,131,000
Virginia.....	8,420	80,000	140	3,000	-----	3,000	86,000	105,000
Total, 1934.....	2,012,530	35,587,000	134,220	6,345,000	-----	7,038,000	48,970,000	45,446,000
Total, 1933.....	¹ 1,904,890	¹ 31,475,000	¹ 132,850	¹ 6,093,000	138,000	¹ 5,053,000	¹ 42,759,000	¹ 40,382,000

¹ Revised figures—caused by revising Indiana to the following: Domestic, 101,300 consumers, 366,000 M cubic feet; commercial, 5,480 consumers, 58,000 M cubic feet; industrial, 150,000 M cubic feet; total, 674,000 M cubic feet, \$638,000.

Domestic and commercial consumption of natural gas in the United States in 1934, by States ¹

State	Domestic				Commercial				Total			
	Consumers	M cubic feet	Value at points of consumption		Consumers	M cubic feet	Value at points of consumption		Consumers	M cubic feet	Value at points of consumption	
			Total	Average (cents)			Total	Average (cents)			Total	Average (cents)
Alabama.....	21,820	787,000	\$1,078,000	137.0	2,240	451,000	\$223,000	49.4	24,060	1,238,000	\$1,301,000	105.1
Arizona.....	19,420	250,000	583,000	233.2	1,600	178,000	142,000	79.8	21,020	428,000	725,000	169.4
Arkansas.....	57,250	4,528,000	2,538,000	56.1	9,200	2,242,000	870,000	38.8	66,450	6,770,000	3,408,000	50.3
California.....	1,321,020	45,743,000	43,688,000	95.5	79,160	12,875,000	7,765,000	60.3	1,400,180	58,618,000	51,453,000	87.8
Colorado.....	85,140	3,271,000	3,032,000	92.7	7,530	1,025,000	664,000	64.8	92,670	4,296,000	3,696,000	86.0
District of Columbia.....	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)
Florida.....	2,880	72,000	115,000	159.7	200	12,000	15,000	125.0	3,080	84,000	130,000	154.8
Georgia.....	60,640	2,211,000	2,645,000	119.6	3,860	1,191,000	517,000	43.4	64,500	3,402,000	3,162,000	92.9
Illinois.....	1,060,320	16,462,000	21,592,000	131.2	60,150	3,166,000	3,578,000	113.0	1,120,470	19,628,000	25,170,000	128.2
Indiana.....	160,770	1,737,000	1,950,000	112.3	8,520	242,000	240,000	99.2	169,290	1,979,000	2,190,000	110.7
Iowa.....	101,700	2,459,000	2,881,000	117.2	7,350	1,042,000	605,000	58.1	109,050	3,501,000	3,486,000	99.6
Kansas.....	176,220	11,692,000	7,514,000	64.3	16,850	6,722,000	2,212,000	32.9	193,070	18,414,000	9,726,000	52.8
Kentucky.....	146,480	7,604,000	4,136,000	54.4	17,070	1,896,000	964,000	50.8	163,550	9,500,000	5,100,000	53.7
Louisiana.....	130,060	6,488,000	4,573,000	70.5	17,590	3,388,000	1,306,000	38.5	147,650	9,876,000	5,879,000	59.5
Maryland.....	² 156,180	² 2,903,000	² 2,432,000	² 83.8	² 8,430	² 407,000	² 312,000	² 76.7	² 164,610	² 3,310,000	² 2,744,000	² 82.9
Michigan.....	36,720	822,000	926,000	112.7	1,760	169,000	102,000	60.4	38,480	991,000	1,028,000	103.7
Minnesota.....	13,080	456,000	469,000	102.9	1,090	767,000	332,000	43.3	14,170	1,223,000	801,000	65.5
Mississippi.....	27,550	1,695,000	1,222,000	72.1	4,520	1,226,000	371,000	30.3	32,070	2,921,000	1,593,000	54.5
Missouri.....	338,880	8,872,000	7,968,000	89.8	31,370	3,237,000	2,176,000	67.2	370,250	12,109,000	10,144,000	83.8
Montana.....	25,130	3,325,000	1,680,000	50.5	3,950	2,666,000	791,000	29.7	29,080	5,991,000	2,471,000	41.2
Nebraska.....	49,150	2,646,000	2,051,000	77.5	5,280	813,000	467,000	57.4	54,430	3,459,000	2,518,000	72.8
New Mexico.....	12,210	861,000	632,000	73.4	1,140	553,000	190,000	34.4	13,350	1,414,000	822,000	58.1
New York.....	338,120	13,983,000	10,862,000	77.7	30,820	1,916,000	1,416,000	73.9	368,940	15,899,000	12,278,000	77.2
North Dakota.....	(³)	(³)	(³)	(³)	(³)	(³)	(³)	(³)	(³)	(³)	(³)	(³)
Ohio.....	1,087,650	53,248,000	32,137,000	60.4	105,000	10,800,000	6,205,000	57.5	1,192,650	64,048,000	38,342,000	59.9
Oklahoma.....	207,230	16,714,000	7,548,000	45.2	26,490	6,424,000	2,117,000	33.0	233,720	23,138,000	9,665,000	41.8
Pennsylvania.....	606,340	33,574,000	20,753,000	61.8	54,360	7,121,000	3,997,000	56.1	660,700	40,695,000	24,750,000	60.8
South Dakota.....	11,630	711,000	598,000	84.1	1,250	794,000	323,000	40.7	12,880	1,505,000	921,000	61.2
Tennessee.....	34,120	1,602,000	1,487,000	92.8	4,200	1,486,000	585,000	39.4	38,320	3,088,000	2,072,000	67.1
Texas.....	495,560	23,540,000	19,850,000	84.3	50,000	12,673,000	4,783,000	37.7	545,560	36,213,000	24,633,000	68.0
Utah.....	² 24,260	² 1,765,000	² 1,213,000	² 68.7	² 1,230	² 666,000	² 242,000	² 36.3	² 25,490	² 2,431,000	² 1,455,000	² 59.9
Virginia.....	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)

Washington.....	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)
West Virginia.....	160,320	16,459,000	6,077,000	36.9	18,000	4,288,000	1,477,000	34.4	178,320	20,747,000	7,554,000	36.4
Wyoming.....	15,560	1,756,000	799,000	45.5	1,930	825,000	300,000	36.4	17,490	2,581,000	1,099,000	42.6
Total, 1934.....	6,983,410	288,236,000	215,029,000	74.6	582,140	91,261,000	45,287,000	49.6	7,565,550	379,497,000	260,316,000	68.6
Total, 1933.....	6,690,700	283,197,000	209,699,000	74.0	541,520	85,577,000	42,582,000	49.8	7,232,220	368,774,000	252,281,000	68.4

¹ Includes natural gas used with manufactured gas.

² Maryland includes District of Columbia and Virginia.

³ Utah includes North Dakota and Washington.

⁴ Revised figures—caused by revisions to the following: Indiana—domestic consumers, 132,930; commercial consumers, 6,890; total consumers, 139,820; Oklahoma—domestic consumers, 202,410; total consumers, 226,230.

Industrial consumption of natural gas in the United States in 1934, by States and uses

State	Field (drilling, pumping, and operating gasoline recovery plants)		Manufacture of carbon black		Fuel at petroleum refineries, electric public-utility power plants, portland cement plants, and other industrial							Total industrial					
	M cubic feet (estimated)	Value at points of consumption (estimated)	M cubic feet	Value at points of consumption		M cubic feet					Value at points of consumption		M cubic feet	Value at points of consumption			
				Total	Average (cents)	Petroleum refineries	Electric public-utility power plants	Portland cement plants	Other industrial	Total	Total	Average (cents)		Total	Average (cents)		
Alabama											6,694,000	6,694,000	\$1,072,000	16.0	6,694,000	\$1,072,000	16.0
Arizona						468,000					3,833,000	4,301,000	901,000	20.9	4,301,000	901,000	20.9
Arkansas	5,468,000	\$458,000			2,842,000	1,104,000		(1)			8,891,000	12,837,000	1,752,000	13.6	13,305,000	2,210,000	12.1
California	109,218,000	7,613,000			22,632,000	27,359,000		(1)			50,265,000	100,286,000	13,989,000	13.9	209,504,000	21,602,000	10.3
Colorado	644,000	23,000			5,000	342,000		(1)			11,162,000	11,509,000	1,598,000	13.9	12,153,000	1,621,000	13.3
Dist. of Columbia											(2)	(2)	(1)	(2)	(2)	(2)	(2)
Florida						470,000					470,000	470,000	73,000	15.5	470,000	73,000	15.5
Georgia						199,000					1,756,000	1,955,000	390,000	19.9	1,955,000	390,000	19.9
Illinois	1,435,000	111,000			646,000	358,000					23,017,000	24,021,000	5,890,000	24.5	25,456,000	6,001,000	23.6
Indiana	23,000	5,000				7,765,000					3,097,000	10,862,000	2,240,000	20.6	10,885,000	2,245,000	20.6
Iowa						3,249,000		(1)			9,886,000	13,135,000	1,874,000	14.3	13,135,000	1,874,000	14.3
Kansas	12,678,000	868,000			1,028,000	12,640,000	4,667,000				16,172,000	34,570,000	4,835,000	14.0	47,185,000	5,703,000	12.1
Kentucky	611,000	99,000				3,995,000					3,995,000	3,995,000	1,148,000	28.7	4,606,000	1,247,000	27.1
Louisiana	12,395,000	644,000	53,764,000	\$1,331,000	2.5	6,443,000	21,087,000				33,848,000	61,378,000	6,952,000	11.3	127,537,000	8,927,000	7.0
Maryland						2,374,000					2,374,000	2,374,000	226,000	71.1	2,374,000	226,000	71.1
Michigan	881,000	88,000									917,000	917,000	305,000	33.3	1,798,000	393,000	21.9
Minnesota						1,117,000					4,785,000	5,902,000	1,012,000	17.1	5,902,000	1,012,000	17.1
Mississippi	25,000	3,000				747,000					3,526,000	4,273,000	569,000	13.3	4,298,000	572,000	13.3
Missouri	12,000	2,000				3,000	2,668,000		(1)		115,000,000	17,671,000	3,078,000	17.4	17,683,000	3,080,000	17.4
Montana	1,348,000	100,000				228,000	555,000				4,322,000	5,105,000	867,000	17.0	6,453,000	967,000	15.0
Nebraska						2,262,000		(1)			7,068,000	9,330,000	1,565,000	16.8	9,330,000	1,565,000	16.8
New Mexico	10,565,000	335,000				5,000	2,268,000				1,373,000	3,646,000	513,000	14.1	14,211,000	848,000	6.0
New York	278,000	94,000			1,665,000	25,000					13,342,000	15,032,000	2,937,000	19.5	15,310,000	3,031,000	19.8
North Dakota						(3)					(3)	(3)	(3)	(3)	(3)	(3)	(3)
Ohio	3,341,000	797,000				2,000	1,370,000				26,237,000	27,609,000	9,784,000	35.4	30,950,000	10,581,000	34.2
Oklahoma	183,635,000	6,566,000	(1)	(1)	(1)	9,885,000	6,654,000		(1)		426,409,000	42,948,000	4,355,000	4.0	226,583,000	10,921,000	48.2
Pennsylvania	4,850,000	1,321,000				929,000	142,000				40,858,000	41,929,000	11,580,000	27.6	46,779,000	12,901,000	27.6
South Dakota						473,000		(1)			1,923,000	2,396,000	406,000	16.9	2,396,000	406,000	16.9
Tennessee						3,508,000					1,466,000	4,974,000	924,000	18.6	4,974,000	924,000	18.6

Texas.....	189,319,000	6,593,000	168,771,000	2,398,000	1.4	28,430,000	30,879,000	4,513,000	42,922,000	106,744,000	14,687,000	13.8	464,834,000	23,678,000	5.1
Utah.....	141,000	6,000				1,000	\$ 205,000		\$ 5,214,000	\$ 5,420,000	\$ 640,000	\$ 11.8	\$ 5,561,000	\$ 646,000	\$ 12.1
Virginia.....									(2)	(2)	(2)	(2)	(2)	(2)	(2)
West Virginia.....	11,425,000	2,473,000				952,000	73,000		19,156,000	20,181,000	5,130,000	25.4	31,606,000	7,603,000	24.1
Wyoming.....	6,250,000	157,000	(4)	(4)	(4)	4,209,000	349,000		\$ 3,395,000	\$ 8,013,000	\$ 524,000	\$ 6.5	14,263,000	681,000	4.8
Miscellaneous.....			7,398,000	287,000	3.9			18,151,000							
Total, 1934.....	554,542,000	28,356,000	229,933,000	4,016,000	1.7	79,965,000	127,896,000	27,331,000	365,824,000	601,016,000	101,569,000	16.9	1,385,491,000	133,941,000	9.7
Total, 1933.....	\$491,159,000	\$28,851,000	\$190,081,000	\$ 3,821,000	2.0	66,333,000	102,601,000	22,001,000	312,450,000	503,385,000	83,166,000	16.5	1,184,625,000	115,838,000	9.8

¹ Gas used at portland cement plants included under "Miscellaneous" for United States total and under "Other industrial" for State total to avoid disclosing figures of individual operators.

² Maryland includes District of Columbia and Virginia.

³ Utah includes North Dakota.

⁴ Gas used in manufacture of carbon black included under "Miscellaneous" for United States total and under "Other industrial" for State total to avoid disclosing figures of individual operators.

⁵ Revised figures—caused by revising Texas to the following: Field, 134,475,000 M cubic feet, \$7,233,000; carbon black, 190,081,000 M cubic feet, \$2,461,000.

INTERSTATE TRANSPORTATION

Interstate transportation of natural gas in 1934¹

State from which gas was transported	State through which gas was transported	State to which gas was transported	M cubic feet
Colorado	Wyoming	Utah	1,772,000
		Wyoming	143,000
Illinois			1,915,000
		Indiana	4,000
Indiana		Illinois	3,000
		Kentucky	152,000
		Ohio	2,000
			157,000
Kansas	Missouri	Colorado	286,000
	do	Illinois	2,019,000
	Illinois	Indiana	703,000
	Nebraska	Iowa	5,617,000
	do	Minnesota	3,621,000
	Iowa	Missouri	4,716,000
		Nebraska	6,321,000
	Nebraska	do	2,000
	Iowa	Oklahoma	488,000
	Nebraska	South Dakota	651,000
			24,424,000
Kentucky	West Virginia	District of Columbia	1,837,000
	Virginia		
	Maryland	Illinois	111,000
	Indiana	Indiana	512,000
	West Virginia	Maryland	391,000
	Virginia	do	133,000
	West Virginia		
	Virginia	Ohio	1,193,900
	Maryland	do	3,837,999
	West Virginia	Pennsylvania	10,155,000
	District of Columbia	do	18,000
		Virginia	173,000
		do	60,000
	West Virginia	6,188,000	
			26,608,000
Louisiana	Mississippi	Alabama	7,457,000
		Arkansas	17,528,000
	Mississippi	Georgia	5,331,000
	Alabama	Illinois	10,971,000
	Arkansas	Mississippi	1,617,000
	Missouri	do	1,001,000
	Arkansas	Missouri	9,274,000
	do	Tennessee	8,050,000
Mississippi	Texas	32,117,000	
			93,346,000
Mississippi	Alabama	Alabama	475,000
	do	Florida	554,000
		Georgia	26,000
		Louisiana	2,589,000
			3,644,000

¹ Includes exports to Canada and Mexico.

Interstate transportation of natural gas in 1934—Continued

State from which gas was transported	State through which gas was transported	State to which gas was transported	M cubic feet	
Missouri	Illinois	Illinois	164,000	
		Indiana	60,000	
			224,000	
Montana		North Dakota	1,112,000	
		South Dakota	2,609,000	
			3,721,000	
New Mexico	Texas	Arizona	4,729,000	
	New Mexico		Colorado	111,000
			Texas	4,184,000
				9,024,000
New York		Canada	24,000	
		Pennsylvania	2,000	
			26,000	
Ohio		Indiana	765,000	
		Kentucky	34,000	
		West Virginia	263,000	
			1,062,000	
Oklahoma	Kansas do	Arkansas	523,000	
		Kansas	10,413,000	
		Missouri	2,880,000	
		Nebraska	181,000	
		Texas	1,334,000	
			15,331,000	
Pennsylvania	New York	Canada	49,000	
	Maryland	District of Columbia	451,000	
		Maryland	95,000	
	Maryland	do	33,000	
	District of Columbia	New York	24,957,000	
		Ohio	492,000	
	West Virginia	do	161,000	
	Maryland	Virginia	15,000	
	District of Columbia	West Virginia	429,000	
			26,682,000	
Texas	New Mexico	Colorado	15,331,000	
	Oklahoma	Illinois	27,915,000	
	Kansas			
	Nebraska			
	Iowa			
	Oklahoma	do	2,037,000	
	Kansas	Indiana	8,368,000	
	Missouri			
	Oklahoma			
	Kansas			
	Nebraska	do	807,000	
	Iowa			
	Illinois			
	Oklahoma			
	Kansas	Iowa	11,019,000	
	Missouri	Kansas	32,701,000	
	Illinois	Louisiana	2,457,000	
	Oklahoma	Mexico	5,728,000	
	Oklahoma	Minnesota	3,504,000	
	Kansas			
Nebraska				
Iowa				
Oklahoma	Missouri	12,597,000		
Kansas				

Interstate transportation of natural gas in 1934—Continued

State from which gas was transported	State through which gas was transported	State to which gas was transported	M cubic feet
Texas (continued).....	Oklahoma.....	Nebraska.....	2,000
	Kansas.....		
	Nebraska.....		
	Iowa.....		
	Oklahoma.....		
	Kansas.....	do.....	5,471,000
	Oklahoma.....	New Mexico.....	574,000
	Kansas.....	Oklahoma.....	10,107,000
	Nebraska.....	South Dakota.....	630,000
	Iowa.....		
	New Mexico.....		
	Colorado.....	Wyoming.....	316,000
			<u>139,564,000</u>
	West Virginia.....	Virginia.....	District of Columbia.....	352,000
Maryland.....			
Virginia.....		Kentucky.....	5,404,000
do.....		Maryland.....	75,000
Maryland.....		do.....	25,000
District of Columbia.....		Ohio.....	36,775,000
Kentucky.....		do.....	3,270,000
Virginia.....		Pennsylvania.....	17,740,000
Maryland.....		do.....	3,000
Virginia.....		Virginia.....	33,000
Maryland.....		do.....	11,000
District of Columbia.....			<u>63,688,000</u>
			<u>414,183,000</u>
Wyoming.....			Colorado.....	3,000
		Montana.....	1,126,000
		Nebraska.....	812,000
		Utah.....	4,822,000
		<u>6,763,000</u>	
		<u>414,183,000</u>	

NATURAL-GAS WELLS

Approximate number of gas wells operated in the United States, 1933-34

State	1933	1934	State	1933	1934
Arkansas.....	180	170	Montana.....	260	270
California.....	30	30	New York.....	2,040	2,030
Colorado, New Mexico, Utah, and Washington.....	60	70	Ohio.....	6,610	6,570
Illinois.....	100	90	Oklahoma.....	2,770	2,710
Indiana.....	1,030	1,010	Pennsylvania.....	19,620	19,410
Kansas.....	3,140	2,950	Texas.....	1,560	1,620
Kentucky and Tennessee.....	1,890	1,940	West Virginia.....	12,690	12,660
Louisiana and Mississippi.....	1,340	1,360	Wyoming.....	100	100
Michigan.....	160	110		<u>53,660</u>	<u>53,260</u>
Missouri and South Dakota.....	180	160			

1 Revised figures.

Gas wells drilled in the United States in 1934, by States and by counties or districts ¹

State and county or district	Number of gas wells	State and county or district	Number of gas wells	State and county or district	Number of gas wells
California.....	(2)	Louisiana—Continued.		Ohio—Continued.	
Colorado:		Total Louisiana:		Northwestern—Con.	
Boulder.....	1	1934.....	80	Henry.....	1
Moffat.....	3	1933.....	50	Sandusky.....	1
Total, 1933.....	6	Michigan: ³		Seneca.....	4
Illinois:		Isabella.....	31	Wyandot.....	8
Crawford.....	1	Mecosta.....	11	Total, 1933.....	21
Total, 1933.....	1	Montcalm.....	4		42
Indiana:		Muskegon.....	1	Total Ohio: 1934.....	433
Daviess.....	4	Total, 1933.....	47	1933.....	287
Dubois.....	1	Mississippi:		Oklahoma:	
Gibson.....	5	Hinds.....	5	Carter.....	2
Hancock.....	2	Rankin.....	2	Choctaw.....	1
Harrison.....	2	Total, 1933.....	7	Creek.....	12
Jay.....	10		16	Grady.....	1
Knox.....	3	Montana:		Hughes.....	3
Madison.....	2	Big Horn.....	1	Kay.....	1
Marion.....	1	Glacier.....	4	Latimer.....	1
Monroe.....	1	Liberty.....	1	Le Flore.....	1
Perry.....	2	Phillips.....	7	Logan.....	1
Pike.....	4	Toole.....	8	McIntosh.....	4
Randolph.....	1	Total, 1933.....	21	Murray.....	1
Sullivan.....	2		12	Muskegon.....	2
Washington.....	1	New Mexico:		Okfuskee.....	10
Total, 1933.....	51	Eddy.....	8	Oklahoma.....	2
Kansas:		Lea.....	3	Okmulgee.....	9
Butler.....	2	San Juan.....	1	Osage.....	4
Chase.....	1	Torrance.....	1	Pittsburg.....	6
Cowley.....	5	Total, 1933.....	13	Pontotoc.....	11
EIK.....	2		1	Seminole.....	1
Ellsworth.....	2	Ohio:		Stephens.....	4
Reno.....	2	Central and eastern:		Tulsa.....	5
Rice.....	4	Ashland.....	18	Wagoner.....	9
Rush.....	4	Athens.....	24	Total, 1933.....	91
Total, 1933.....	22	Belmont.....	21		72
Kentucky:		Coshocton.....	7	Pennsylvania and New	
Allen.....	1	Cuyahoga.....	3	York:	
Hancock.....	1	Fairfield.....	11	Bradford.....	1
Ohio.....	7	Gallia.....	2	Butler-Armstrong.....	3
Total, 1933.....	9	Guernsey.....	55	Southwest Pennsylvan-	
Louisiana:		Hocking.....	1	ia.....	48
Gulf coast:		Holmes.....	14	Venango-Clarion.....	9
Grand Island.....	1	Huron.....	3	Total, 1933.....	61
Lockport.....	1	Jefferson.....	1		81
Vinton.....	1	Knox.....	20	Texas:	
Total, 1933.....	3	Lawrence.....	2	Gulf coast:	
Northern:		Licking.....	14	Ace.....	2
Bossier.....	5	Lorain.....	13	Arriola.....	1
Caddo.....	34	Medina.....	14	Barbers Hill.....	1
Claiborne.....	1	Meigs.....	67	Coletto Creek.....	3
De Soto.....	2	Monroe.....	5	Conroe.....	4
East Carroll.....	1	Muskingum.....	15	Esperson.....	1
Morehouse.....	5	Perry.....	9	Eureka.....	1
Ouachita.....	22	Richland.....	3	Greta.....	11
Richland.....	1	Scioto.....	1	Hankamer.....	1
Sabine.....	1	Stark.....	60	Livingston.....	2
Union.....	5	Summit.....	2	Louise.....	1
Total, 1933.....	77	Tuscarawas.....	10	Manvel.....	1
	48	Vinton.....	8	McFaddin-O'Connor.....	3
	78	Washington.....	7	Pierce Junction.....	2
	77	Wayne.....	2	Pledger.....	3
	78	Total, 1933.....	412	Port Neches.....	1
	77		245	Raccoon Bend.....	1
	78	Northwestern:		Refugio.....	6
	77	Darke.....	1	Sourlake.....	1
	78	Hancock.....	1	Splendora.....	1
	77	Hardin.....	5	Tomball.....	19
	78			Vanderbilt.....	1
	77			Miscellaneous.....	15
	78			Total, 1933.....	82
	77				32

¹ From Oil and Gas Journal, except Michigan for 1934.

² California not reported.

³ 1934: Department of Conservation, Michigan.

Gas wells drilled in the United States in 1934, by States and by counties or districts—Continued

State and county or district	Number of gas wells	State and county or district	Number of gas wells	State and county or district	Number of gas wells
Texas—Continued.		Texas—Continued.		West Virginia—Contd.	
Rest of State:		Rest of State—Contd.		Kanawha.....	
Northern, central, eastern, and southwestern:		Panhandle*		Lincoln.....	
Anderson.....	5	Carson.....	13	Logan.....	1
Bee.....	10	Gray.....	11	Marion.....	1
Bexar.....	2	Hutchinson.....	12	Marshall.....	5
Brown.....	4	Moore.....	3	Mingo.....	1
Callahan.....	3	Wheeler.....	19	Monongalia.....	5
Coleman.....	10		58	Nichols.....	1
Comanche.....	1	Total, 1933.....	24	Pleasants.....	6
Cooke.....	1			Putnam.....	4
Duval.....	29	West Texas:		Ritchie.....	39
Eastland.....	9	Ward.....	2	Roane.....	17
Frestone.....	1	Winkler.....	3	Wayne.....	4
Hidalgo.....	1		5	Wetzel.....	9
Jack.....	3	Total, 1933.....	3	Wirt.....	8
Jim Wells.....	1			Miscellaneous.....	6
Karnes.....	2	Total "Rest of State":			
Leon.....	2	1934.....	209	Total, 1933.....	243
Live Oak.....	3	1933.....	108		160
McMullen.....	4	Total Texas:		Wyoming:	
Montague.....	1	1934.....	291	Carbon.....	3
Nueces.....	1	1933.....	140	Converse.....	2
Palo Pinto.....	6	West Virginia:		Hot Springs.....	1
Panola.....	2	Boone.....	25	Park.....	1
Parker.....	1	Cabell.....	27	Sweetwater.....	2
Rusk.....	5	Calhoun.....	37		
San Patricio.....	1	Clay.....	2	Total, 1933.....	14
Starr.....	11	Doddridge.....	3	United States:	
Stephens.....	1	Gilmer.....	24	1934.....	4,373
Throckmorton.....	1			1933.....	4,932
Webb.....	8				
Wichita.....	1				
Young.....	2				
Zapata.....	14				
	146				
Total, 1933.....	81				

* Exclusive of California.

SUMMARY OF STATISTICS FOR NATURAL GASOLINE AND CARBON BLACK

Salient statistics for natural gasoline in the United States, 1930-34

	1930	1931	1932	1933	1934
Number of plants operating.....	1,035	937	830	779	766
Production:					
By States:					
California..... millions of gallons.....	830	680	552	496	506
Texas..... do.....	491	427	371	367	407
Oklahoma..... do.....	591	455	379	360	355
West Virginia..... do.....	63	53	44	40	42
Louisiana..... do.....	74	58	46	37	41
Other States..... do.....	161	159	132	120	124
	2,210	1,832	1,524	1,420	1,535
By processes:					
Compression process..... do.....	250	212	182	161	148
Absorption and combination processes..... do.....	1,942	1,609	1,333	1,251	1,380
Charcoal..... do.....	18	11	9	8	7
	2,210	1,832	1,524	1,420	1,535
Stocks at natural-gasoline plants Dec. 31..... do.....	24	27	19	{ 28 142 }	36
Value:					
Total (at plants)..... millions of dollars.....	128	64	49	54	61
Average per gallon (at plants)..... cents.....	5.8	3.5	3.2	3.8	3.9
Average spot price, Oklahoma natural gasoline..... cents.....	\$ 5.4	\$ 3.2	\$ 2.3	\$ 2.9	\$ 2.6
Natural gas treated..... millions of cubic feet.....	2,088,778	1,790,119	1,499,756	1,551,464	1,776,172
Average yield per thousand cubic feet..... gallons.....	1.06	1.02	1.02	0.92	0.86

¹ For comparison with 1934.

² Grade A in Oklahoma.

³ Grade 26-70 in Oklahoma.

Salient statistics for carbon black made from natural gas in the United States, 1930-34

	1930	1931	1932	1933	1934
Number of producers reporting.....	33	26	24	1 25	25
Number of plants.....	69	53	50	1 51	50
Quantity produced:					
By States and districts:					
Louisiana.....pounds..	96,729,000	57,485,000	42,260,000	54,470,000	66,538,000
Texas:					
Breckenridge district...do....	16,905,000	13,332,000	2 23,071,000	2 24,499,000	2 24,887,000
Panhandle district...do....	254,844,000	197,546,000	177,369,000	1 194,156,000	237,403,000
Total Texas.....do....	271,749,000	210,878,000	2 200,440,000	1 218,655,000	2 262,290,000
West Virginia.....do....	(3)				
Other States.....do....	11,464,000	12,544,000	(?)	(?)	(?)
Total United States...do....	379,942,000	280,907,000	242,700,000	1 273,125,000	328,828,000
By processes:					
Channel process.....do....	350,254,000	255,322,000	224,536,000	1 238,026,000	293,546,000
Other processes ⁴.....do....	29,688,000	25,585,000	18,164,000	35,099,000	35,282,000
Stocks held by producers Dec. 31 pounds..	259,245,000	{ 280,010,000 { 281,667,000	} 257,998,000	1 155,969,000	171,799,000
Losses.....do....	1,361,000	1,716,000	4,814,000	686,000	386,000
Quantity sold:					
Domestic:					
To rubber companies....do....	128,572,000	134,315,000	130,380,000	191,358,000	165,446,000
To ink companies.....do....	19,220,000	15,184,000	18,341,000	18,539,000	16,146,000
To paint companies.....do....	11,922,000	6,760,000	7,636,000	6,260,000	5,365,000
For miscellaneous purposes.....pounds..	7,565,000	5,453,000	5,126,000	1 6,025,000	5,035,000
Total domestic sold...do....	167,279,000	161,712,000	161,483,000	1 222,182,000	191,992,000
Export.....do....	84,260,000	96,714,000	100,072,000	152,286,000	120,620,000
Total sold.....do....	251,539,000	258,426,000	261,555,000	1 374,468,000	312,612,000
Value (at plants) of carbon black produced:					
Total.....	\$14,852,000	\$8,621,000	\$6,664,000	1 \$7,602,000	\$11,654,000
Average per pound.....cents..	3.91	3.07	2.75	1 2.78	3.54
Estimated quantity of natural gas used.....M cubic feet..	266,625,000	195,396,000	168,237,000	1 190,081,000	229,933,000
Average yield per M cubic feet pounds..	1.43	1.44	1.44	1.44	1.43

¹ Revised figures.

² Oklahoma and Wyoming included with Breckenridge district, Texas.

³ Included under "Other States."

⁴ 1930 and 1932-33: Disk, Lewis, roller, "special", and thermatomic; 1931: Disk, roller, "special", and thermatomic; 1934: Lewis, roller, "special", and thermatomic.

⁵ For comparison with 1932.

ORE CONCENTRATION

(DETAILED STATISTICS)

METALLURGICAL RESULTS AND FLOTATION REAGENTS

By T. H. MILLER AND R. L. KIDD

SUMMARY OUTLINE

	Page		Page
Summary.....	47	Lead-zinc ores.....	56
Consumption of reagents.....	48	Zinc ores.....	58
Copper ores.....	50	Gold and silver ores.....	60
Lead ores and copper-lead ores.....	54		

Summary.—The total output of nonferrous ore in 1934 was 35,840,737 tons, an increase of 45 percent from 24,712,694 tons in 1933; production was 26,321,679 tons in 1932 and 54,764,842 tons in 1931. There were substantial increases in the output of copper ore, gold and silver ore, zinc ore, and lead-zinc ore. Of the total ore produced, 27,167,530 tons (75.80 percent) were treated by concentration, 1,754,010 tons (4.89 percent) were shipped direct to smelters, 5,724,192 tons (15.97 percent) were treated at gold and silver mills, and the remainder (1,195,005 tons, or 3.34 percent) was treated at miscellaneous plants including copper leaching plants, magnetic concentration plants, and a slag fuming plant. More than 96 percent of the total ore concentrated was treated at plants using flotation equipment in whole or in part.

TABLE 1.—Total nonferrous ore produced in the United States in 1934, by classes of ore and methods of treatment, in dry tons

Method of treatment	Copper ore	Copper-lead ore	Lead ore	Lead-zinc ore	Zinc ore	Gold and silver ore	Total ore
Straight flotation concentration.....	9,940,679	118,925	50,678	2,099,321	1,083,362	835,457	14,128,422
Combined gravity and flotation concentration.....	942,915	7	3,161,770	3,492,391	4,102,170	312,484	12,011,737
Straight gravity concentration.....	3	-----	20,009	497,853	494,952	14,554	1,027,371
Total ore concentrated.....	10,883,597	118,932	3,232,457	6,089,565	5,680,484	1,162,495	27,167,530
Direct smelting.....	982,112	1,630	127,664	7,252	59,149	576,203	1,754,010
Amalgamation or cyanidation.....	-----	-----	-----	-----	-----	5,724,192	5,724,192
Miscellaneous methods.....	409,438	-----	-----	287,800	497,767	-----	1,195,005
Total ore, all methods:							
1934.....	12,275,147	120,562	3,360,121	6,384,617	6,237,400	7,462,890	35,840,737
1933.....	8,732,744	126,207	3,217,865	4,791,305	3,335,197	4,509,376	24,712,694

CONSUMPTION OF REAGENTS

There was a marked increase in the total consumption of flotation reagents in 1934 due to the increase in number of plants operating and tons of ore treated, but there were no significant changes in the per-ton consumption of the more important reagents.

Table 2 gives the consumption of reagents in the treatment of all ores in 1934 and the per-ton consumption in 1933; table 3 presents a 5-year (1930-34) comparison of the consumption of reagents in treating the total ore; and table 4 summarizes the consumption of reagents in 1934, by classes of ores treated.

TABLE 2.—Consumption of reagents in the treatment of all ores in 1934

[244 plants treating 18,744,337 tons of ore]

Reagent	Plants using	Ore treated (tons)	Consumption of reagents (pounds)		
			Total, 1934	Per ton	
				1934	1933
I. Frothers:					
Pine oils.....	203	12,646,827	1,348,966	0.107	0.098
Cresylic acid.....	92	9,318,467	1,507,440	.162	.138
Orthotolidine.....	1	35,115	9,155	.261	.....
Total frothers.....	244	18,744,337	2,865,561	.153	.136
II. Collectors:					
Distillation products:					
Coal-tar creosotes.....	36	3,518,134	619,572	.176	.165
Wood-tar creosotes.....	4	445,149	33,149	.074	.068
Petroleum products.....	2	67,805	37,320	.550	.238
Blast-furnace oils.....	2	663,489	96,132	.145	.152
Total distillation products.....	41	4,270,883	786,173	.184	.182
Synthetic products:					
Ethyl xanthates.....	145	8,358,153	1,064,137	.127	.106
Butyl xanthates.....	15	1,547,880	158,570	.102	.087
Amyl xanthates.....	87	2,411,562	214,759	.089	.098
Xanthate derivatives.....	5	1,983,363	41,663	.021	.100
Dieresol-dithiophosphoric acid.....	54	3,730,308	236,595	.063	.052
Sodium dieresol-dithiophosphate.....	56	7,333,115	275,782	.038	.035
Thiocarbamide.....	4	382,647	7,619	.020	.044
Total synthetic products.....	243	18,635,732	1,999,125	.107	.095
Total collectors.....	244	18,744,337	2,785,298	.149	.152
III. Acids and alkalis:					
Acids: Sulphuric acid.....					
	2	485,511	7,397,000	15.235	9.336
Alkalies:					
Sodium carbonate.....	53	1,486,095	676,628	.455	.381
Sodium hydroxide.....	6	322,525	85,608	.265	.611
Lime.....	52	12,432,478	49,241,946	3.961	3.868
Total alkalies.....	96	13,197,691	50,004,182	3.789	3.706
IV. Other inorganic reagents:					
Sulphidizing: Sodium sulphide.....	22	858,535	377,134	.439	.571
Activating: Copper sulphate.....	89	4,843,873	4,453,370	.919	.887
Depressing:					
Cyanides.....	28	8,266,248	427,004	.052	.059
Sodium sulphite.....	3	372,072	534,788	1.437	.789
Sodium silicate.....	14	770,297	307,038	.399	.313
Zinc sulphate.....	27	3,491,311	1,333,574	.382	.379
Sodium bichromate.....	2	268,827	5,178	.019	.040
Total depressing.....	47	9,214,965	2,607,582	.283	.258
Miscellaneous ¹	14	1,179,774	1,097,008	.930	.758
Total reagents.....	244	18,744,337	71,587,135	3.819	3.616

¹ Includes ammonium phosphate, ammonium sulphate, calcium sulphate, lead acetate, lead nitrate zinc chloride, sulphur, glue, and starch.

TABLE 3.—Comparison of consumption of flotation reagents, 1930-34

	1930	1931	1932	1933	1934
Ore treated..... thousands of tons..	47,259	35,956	16,124	12,968	18,744
Consumption of reagents:					
Frothers..... thousands of pounds..	7,106	5,508	2,377	1,770	2,866
Collectors:					
Distillation..... do.....	1,107	753	499	760	786
Synthetic..... do.....	5,018	3,543	1,355	1,214	1,999
Acids..... do.....	12,060	11,143	1,202	2,169	7,397
Alkalies..... do.....	154,424	115,744	45,269	35,759	50,004
Sulphidizing..... do.....	1,226	643	444	309	377
Activating..... do.....	5,390	3,325	2,067	2,893	4,453
Depressing..... do.....	4,393	2,409	1,585	2,016	3,705
Total reagents..... do.....	190,724	143,068	54,798	46,890	71,587
Consumption of reagents:					
Frothers..... pounds per ton of ore treated..	0.152	0.153	0.147	0.136	0.153
Collectors:					
Distillation..... do.....	.106	.126	.117	.182	.184
Synthetic..... do.....	.107	.100	.085	.095	.107
Acids..... do.....	24.933	21.342	.072	9.356	15.235
Alkalies..... do.....	3.560	3.852	3.462	3.706	3.789
Sulphidizing..... do.....	.154	.723	.187	.571	.439
Activating..... do.....	.697	.593	.674	.887	.919
Depressing..... do.....	.239	.174	.230	.271	.388
Total reagents..... do.....	4.036	3.979	3.399	3.616	3.819

TABLE 4.—Summary of consumption of reagents in 1934, by classes of ore

	Copper	Copper-iron	Copper (native)	Lead and copper-lead	Lead-zinc	Zinc	Gold and silver
Number of plants.....	11	3	2	15	47	22	144
Total ore treated.....	9,138,595	762,357	383,277	2,030,953	2,650,456	1,303,530	2,475,169
Reagents used per ton of ore treated:							
I. Frothers..... pounds..	0.149	0.125	0.133	0.136	0.227	0.131	0.125
II. Collectors:							
Distillation..... do.....	.155	.009	-----	.034	.369	.108	.152
Synthetic..... do.....	.054	.283	.115	.058	.253	.134	.116
Total collectors..... pounds..	.062	.287	.115	.070	.454	.190	.146
III. Acids and alkalies:							
Acids..... do.....	-----	15.235	-----	-----	-----	-----	-----
Alkalies..... do.....	4.658	2.910	-----	.207	2.723	2.493	.539
IV. Other inorganic reagents:							
Sulphidizing..... pounds..	.165	-----	-----	.500	.870	-----	.159
Activating..... do.....	-----	.673	-----	.076	1.091	.886	.449
Depressing..... do.....	.010	.035	-----	.146	.961	1.607	.173
Miscellaneous..... do.....	-----	-----	-----	-----	1.286	-----	.135
Total reagents..... pounds..	4.862	12.265	.248	.403	4.846	1.843	.665

COPPER ORES

Flotation-reagent consumption and metallurgical data in the treatment of sulphide copper ores, copper-iron ores, and native copper ores are given in tables 5 to 13. There was a substantial increase in tons of sulphide copper ores treated, and there were smaller increases in both copper-iron and native copper ores.

TABLE 5.—Consumption of reagents in the treatment of sulphide copper ores in 1934

Reagent	Plants using	Ore treated (tons)	Consumption of reagents (pounds)		
			Total, 1934	Per ton	
				1934	1933
I. Frothers:					
Pine oils.....	8	4, 972, 496	524, 486	0. 105	0. 083
Cresylic acid.....	4	4, 382, 270	834, 232	. 190	. 171
Total frothers.....	11	9, 138, 595	1, 358, 718	. 149	. 134
II. Collectors:					
Distillation products:					
Coal-tar creosotes.....	1	25, 000	1, 300	. 052	. 016
Blast-furnace oils.....	1	456, 909	73, 349	. 161	. 164
Total distillation products.....	2	481, 909	74, 649	. 155	. 180
Synthetic products:					
Ethyl xanthates.....	7	3, 972, 096	281, 933	. 071	. 075
Butyl xanthates.....	2	1, 025, 400	73, 505	. 072	. 067
Amyl xanthates.....	2	79, 299	42, 225	. 532	. 327
Xanthate derivatives.....	1	1, 477, 445	4, 522	. 003	.....
Dicresol-dithiophosphoric acid.....	1	456, 909	10, 300	. 023	. 081
Sodium dicresol-dithiophosphate.....	3	4, 759, 880	81, 330	. 017	. 018
Total synthetic products.....	11	9, 138, 595	493, 815	. 054	. 047
Total collectors.....	11	9, 138, 595	568, 464	. 062	. 060
III. Acids¹ and alkalis:					
Alkalies: Lime.....	10	9, 113, 595	42, 452, 501	4. 658	4. 720
IV. Other inorganic reagents:					
Sulphidizing: Sodium sulphide.....	2	55, 499	9, 176	. 165	.....
Depressing: Cyanides.....	1	4, 086, 800	42, 277	. 010	. 013
Total reagents.....	11	9, 138, 595	44, 431, 136	4. 862	4. 923

¹ No acids consumed.

TABLE 6.—Comparison of metallurgical results in the treatment of copper ores, 1933-34

	Straight flotation and combined gravity and flotation concentration	
	1933 ¹	1934 ²
Number of plants.....	10	11
Total ore treated..... dry tons.....	6, 602, 176	9, 138, 595
Gold content..... ounces.....	81, 351. 52	104, 296. 27
Do..... ounce per ton.....	0. 012	0. 011
Silver content..... ounces.....	2, 550, 730	3, 137, 033
Do..... ounce per ton.....	0. 386	0. 343
Copper content..... pounds.....	215, 308, 300	279, 000, 509
Do..... percent.....	1. 631	1. 527
Concentrates produced..... dry tons.....	371, 991	489, 401
Gold content..... ounces.....	58, 557. 51	75, 555. 33
Do..... ounce per ton.....	0. 157	0. 154
Silver content..... ounces.....	2, 387, 867	2, 929, 738
Do..... ounces per ton.....	6. 419	5. 986
Copper content..... pounds.....	198, 071, 392	257, 946, 994
Do..... percent.....	26. 623	26. 353
Ratio of concentration: Ore to concentrates.....	17. 75:1	18. 67:1
Recoveries:		
Gold..... percent.....	71. 98	72. 44
Silver..... do.....	93. 62	93. 39
Copper..... do.....	91. 99	92. 45

¹ Includes 3 plants using combined gravity and flotation concentration.

² Includes 1 plant using combined gravity and flotation concentration.

TABLE 7.—Comparison of screen analysis, alkalinity, and pulp density in the treatment of copper ores, 1931-34

SCREEN ANALYSIS OF FLOTATION FEED

	1931	1932	1933	1934
Number of plants.....	18	15	8	7
Total ore treated..... dry tons..	25,978,225	9,725,582	6,601,816	9,110,942
+65 mesh..... percent.....	6.70	6.54	5.37	5.56
-65+100 mesh..... do.....	11.42	9.98	8.98	9.75
-100+150 mesh..... do.....	11.20	10.78	11.72	12.00
-150+200 mesh..... do.....	10.00	11.00	12.12	13.85
-200 mesh..... do.....	60.68	61.70	61.81	58.84

ALKALINITY OF FLOTATION CIRCUIT

	1931	1932	1933	1934
Number of plants.....	9	10	3	4
Total ore treated..... dry tons..	19,654,724	7,160,221	4,117,367	6,237,325
Alkalinity of copper circuit..... pH units..	9.73	9.66	9.17	9.18

PULP DENSITY OF FLOTATION CIRCUIT

	1931	1932	1933	1934
Number of plants.....	15	12	7	6
Total ore treated..... dry tons..	25,629,211	7,138,706	5,501,426	8,110,545
Pulp density..... percent solids..	25.29	25.92	26.40	26.44

TABLE 8.—Consumption of reagents in the treatment of copper-iron ores in 1934

[3 plants treating 762,357 tons of ore]

Reagent	Plants using	Ore treated (tons)	Consumption of reagents (pounds)		
			Total, 1934	Per ton	
				1934	1933
I. Frothers: Pine oils.....	3	762,357	95,436	0.125	0.139
II. Collectors:					
Distillation products: Coal-tar creosotes.....	1	307,035	2,670	.009	.011
Synthetic products:					
Ethyl xanthates.....	2	485,511	158,995	.327	.366
Amyl xanthates.....	1	178,476	26,200	.147	.....
Dicrosol-dithiophosphoric acid.....	1	276,846	30,672	.111	.181
Total synthetic products.....	3	762,357	215,867	.283	.349
Total collectors.....	3	762,357	218,537	.287	.352
III. Acids and alkalis:					
Acids: Sulphuric acid.....	2	485,511	7,397,000	15.235	13.136
Alkalies: Lime.....	2	485,511	1,412,600	2.910	3.687
IV. Other inorganic reagents:					
Activating: Copper sulphate.....	1	307,035	206,610	.673	1.047
Depressing: Cyanides.....	2	583,881	20,402	.035	.104
Total reagents.....	3	762,357	9,350,585	12.265	11.177

TABLE 9.—Comparison of metallurgical results in the treatment of copper-iron ores, 1933-34

	1933	1934
Number of plants.....	3	3
Total ore treated..... dry tons.....	511,339	1,043,251
Copper content..... pounds.....	6,616,798	15,956,296
Do..... percent.....	0.647	0.765
Zinc content..... pounds.....	1,904,954	6,631,956
Do..... percent.....	0.187	0.318
Iron content..... pounds.....	138,469,148	314,517,990
Do..... percent.....	13.540	15.074
Copper concentrates produced..... dry tons.....	11,476	33,333
Copper content..... pounds.....	5,277,731	13,319,226
Do..... percent.....	22.995	19.979
Zinc content..... pounds.....	573,448	1,435,400
Do..... percent.....	2.494	2.153
Iron content..... pounds.....	2,646,564	20,307,760
Do..... percent.....	11.531	30.462
Zinc concentrates produced..... dry tons.....	823	2,581
Copper content..... pounds.....	13,497	42,323
Do..... percent.....	0.820	0.820
Zinc content..... pounds.....	788,434	2,658,000
Do..... percent.....	47.900	51.492
Iron content..... pounds.....	235,378	722,680
Do..... percent.....	14.300	14.000
Iron concentrates produced..... dry tons.....	88,591	224,935
Copper content..... pounds.....	488,570	1,207,550
Do..... percent.....	0.276	0.268
Zinc content..... pounds.....	223,930	474,900
Do..... percent.....	0.127	0.106
Iron content..... pounds.....	93,664,490	238,071,940
Do..... percent.....	52.864	52.920
Ratio of concentration:		
Ore to—		
Copper concentrates.....	44.56:1	31.30:1
Zinc concentrates.....	621.31:1	404.20:1
Iron concentrates.....	5.77:1	4.64:1
All concentrates.....	5.07:1	4.00:1
Recoveries:		
Copper in—		
Copper concentrates..... percent.....	79.76	83.47
Zinc concentrates..... do.....	21	27
Iron concentrates..... do.....	7.38	7.57
All concentrates..... do.....	87.35	91.31
Zinc in—		
Copper concentrates..... do.....	30.05	21.64
Zinc concentrates..... do.....	41.39	40.08
Iron concentrates..... do.....	11.75	7.16
All concentrates..... do.....	83.19	68.88
Iron in—		
Copper concentrates..... do.....	1.91	6.46
Zinc concentrates..... do.....	17	23
Iron concentrates..... do.....	67.64	75.69
All concentrates..... do.....	69.72	82.38

TABLE 10.—Comparison of screen analysis, alkalinity, and pulp density in the treatment of copper-iron ores, 1933-34

SCREEN ANALYSIS OF FLOTATION FEED

	1933	1934
Number of plants.....	3	3
Total ore treated..... dry tons.....	267,049	762,357
+65 mesh..... percent.....	1.26	4.06
—65+100 mesh..... do.....	4.90	7.33
—100+150 mesh..... do.....	9.66	8.80
—150+200 mesh..... do.....	16.53	15.83
—200 mesh..... do.....	67.60	63.98

ALKALINITY OF FLOTATION CIRCUITS

	1933	1934
Number of plants.....	3	3
Total ore treated..... dry tons.....	267,049	762,357
Alkalinity:		
Copper circuit..... pH units.....	8.81	9.62
Zinc circuit..... do.....	12.10	11.50
Iron circuit..... do.....	6.30	6.46

¹ 1 plant treating 84,290 tons of ore.¹ 1 plant treating 307,035 tons of ore.

ORE CONCENTRATION

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TABLE 10.—Comparison of screen analysis, alkalinity, and pulp density in the treatment of copper-iron ores, 1933-34—Continued

PULP DENSITY OF FLOTATION FEED

	1933	1934
Number of plants.....	3	3
Total ore treated.....dry tons..	267, 049	762, 357
Pulp density.....percent solids..	27. 91	26. 63

TABLE 11.—Consumption of reagents in the treatment of native copper ores in 1934
[2 plants treating 383,277 tons of ore]

Reagent	Plants using	Ore treated (tons)	Consumption of reagents (pounds)		
			Total, 1934	Per ton	
				1934	1933
I. Frothers: Pine oils.....	2	383, 277	50, 941	0. 133	0. 124
II. Collectors: Ethyl xanthates.....	2	383, 277	44, 253	. 115	. 110
Total reagents.....	2	383, 277	95, 194	. 248	. 289

TABLE 12.—Comparison of metallurgical results in the treatment of native copper ores, 1931-34

	1931	1932	1933	1934
Number of plants.....	6	5	2	2
Total ore treated.....dry tons..	3, 570, 748	1, 142, 775	697, 158	700, 055
Copper content.....pounds..	126, 722, 164	57, 204, 804	48, 897, 598	53, 430, 750
Do.....percent..	1. 77	2. 50	3. 51	3. 82
Gravity concentrates produced.....dry tons..	69, 294	31, 913	27, 723	31, 408
Copper content.....pounds..	102, 464, 095	46, 683, 678	38, 846, 574	43, 486, 380
Do.....percent..	73. 93	72. 99	70. 06	69. 23
Flotation concentrates produced.....dry tons..	14, 052	5, 763	3, 796	3, 643
Copper content.....pounds..	13, 658, 401	4, 755, 190	3, 525, 556	3, 539, 880
Do.....percent..	48. 60	41. 26	46. 44	48. 58
Ratio of concentration:				
Ore to—				
Gravity concentrates.....	51. 53:1	35. 81:1	25. 15:1	22. 29:1
Flotation concentrates.....	254. 11:1	198. 30:1	183. 66:1	192. 16:1
All concentrates.....	42. 84:1	30. 33:1	22. 12:1	19. 97:1
Copper recoveries:				
In gravity concentrates.....percent..	80. 86	81. 43	79. 44	81. 39
In flotation concentrates.....do....	10. 73	8. 31	7. 21	6. 62
In all concentrates.....do....	91. 64	89. 74	86. 65	88. 01

TABLE 13.—Comparison of screen analysis, alkalinity, and pulp density in the treatment of native copper ores, 1931-34

SCREEN ANALYSIS OF FLOTATION FEED

	1931	1932	1933	1934
Number of plants.....	5	5	2	2
Total ore treated.....dry tons..	1, 662, 048	622, 838	365, 320	383, 277
+65 mesh.....percent..	14. 94	13. 45	4. 19	8. 96
-65+100 mesh.....do....	14. 00	11. 25	5. 79	6. 46
-100+150 mesh.....do....	7. 84	8. 19	6. 70	6. 88
-150+200 mesh.....do....	6. 02	6. 42	10. 48	4. 69
-200 mesh.....do....	57. 20	60. 69	72. 84	73. 01

TABLE 13.—Comparison of screen analysis, alkalinity, and pulp density in the treatment of native copper ores, 1931-34—Continued

ALKALINITY OF FLOTATION CIRCUIT				
	1931	1932	1933	1934
Number of plants.....	5	5	2	2
Total ore treated..... dry tons	1,662,048	622,838	365,320	383,277
Alkalinity of copper circuit..... pH units	8.47	8.59	7.89	7.94

PULP DENSITY OF FLOTATION CIRCUIT				
	1931	1932	1933	1934
Number of plants.....	4	5	2	2
Total ore treated..... dry tons	1,402,048	622,838	365,320	383,277
Pulp density..... percent solids	29.28	28.77	28.84	28.99

LEAD ORES AND COPPER-LEAD ORES

The output of lead ores and copper-lead ores decreased further in 1934. Most of the lead ore came from properties in southeast Missouri and was treated by combined gravity and flotation; nearly all the copper-lead ore came from mines in Shoshone County, Idaho, and most of it was treated by straight flotation. Detailed reagent and metallurgical data are given in tables 14 to 16.

TABLE 14.—Consumption of reagents in the treatment of lead ores and copper-lead ores in 1934

[15 plants treating 2,030,953 tons of ore]

Reagent	Plants using	Ore treated (tons)	Consumption of reagents (pounds)		
			Total, 1934	Per ton	
				1934	1933
I. Frothers:					
Pine oils.....	7	779,679	5,631	0.007	0.010
Cresylic acid.....	9	1,903,893	270,444	.142	.115
Total frothers.....	15	2,030,953	276,075	.136	.112
II. Collectors:					
Distillation products: Coal-tar creosotes.....	6	891,111	30,469	.034	.140
Synthetic products:					
Ethyl xanthates.....	5	13,713	3,894	.284	.045
Dicresol-dithiophosphoric acid.....	8	1,637,745	97,035	.059	.031
Sodium dicresol-dithiophosphate.....	2	276,890	10,000	.036	.009
Thiocarbamide.....	1	270,890	550	.002	.....
Total synthetic products.....	14	1,922,348	111,479	.058	.066
Total collectors.....	15	2,030,953	141,948	.070	.198
III. Acids¹ and alkalies:					
Alkalies:					
Sodium carbonate.....	3	165,671	6,190	.037	.122
Lime.....	2	281,210	86,290	.307	.323
Total alkalies.....	5	446,881	92,480	.207	.343
IV. Other inorganic reagents:					
Sulphidizing: Sodium sulphide.....	1	36,000	18,000	.500	.500
Activating: Copper sulphate.....	1	165,636	12,579	.076	.364
Depressing:					
Cyanides.....	5	1,694,437	33,633	.020	.042
Zinc sulphate.....	6	1,742,885	243,235	.140	.109
Total depressing.....	7	1,896,073	276,868	.146	.172
Total reagents.....	15	2,030,953	817,950	.403	.699

¹ No acids consumed.

TABLE 15.—Comparison of metallurgical results in the treatment of lead ores and copper-lead ores, 1933-34

	Method of concentration			
	Straight flotation		Combined gravity and flotation	
	1933	1934	1933	1934
Number of plants.....	11	8	8	7
Total ore treated..... dry tons.....	155,914	164,880	3,079,723	3,086,076
Gold content..... ounces.....	1,116.00	602.75	205.00	400.00
Do..... ounce per ton.....	0.007	0.004	Trace	Trace
Silver content..... ounces.....	3,752,921	4,009,011	2,263,362	784,802
Do..... ounces per ton.....	24.070	24.315	0.735	0.254
Copper content..... pounds.....	1,062,615	1,108,785	584,230	196,000
Do..... percent.....	0.341	0.336	0.010	0.003
Lead content..... pounds.....	3,245,160	5,292,044	284,850,053	232,353,346
Do..... percent.....	1.041	1.605	4.625	3.765
Zinc content..... pounds.....			34,717,387	3,942,000
Lead concentrates produced..... dry tons.....	6,806	8,952	206,841	156,438
Gold content..... ounces.....	961.49	512.05		297.57
Do..... ounce per ton.....	0.141	0.057		0.002
Silver content..... ounces.....	3,548,510	3,847,386	2,034,097	754,551
Do..... ounces per ton.....	521.380	429.780	9.834	4.823
Copper content..... pounds.....	987,182	1,032,067	500,256	161,054
Do..... percent.....	7.252	5.764	0.121	0.052
Lead content..... pounds.....	2,848,449	4,616,205	266,009,398	222,306,420
Do..... percent.....	20.926	25.783	64.303	71.053
Other concentrates produced..... dry tons.....			13,331	742
Gold content..... ounces.....			131.58	6.14
Do..... ounce per ton.....			0.010	0.008
Silver content..... ounces.....			39,390	5,134
Do..... ounces per ton.....			2.955	6.919
Copper content..... pounds.....			43,460	2,918
Do..... percent.....			0.163	0.197
Lead content..... pounds.....			972,597	112,561
Do..... percent.....			3.648	7.585
Zinc content..... pounds.....			12,978,408	688,795
Do..... percent.....			43.676	46.415
Ratio of concentration: Ore to lead concentrates.....	22.91:1	18.42:1	14.89:1	19.73:1
Recoveries:				
Gold in lead concentrates..... percent.....	86.16	84.95		74.39
Gold in all concentrates..... do.....	86.16	84.95	64.19	75.93
Silver in lead concentrates..... do.....	94.55	95.97	89.87	96.15
Silver in all concentrates..... do.....	94.55	95.97	91.61	96.87
Copper in lead concentrates..... do.....	92.90	93.08	85.63	82.16
Copper in all concentrates..... do.....	92.90	93.08	93.07	83.68
Lead in lead concentrates..... do.....	87.78	87.23	93.39	95.62
Lead in all concentrates..... do.....	87.78	87.23	93.73	95.76
Zinc in all concentrates..... do.....			66.89	89.70

TABLE 16.—Comparison of screen analysis, alkalinity, and pulp density in the treatment of lead ores and copper-lead ores, 1931-34

SCREEN ANALYSIS OF FLOTATION FEED

	1931	1932	1933	1934
Number of plants.....	19	16	13	10
Total ore treated..... dry tons.....	3,848,408	2,915,736	2,150,352	2,016,256
+65 mesh..... percent.....	5.33	4.47	4.90	5.47
-65+100 mesh..... do.....	9.30	9.10	9.17	10.84
-100+150 mesh..... do.....	10.79	11.33	12.18	12.96
-150+200 mesh..... do.....	11.70	12.35	11.73	12.60
-200 mesh..... do.....	62.88	62.75	62.02	58.13

ALKALINITY OF FLOTATION CIRCUITS

Number of plants.....	15	15	12	9
Total ore treated..... dry tons.....	3,663,931	2,763,853	2,041,342	1,907,651
Alkalinity:				
Lead circuit..... pH units.....	8.16	8.09	7.96	8.16
Zinc circuit..... do.....	8.68	8.26	7.60	7.50

PULP DENSITY OF FLOTATION FEED

Number of plants.....	11	15	12	9
Total ore treated..... dry tons.....	2,517,841	2,763,853	2,041,342	1,907,651
Pulp density..... percent solids.....	28.75	28.64	30.41	28.74

¹ 4 plants treating 1,871,682 tons of ore.
⁴ 4 plants treating 862,815 tons of ore.

² 2 plants treating 501,064 tons of ore.
¹ 1 plant treating 166,636 tons of ore

LEAD-ZINC ORES

Most of the increase in lead-zinc ores milled in 1934 was in ore from properties in the Tri-State region treated by combined gravity and flotation; lead-zinc ore treated by straight flotation also increased. Consumption of reagents, mill data, etc., were substantially the same as in 1933; they are summarized in tables 17 to 19.

TABLE 17.—Consumption of reagents in the treatment of lead-zinc ores in 1934

[47 plants treating 2,650,456 tons of ore]

Reagent	Plants using	Ore treated (tons)	Consumption of reagents (pounds)		
			Total, 1934	Per ton	
				1934	1933
I. Frothers:					
Pine oils.....	36	2,395,128	334,861	0.140	0.181
Cresylic acid.....	32	1,792,697	258,861	.144	.086
Orthotolidine.....	1	35,115	9,155	.261	.....
Total frothers.....	47	2,650,456	602,877	.227	.198
II. Collectors:					
Distillation products:					
Coal-tar creosotes.....	13	1,240,425	480,857	.388	.436
Wood-tar creosotes.....	2	314,717	29,949	.095	.069
Blast-furnace oils.....	1	206,580	22,783	.110	.109
Total distillation products.....	14	1,447,005	533,589	.369	.359
Synthetic products:					
Ethyl xanthates.....	31	2,160,765	389,389	.180	.175
Butyl xanthates.....	2	235,954	55,674	.236	.275
Amyl xanthates.....	3	200,544	31,347	.156	.153
Xanthate derivatives.....	2	247,822	33,383	.135	.100
Dicresol-dithiophosphoric acid.....	17	730,088	57,676	.079	.084
Sodium dicresol-dithiophosphate.....	26	779,695	96,001	.123	.128
Thiocarbamide.....	2	103,942	7,044	.068	.044
Total synthetic products.....	47	2,650,456	670,514	.253	.275
Total collectors.....	47	2,650,456	1,204,103	.454	.455
III. Acids¹ and alkalies:					
Alkalies:					
Sodium carbonate.....	9	674,454	301,190	.447	.349
Lime.....	18	1,615,192	4,311,223	2.669	2.097
Total alkalies.....	20	1,693,834	4,612,413	2.723	1.916
IV. Other inorganic reagents:					
Sulphidizing: Sodium sulphide.....	1	320,457	278,800	.870	.839
Activating: Copper sulphate.....	47	2,650,456	2,892,017	1.091	1.178
Depressing:					
Cyanides.....	15	1,729,839	319,255	.185	.235
Sodium sulphite.....	2	355,572	518,288	1.458	.848
Sodium silicate.....	5	617,329	294,298	.477	.342
Zinc sulphate.....	16	1,609,292	1,067,809	.664	.734
Sodium bichromate.....	2	268,827	5,178	.019	.040
Total depressing.....	21	2,293,855	2,204,828	.961	.980
Miscellaneous ²	5	814,893	1,047,871	1.286	1.116
Total reagents.....	47	2,650,456	12,842,909	4.846	4.521

¹ No acids consumed.² Includes calcium sulphate, zinc chloride, starch, ammonium sulphate, and glue.

ORE CONCENTRATION

TABLE 18.—Comparison of metallurgical results in the treatment of lead-zinc ores, 1933-34

	Method of concentration			
	Straight flotation		Combined gravity and flotation	
	1933	1934	1933	1934
Number of plants.....	15	19	15	28
Total ore treated..... dry tons.....	1,288,359	1,840,516	2,219,061	3,842,207
Gold content..... ounces.....	54,280.89	52,744.41	2,219,061	750.00
Do..... ounce per ton.....	0.042	0.029	Trace.	Trace.
Silver content..... ounces.....	6,851,344	9,801,457	942,035	942,035
Do..... ounces per ton.....	5.318	5.325	0.245	0.245
Copper content..... pounds.....	11,271,686	12,603,788	310,561	310,561
Do..... percent.....	0.437	0.342	0.004	0.004
Lead content..... pounds.....	194,524,825	235,455,791	35,259,074	103,263,788
Do..... percent.....	7.549	6.396	0.794	1.344
Zinc content..... pounds.....	274,228,940	354,131,778	203,306,605	293,315,337
Do..... percent.....	10.643	9.620	4.581	3.817
Lead concentrates produced..... dry tons.....	149,119	178,470	17,647	68,619
Gold content..... ounces.....	30,616.73	27,224.58	541.00	541.00
Do..... ounce per ton.....	0.205	0.153	0.008	0.008
Silver content..... ounces.....	4,904,846	6,582,953	841,355	841,355
Do..... ounces per ton.....	32.892	36.885	12.261	12.261
Copper content..... pounds.....	7,051,650	7,592,979	220,222	220,222
Do..... percent.....	2.364	2.127	0.160	0.160
Lead content..... pounds.....	168,122,020	199,962,537	27,630,571	83,802,755
Do..... percent.....	56.372	56.021	78.287	61.064
Zinc content..... pounds.....	21,904,824	24,783,773	640,243	6,420,160
Do..... percent.....	7.345	6.943	1.814	4.678
Zinc concentrates produced..... dry tons.....	201,173	263,519	142,849	189,272
Gold content..... ounces.....	6,606.18	6,909.96	68.00	68.00
Do..... ounce per ton.....	0.033	0.026	Trace.	Trace.
Silver content..... ounces.....	1,265,432	1,931,041	19,681	19,681
Do..... ounces per ton.....	6.290	7.328	0.104	0.104
Copper content..... pounds.....	2,240,372	2,410,053	17,740	17,740
Do..... percent.....	0.657	0.457	0.005	0.005
Lead content..... pounds.....	11,937,105	13,881,772	3,514,164	4,281,089
Do..... percent.....	2.967	2.634	1.230	1.131
Zinc content..... pounds.....	223,278,147	288,753,201	174,608,054	227,062,640
Do..... percent.....	55.494	54.788	61.116	59.983
Iron concentrates produced..... dry tons.....	74,752	102,798	---	---
Gold content..... ounces.....	6,856.03	5,178.32	---	---
Silver content..... do.....	86,920	148,974	---	---
Copper content..... pounds.....	220,787	232,307	---	---
Lead content..... do.....	2,277,379	2,500,198	---	---
Zinc content..... do.....	6,878,295	6,782,971	---	---
Ratio of concentration:				
Ore to—				
Lead concentrates.....	8.64:1	10.31:1	125.75:1	55.99:1
Zinc concentrates.....	6.40:1	6.98:1	15.53:1	20.30:1
Iron concentrates.....	17.24:1	17.90:1	---	---
All concentrates.....	3.03:1	3.38:1	13.83:1	14.90:1
Recoveries:				
Gold in—				
Lead concentrates..... percent.....	56.41	51.61	---	72.13
Zinc concentrates..... do.....	12.17	13.10	---	9.07
Iron concentrates..... do.....	12.63	9.82	---	---
All concentrates..... do.....	81.21	74.53	---	81.20
Silver in—				
Lead concentrates..... do.....	71.59	67.16	---	89.31
Zinc concentrates..... do.....	18.47	19.70	---	2.09
Iron concentrates..... do.....	1.27	1.52	---	---
All concentrates..... do.....	91.33	88.38	---	91.40
Copper in—				
Lead concentrates..... do.....	62.56	60.25	---	70.91
Zinc concentrates..... do.....	19.88	19.12	---	5.71
Iron concentrates..... do.....	1.96	2.24	---	---
All concentrates..... do.....	84.40	81.61	---	76.62
Lead in—				
Lead concentrates..... do.....	86.43	84.93	78.36	81.15
Zinc concentrates..... do.....	6.13	5.89	9.97	4.15
Iron concentrates..... do.....	1.17	1.06	---	---
All concentrates..... do.....	93.73	91.88	88.33	85.30
Zinc in—				
Lead concentrates..... do.....	7.99	7.00	32	2.19
Zinc concentrates..... do.....	81.42	81.54	85.88	77.41
Iron concentrates..... do.....	2.51	1.91	---	---
All concentrates..... do.....	91.92	90.45	86.20	79.60

TABLE 19.—Comparison of screen analysis, alkalinity, and pulp density in the treatment of lead-zinc ores, 1931-34

SCREEN ANALYSIS OF FLOTATION FEED				
	1931	1932	1933	1934
Number of plants.....	24	17	16	23
Total ore treated..... dry tons..	1, 675, 424	1, 206, 843	1, 273, 128	2, 122, 626
+65 mesh..... percent..	4.63	5.23	4.72	4.79
-65+100 mesh..... do.....	8.55	8.08	6.80	6.83
-100+150 mesh..... do.....	8.88	9.34	8.38	9.25
-150+200 mesh..... do.....	12.91	16.24	12.99	12.74
-200 mesh..... do.....	64.98	61.11	67.11	66.39

ALKALINITY OF FLOTATION CIRCUITS				
	1931	1932	1933	1934
Number of plants.....	20	17	16	21
Total ore treated..... dry tons..	1, 308, 180	1, 203, 420	1, 273, 128	2, 087, 304
Alkalinity:				
Lead circuit..... pH units..	7.99	7.67	7.78	7.66
Zinc circuit..... do.....	8.23	8.25	8.45	8.15
Iron circuit..... do.....	8.07	8.12	8.09	7.72

PULP DENSITY OF FLOTATION FEED				
	1931	1932	1933	1934
Number of plants.....	16	18	16	23
Total ore treated..... dry tons..	1, 052, 663	1, 236, 843	1, 273, 128	2, 122, 626
Pulp density..... percent solids..	33.03	32.11	32.93	32.70

¹ 4 plants treating 486,682 tons of ore.
² 2 plants treating 384,015 tons of ore.

³ 2 plants treating 394,327 tons of ore.
⁴ 4 plants treating 747,823 tons of ore.

ZINC ORES

Most of the increase in zinc ores milled in 1934 came from mines and old tailings dumps in the Tri-State region. Nearly all the material was treated by combined gravity and flotation. Tables 20 to 22 summarize data on zinc ores.

TABLE 20.—Consumption of reagents in the treatment of zinc ores in 1934

[22 plants treating 1,303,530 tons of ore]

Reagent	Plants using	Ore treated (tons)	Consumption of reagents (pounds)		
			Total, 1934	Per ton	
				1934	1933
I. Frothers:					
Pine oils.....	15	1, 117, 147	132, 984	0.119	0.133
Cresylic acid.....	13	375, 546	38, 394	.102	.039
Total frothers.....	22	1, 303, 530	171, 378	.131	.131
II. Collectors:					
Distillation products: Coal-tar creosotes.....	4	669, 151	72, 539	.108	.103
Synthetic products:					
Ethyl xanthates.....	12	457, 109	68, 992	.151	.168
Butyl xanthates.....	1	66, 353	6, 725	.101	.120
Amyl xanthates.....	1	66, 353	4, 189	.063	-----
Dicresol-dithiophosphoric acid.....	4	193, 400	10, 050	.052	.150
Sodium dicresol-dithiophosphate.....	16	1, 013, 578	84, 947	.084	.052
Total synthetic products.....	22	1, 303, 530	174, 903	.134	.087
Total collectors.....	22	1, 303, 530	247, 442	.190	.159
III. Acids ¹ and alkalis: Lime.....	6	331, 752	826, 957	2.493	4.180
IV. Other inorganic reagents:					
Activating: Copper sulphate.....	22	1, 303, 530	1, 154, 646	.886	.868
Depressing: Sodium silicate.....	1	1, 400	2, 250	1.607	-----
Total reagents.....	22	1, 303, 530	2, 402, 673	1.843	2.098

¹ No acids consumed.

TABLE 21.—Comparison of metallurgical results in the treatment of zinc ores, 1933-34

	Method of concentration			
	Straight flotation		Combined gravity and flotation	
	1933	1934	1933	1934
Number of plants.....	4	6	4	16
Total ore treated..... dry tons..	290,963	485,742	923,582	3,232,925
Lead content..... pounds.....	19,995	13,271	428,400	1,276,400
Do..... percent.....	0.003	0.001	0.023	0.020
Zinc content..... pounds.....	57,474,333	63,901,296	36,270,493	105,816,000
Do..... percent.....	9.877	6.578	1.964	1.637
Lead concentrates produced..... dry tons..				219
Lead content..... pounds.....				306,000
Do..... percent.....				69.863
Zinc content..... pounds.....				7,000
Do..... percent.....				1.598
Zinc concentrates produced..... dry tons..	45,362	47,993	25,799	63,288
Lead content..... pounds.....	18,209	6,453	289,580	298,000
Do..... percent.....	0.020	0.006	0.561	0.235
Zinc content..... pounds.....	51,768,563	58,039,000	31,085,504	76,480,400
Do..... percent.....	57.062	60.466	60.246	60.423
Ratio of concentration:				
Ore to zinc concentrates.....	6.41:1	10.12:1	35.80:1	51.08:1
Ore to all concentrates.....	6.41:1	10.12:1	35.80:1	50.91:1
Recoveries:				
Lead in—				
Lead concentrates..... percent.....				23.97
Zinc concentrates..... do.....	91.07	48.62	67.60	28.35
All concentrates..... do.....	91.07	48.62	67.60	47.32
Zinc in—				
Lead concentrates..... do.....				72.28
Zinc concentrates..... do.....	90.07	90.83	85.70	72.28
All concentrates..... do.....	90.07	90.83	85.70	72.28

TABLE 22.—Comparison of screen analysis, alkalinity, and pulp density in the treatment of zinc ores, 1931-34

SCREEN ANALYSIS OF FLOTATION FEED

	1931	1932	1933	1934
Number of plants.....	4	4	6	5
Total ore treated..... dry tons..	620,673	503,645	576,883	827,237
+65 mesh..... percent.....	8.36	11.89	6.25	5.83
-65+100 mesh..... do.....	17.81	17.80	9.56	12.59
-100+150 mesh..... do.....	12.02	11.51	11.98	13.14
-150+200 mesh..... do.....	10.93	11.24	13.81	17.83
-200 mesh..... do.....	50.88	47.56	58.40	50.61

ALKALINITY OF FLOTATION CIRCUITS

Lead circuit:				
Number of plants.....	3			
Total ore treated..... dry tons..	68,249			
Alkalinity..... pH units..	7.34			
Zinc circuit:				
Number of plants.....	10	4	6	5
Total ore treated..... dry tons..	505,884	503,645	576,883	827,237
Alkalinity..... pH units..	8.57	8.34	8.17	8.24

PULP DENSITY OF FLOTATION FEED

Number of plants.....	9	5	6	5
Total ore treated..... dry tons..	734,401	509,865	576,883	827,237
Pulp density..... percent solids..	32.45	37.24	33.79	37.33

GOLD AND SILVER ORES

The total siliceous ore (gold ore, gold and silver ore, and silver ore) increased from 4,509,376 tons in 1933 to 7,462,890 tons in 1934. Large increases in production of siliceous ores were reported from many States, notably California, Nevada, Colorado, Utah, Arizona, Montana, South Dakota, and Idaho. Of the total material produced, 5,724,192 tons (76.70 percent) were treated at amalgamation or cyanidation plants, at many of which various concentration methods were also used; 1,162,495 tons (15.58 percent) were treated at straight concentration plants; and the remainder (576,203 tons) was shipped direct to smelters.

TABLE 23.—Consumption of reagents in the treatment of gold and silver ores in 1934
[144 plants treating 2,475,169 tons of ore]

Reagent	Plants using	Ore treated (tons)	Consumption of reagents (pounds)		
			Total, 1934	Per ton	
				1934	1933
I. Frothers:					
Pine oils.....	132	2,236,743	204,627	0.091	0.086
Cresylic acid.....	34	864,061	105,509	.122	.158
Total frothers.....	144	2,475,169	310,136	.125	.118
II. Collectors:					
Distillation products:					
Coal-tar creosotes.....	11	385,412	31,737	.082	.110
Wood-tar creosotes.....	2	130,432	3,200	.025	.059
Petroleum products.....	2	67,805	37,320	.550	.238
Total distillation products.....	14	474,672	72,257	.152	.108
Synthetic products:					
Ethyl xanthates.....	86	885,682	116,681	.132	.129
Butyl xanthates.....	10	220,173	22,666	.103	.036
Amyl xanthates.....	30	1,836,890	110,798	.059	.065
Xanthate derivatives.....	2	258,096	3,758	.015	-----
Dicrosol-dithiophosphoric acid.....	23	435,320	30,862	.071	.053
Sodium dicrosol-dithiophosphate.....	9	503,072	3,504	.007	.003
Thiocarbamide.....	1	7,815	25	.003	-----
Total synthetic products.....	144	2,475,169	288,294	.116	.099
Total collectors.....	144	2,475,169	360,551	.146	.118
III. Acids¹ and alkalis:					
Alkalies:					
Sodium carbonate.....	41	645,970	369,248	.572	1.304
Sodium hydroxide.....	6	322,525	85,608	.265	.611
Lime.....	14	605,218	152,375	.252	.115
Total alkalies.....	53	1,126,118	607,231	.539	1.171
IV. Other inorganic reagents:					
Sulphidizing: Sodium sulphide.....	18	446,579	71,158	.159	.278
Activating: Copper sulphate.....	18	417,216	187,518	.449	.264
Depressing:					
Cyanides.....	5	171,291	11,437	.067	.017
Sodium silicate.....	8	151,568	10,490	.069	.056
Sodium sulphite.....	1	16,500	16,500	1.000	.211
Zinc sulphate.....	5	139,134	22,530	.162	.277
Total depressing.....	15	352,956	60,957	.173	.105
Miscellaneous ²	9	364,881	49,137	.135	.575
Total reagents.....	144	2,475,169	1,646,688	.665	.677

¹ No acids consumed.

² Includes sulphur, glue, lead nitrate, lead acetate, starch, and ammonium phosphate.

Flotation was employed at 144 plants treating siliceous ores in 1934, including straight flotation plants, combined flotation- and gravity-concentration plants, and amalgamation or cyanidation plants at which flotation equipment was used. The reagents used and metallurgical data for siliceous ores are given in tables 23 to 25.

In table 24, under "Combined concentration and amalgamation or cyanidation", the bullion produced in 1934 is given as 243,034.85 fine ounces of gold and 205,937 fine ounces of silver. These figures include all the bullion from combined concentration and amalgamation or cyanidation; however, they also include gold and silver recovered from traps, riffles, strakes, blankets, classifiers, etc., which may or may not have been amalgamated in clean-up barrels, pans, etc. An exact separation of the bullion by methods of recovery in 1934 is not possible owing to incomplete statistics, but subsequent reports of this series may include such a separation.

TABLE 24.—Comparison of metallurgical results in the treatment of gold and silver ores, 1933-34

	Method of concentration			
	Straight concentration		Combined concentration and amalgamation or cyanidation	
	1933	1934	1933	1934
Number of plants.....	45	80	25	64
Total ore treated..... dry tons.....	567,034	1,227,181	696,993	1,247,988
Gold content..... ounces.....	133,634.94	204,805.25	247,253.55	340,093.76
Do..... ounce per ton.....	0.236	0.167	0.355	0.273
Silver content..... ounces.....	1,032,607	1,749,975	356,536	677,809
Do..... ounces per ton.....	1.821	1.426	0.512	0.543
Copper content..... pounds.....	2,013,532	2,045,605	304,695	547,746
Do..... percent.....	0.178	0.083	0.022	0.022
Lead content..... pounds.....	3,796,969	7,180,990	759,700	1,402,555
Do..... percent.....	0.335	0.293	0.055	0.056
Zinc content..... pounds.....		121,500		
Concentrates produced..... dry tons.....	26,744	51,791	10,326	25,492
Gold content..... ounces.....	115,999.46	174,866.17	45,092.71	74,591.73
Do..... ounces per ton.....	4.337	3.376	4.367	2.926
Silver content..... ounces.....	831,890	1,288,978	185,512	372,120
Do..... ounces per ton.....	31.106	24.888	17.966	14.698
Copper content..... pounds.....	1,730,842	1,569,767	259,438	387,644
Do..... percent.....	3.236	1.516	1.256	0.760
Lead content..... pounds.....	3,237,462	5,828,438	660,881	1,150,755
Do..... percent.....	6.053	5.625	3.200	2.267
Zinc content..... pounds.....		50,300		
Bullion produced:				
Gold content..... fine ounces.....			187,879.25	1 243,034.85
Silver content..... do.....			133,604	1 205,937
Ratio of concentration: Ore to all concentrates.....	21.20:1	23.69:1	67.50:1	48.96:1
Recoveries:				
Gold in—				
All concentrates..... percent.....	86.80	85.38	18.24	21.93
Bullion..... do.....			75.98	71.46
All products..... do.....	86.80	85.38	94.22	93.39
Silver in—				
All concentrates..... do.....	80.56	73.66	52.03	54.90
Bullion..... do.....			37.47	30.38
All products..... do.....	80.56	73.66	89.50	85.28
Copper in all concentrates..... do.....	85.96	76.74	85.15	70.77
Lead in all concentrates..... do.....	85.26	81.14	86.99	82.05
Zinc in all concentrates..... do.....		41.40		

¹ See second paragraph of preceding text for comments on these figures.

TABLE 25.—*Comparison of screen analysis, alkalinity, and pulp density in the treatment of gold and silver ores, 1931-34*

SCREEN ANALYSIS OF FLOTATION FEED				
	1931	1932	1933	1934
Number of plants.....	9	14	28	51
Total ore treated..... dry tons..	359,919	450,275	639,579	1,393,923
+65 mesh..... percent..	5.53	4.72	4.98	4.46
-65+100 mesh..... do.....	9.53	13.38	9.33	8.26
-100+150 mesh..... do.....	12.52	12.98	13.11	13.22
-150+200 mesh..... do.....	16.07	13.84	14.98	19.22
-200 mesh..... do.....	56.30	55.08	57.60	54.84
ALKALINITY OF FLOTATION CIRCUIT				
Number of plants.....	8	11	18	28
Total ore treated..... dry tons..	259,338	364,588	498,591	887,668
Alkalinity..... pH units..	8.57	8.28	8.15	7.94
PULP DENSITY OF FLOTATION FEED				
Number of plants.....	8	15	26	47
Total ore treated..... dry tons..	309,466	386,127	614,891	1,333,582
Pulp density..... percent solids..	32.56	34.83	26.45	27.41

GOLD, SILVER, COPPER, LEAD, AND ZINC IN IDAHO

(DETAILED STATISTICS—MINE REPORT)

By C. N. GERRY AND T. H. MILLER ¹

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The output of gold, silver, copper, lead, and zinc from mines in Idaho in 1934, in terms of recovered metals, was 84,817.20 fine ounces of gold, 7,394,143 fine ounces of silver, 1,531,625 pounds of copper, 142,648,216 pounds of lead, and 49,598,651 pounds of zinc. This output compares with a production in 1933 of 64,592.23 ounces of gold, 6,987,960 ounces of silver, 1,562,234 pounds of copper, 148,726,701 pounds of lead, and 41,935,977 pounds of zinc. There were 291 lode mines and 1,172 placers producing in 1934 compared with 188 lode mines and 334 placers in 1933.

Since 1863 Idaho has yielded an output of the five metals as follows: Gold, 6,866,711.93 fine ounces; silver, 354,768,012 fine ounces; copper, 162,754,829 pounds; lead, 9,702,156,461 pounds; and zinc, 995,502,725 pounds. The total value has amounted to \$1,006,036,264.

Calculation of value of metal production.—The value of metal production herein reported has been calculated at the figures given in the table that follows. Gold in 1930–32 is figured at \$20.671835 per ounce, the Treasury legal coinage value for fine gold from January 18, 1835, to January 31, 1934; in 1933 at \$25.56 and in 1934 at \$34.95 per ounce, the average weighted yearly United States Government prices.² The silver price in 1930–33 is the average New York price for bar silver; in 1934 the Treasury buying price for newly mined silver, \$0.64646464 + per ounce. The copper, lead, and zinc prices are weighted averages, for each year, of all grades of primary metal sold by producers.

¹ Assisted by Paul Luff and LaRu Shepherd.

² The Treasury from Feb. 1, 1934, through December 1934 has calculated all gold, old and new, at \$35.00 per ounce, under authority of the Gold Reserve Act of Jan. 31, 1934. Details of the U. S. Government fluctuating price of gold in 1933 to Jan. 31, 1934, may be found in Minerals Yearbook, 1934, pp. 25–28.

Prices of gold, silver, copper, lead, and zinc, 1930-34

Year	Gold	Silver	Copper	Lead	Zinc
	<i>Per fine ounce</i>	<i>Per fine ounce</i>	<i>Per pound</i>	<i>Per pound</i>	<i>Per pound</i>
1930.....	\$20.67+	\$0.385	\$0.130	\$0.050	\$0.048
1931.....	20.67+	.290	.091	.087	.038
1932.....	20.67+	.282	.063	.080	.030
1933.....	25.56	.350	.064	.087	.042
1934.....	34.95	1.646+	.080	.087	.043

¹ \$20.671835.² \$0.646464.

Mine production of gold, silver, copper, lead, and zinc in Idaho, 1930-34, in terms of recovered metals

Year	Mines producing		Ore, old tailings, etc. (short tons)	Gold (lode and placer)		Silver (lode and placer)	
	Lode	Placer		Fine ounces	Value	Fine ounces	Value
1930.....	131	61	1,944,900	21,445.07	\$443,309	9,420,639	\$3,626,946
1931.....	136	160	1,299,927	18,361.36	379,563	7,220,923	2,094,068
1932.....	178	280	1,032,853	46,885.39	969,207	6,716,968	1,894,185
1933.....	188	334	1,190,851	64,592.23	1,650,977	6,987,960	2,445,786
1934.....	291	1,172	1,287,182	84,817.20	2,964,361	7,394,143	4,780,052

Year	Copper		Lead		Zinc		Total value
	Pounds	Value	Pounds	Value	Pounds	Value	
1930.....	3,111,555	\$404,502	268,115,963	\$13,405,798	75,298,172	\$3,614,312	\$21,494,867
1931.....	1,144,915	104,187	198,729,228	7,352,981	39,137,212	1,487,214	11,418,013
1932.....	1,143,381	72,033	144,235,067	4,827,052	20,504,234	615,127	7,877,604
1933.....	1,562,234	99,983	148,726,701	5,502,888	41,935,977	1,761,311	11,460,945
1934.....	1,531,625	122,530	142,648,216	5,277,984	49,598,651	2,132,742	15,277,669

¹ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

Gold and silver produced at placer mines in Idaho, 1930-34, in fine ounces, in terms of recovered metals

Year	Sluicing		Dry-land dredges ¹		Floating dredges		Total	
	Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver
1930.....	672.46	110	(²)	(²)	² 3,314.99	² 1,245	3,987.45	1,355
1931.....	1,326.51	497	(²)	(²)	² 3,887.01	² 1,351	5,213.52	1,848
1932.....	4,161.28	857	(²)	(²)	² 8,278.40	² 2,969	12,439.68	3,826
1933.....	5,147.97	1,164	781.16	149	17,360.77	5,930	23,289.90	7,243
1934.....	8,155.62	2,350	3,248.70	593	15,852.05	5,585	27,256.37	8,528

¹ Drag-line and power-shovel excavators with sluices or special amalgamators.

² Figures for floating dredges include those for dry-land dredges; separate figures not available.

Gold.—The output of gold in Idaho in 1934 was 84,817.20 fine ounces, an increase of more than 31 percent from 64,592.23 ounces in 1933. Gold recovered at placers amounted to 27,256.37 ounces, an increase of 3,966.47 ounces (17 percent). Most of the gold from placers came from Idaho, Boise, and Clearwater Counties, where dredges were operated. Nearly 64 percent of the placer gold was recovered from properties in Idaho County, largely by two companies operating dredges at Warren. Floating dredges recovered 15,852.05

ounces of gold and dry-land dredges, 3,248.70 ounces. Siliceous ore, old tailings, etc., yielded 55,822.40 ounces of gold, an increase of 15,268.28 ounces, and represented nearly 66 percent of the total gold; placers yielded 32 percent; and the remaining 2 percent came from other classes of ore (lead-zinc, lead, copper-lead, and copper). Nearly 76 percent of the gold from lode and placer mines was recovered from 10 mines—in Elmore, Idaho, Valley, Boise, and Shoshone Counties. The Boise-Rochester mine of the St. Joseph Lead Co. at Atlanta was again by far the largest producer of gold in Idaho; it was followed by the Meadow Creek mine of the Yellow Pine Co. at Stibnite, the Idaho Gold Dredging Co. at Warren, the Warren Creek Gold Dredging Co. at Warren, the Wharton placer at Centerville, the Gnome Gold Mining Co. at Elk City, the Lone Pine mine at Golden, the Gold Hill property at Quartzburg, the Come-Back mine at Pioneerville, and the Friday property at Murray. There were decreases in gold production in 1934 from the Idaho Gold Dredging Co., Gnome, and Lone Pine but important increases at the Boise-Rochester mine and the Wharton placer; little change was shown at the Yellow Pine mine. Other mines producing between 300 and 900 ounces of gold each were: Bunker Hill, Gold Dredging, Inc., Grunter, Golden Chariot, Gold Hill placer, Sherman Howe (Walker), National, Belshazzar, Sunnyside, Central Idaho, Mineral, Garden Gulch placer, Shoo Fly, and Hecla; smaller outputs came from the Morning, Deadwood placer, Golden Chest, El Oro, Shamrock, and Demming mines.

Silver.—The output of silver in Idaho was 7,394,143 fine ounces in 1934 compared with 6,987,960 ounces in 1933, an increase of nearly 6 percent but considerably less than the average annual output (8,035,466 ounces) for the decade 1925–34. Idaho retained its place as the leading silver producer in the United States, and Utah held second place with an output of 7,111,417 ounces. Copper-lead ore yielded nearly half the silver from Idaho in 1934, lead-zinc ore 28 percent, and lead ore 18 percent; less than 4 percent came from siliceous material, placers, and copper ore. Silver from lead ore decreased 1,139,862 ounces, but this loss was more than offset by increases of 1,138,476 ounces from lead-zinc ore, 281,758 ounces from copper-lead ore, and 120,257 ounces from siliceous ore. The large decrease (nearly 430,000 ounces) in silver output at the Bunker Hill & Sullivan property was more than offset by a large increase at the Sunshine mine and smaller increases at the Hecla, Golconda, Camp Bird, Gold Hunter, Page, Crescent, and Morning mines. Ten mines produced 96 percent of the silver output of the State in 1934—Sunshine on Big Creek, Hecla at Burke, Bunker Hill at Kellogg, Morning near Mullan, Crescent on Big Creek, Golconda east of Wallace, Page west of Kellogg, Gold Hunter at Mullan, Boise-Rochester at Atlanta, and Camp Bird at Clayton; other producers of more than 25,000 ounces each were: Frisco near Mace, Blackhawk west of Kellogg, Caledonia near Kellogg, Come-Back at Pioneerville, and Yellow Pine at Stibnite.

Copper.—The output of copper in Idaho was 1,531,625 pounds in 1934 compared with 1,562,234 pounds in 1933, a decrease of less than 2 percent; the average annual output for the decade 1925–34 was 2,250,536 pounds. Copper-lead ore yielded 50 percent of the total copper in 1934, lead-zinc ore 34 percent, lead ore 12 percent, siliceous ore nearly 4 percent, and copper ore less than 1 percent. About half the copper produced in Idaho in 1934 was recovered from smelting

copper-lead concentrates from the Sunshine property on Big Creek. The Crescent property also produced copper from copper-lead ore. Copper from lead-zinc ore came chiefly from the Bunker Hill, Hecla, and Morning mines. The Sunshine Mining Co. retained its place as the leading copper producer in Idaho; however, it is better known as the leading silver producer in the State. The chief ore mineral in the Sunshine property is tetrahedrite, which in this occurrence contains considerable silver.

Lead.—The output of lead in Idaho was 142,648,216 pounds in 1934 compared with 148,726,701 pounds in 1933, a decrease of 6,078,485 pounds and far below the average annual output (231,855,099 pounds) for the decade 1925-34. Nearly 68 percent of the total lead in 1934 was recovered from lead-zinc ore and nearly 32 percent from lead ore; copper-lead ore, siliceous ore, and copper ore together supplied less than 1 percent. There was an increase of about 53,251,000 pounds in lead from lead-zinc ore and a decrease of about 59,300,000 pounds from lead ore. This apparent shift in output from lead ore to lead-zinc ore was actually due to a change in class of ore treated at the Bunker Hill mills, most of the mill product containing enough zinc that was saved in 1934 to be classed as lead-zinc ore. The Bunker Hill & Sullivan Mining & Concentrating Co. retained its place as the largest producer of lead in Idaho, although its output was about 30 percent less than in 1933. Nine mines in 1934 produced nearly 99 percent of the total lead, each yielding more than 1,000,000 pounds; the combined output of the three largest—Bunker Hill, Hecla, and Morning—was nearly 86 percent of the total. In order of output the nine leading producing mines were: Bunker Hill, Hecla, Morning, Page, Golconda, Gold Hunter, Blackhawk, Frisco, and Camp Bird; a large increase was recorded at each of these properties except the Bunker Hill and Frisco. Increases were also shown at the Sunshine, Caledonia, and Bear Top. Except for a very small amount of development work, the Star mine, a large producer in the past, was idle in 1934. All output in 1934 from the Jack Waite mine came from the Montana (Sanders County) section of the property.

Zinc.—The output of zinc in Idaho in 1934 (49,598,651 pounds) increased 18 percent from that in 1933 and nearly reached the average annual output (51,775,998 pounds) for the decade 1925-34. Lead-zinc ore yielded almost 99 percent of the total in 1934 and lead ore the remainder. There was an increase of about 18,725,000 pounds in zinc from lead-zinc ore and a decrease of about 11,062,000 pounds from lead ore, the apparent shift being due to a change in class of ore treated at Bunker Hill, as previously stated. Seven mines—Morning, Bunker Hill, Golconda, Frisco, Page, Hecla, and Blackhawk—in 1934 yielded almost all the zinc output of the State. The Morning mine of the Federal Mining & Smelting Co. continued as the largest zinc producer in Idaho, increasing its output by about 2,300,000 pounds in 1934. The Bunker Hill property was second with an increase in output of nearly 4,500,000 pounds. The Golconda and Frisco each produced about 3,800,000 pounds, the increase at the Golconda being nearly 1,300,000 pounds. Increases were also shown at the Page, Hecla, and Blackhawk mines; of these three mines, the Page was the only one having an output of more than 1,000,000 pounds. The Star mine made no production in 1934; the Triumph mine in Blaine County was idle; and the output from the Jack Waite mine came from the Montana section of the property.

MINE PRODUCTION BY COUNTIES

Mine production of gold, silver, copper, lead, and zinc in Idaho in 1934, by counties, in terms of recovered metals

County	Mines producing			Ore, old tailings, etc. (short tons)	Gold						Silver					
	Lode	Placer	Total		Lode		Placer		Total		Lode		Placer		Total	
					Fine ounces	Value	Fine ounces	Value	Fine ounces	Value	Fine ounces	Value	Fine ounces	Value	Fine ounces	Value
Ada.....	7	22	29	406	35.31	\$1,234	135.02	\$4,719	170.33	\$5,953	161	\$104	28	\$18	189	\$122
Bear Lake.....	1		1	6	.06				.06	2	11	7			11	7
Benewah.....		4	4				29.10	1,017	29.10	1,017			3	2	3	2
Bingham.....		2	2				9.73	340	9.73	340						
Blaine.....	22		22	715	81.26	2,840			81.26	2,840	4,059	2,624			4,059	2,624
Boise.....	36	149	185	13,953	4,294.79	150,103	5,070.30	177,207	9,365.09	327,310	37,668	24,351	1,075	695	38,743	25,046
Bonner.....	8		8	7,236	5.88	209			5.88	209	27,935	18,059			27,935	18,059
Bonneville.....	1	8	9	13	2.23	78			2.23	78						
Boundary.....	1		1	49			49.67	1,736	49.67	1,736					942	609
Bratte.....	5		5	117	13.36	467			13.36	467	1,799	1,163			1,799	1,163
Camas.....	6	5	11	969	331.33	11,580	55.28	1,932	386.61	13,512	4,458	2,882	31	20	4,489	2,902
Canyon.....		3	3				3.32	116	3.32	116						
Cassia.....	1	1	2	3	1.00	35	3.12	109	4.12	144	34	22			34	22
Clearwater.....	5	109	114	270	23.89	835	1,443.49	50,450	1,467.38	51,285	37	24	348	225	385	249
Custer.....	18	24	42	17,239	155.08	5,420	158.34	5,534	313.42	10,954	82,600	53,398	51	33	82,651	53,431
Elmore.....	26	51	77	69,610	28,448.27	994,267	193.59	6,766	28,641.86	1,001,033	78,968	51,050	51	33	79,019	51,083
Gem.....	5	12	17	102	64.98	2,271	25.98	908	90.96	3,179	99	64	3	2	102	66
Gooding.....		17	17				41.06	1,435	41.06	1,435			11	7	11	7
Idaho.....	52	338	390	27,495	6,818.77	238,316	17,417.51	608,742	24,236.28	847,058	7,329	4,738	5,844	3,778	13,173	8,516
Jefferson.....		1	1				3.98	139	3.98	139						
Jerome.....	18	18	36				73.42	2,566	73.42	2,566			3	2	3	2
Latah.....		25	25				86.35	3,018	86.35	3,018			11	7	11	7
Lemhi.....	33	146	179	7,903	1,847.47	64,569	693.62	24,242	2,541.09	88,811	6,633	4,288	79	51	6,712	4,339
Lewis.....		2	2				3.86	135	3.86	135						
Mindoka.....		7	7				95.28	3,330	95.28	3,330			3	2	3	2
Nez Perce.....	1	11	12	7	7.81	273	23.52	822	31.33	1,095	48	31			48	31
Owyhee.....	33	25	58	12,881	1,328.67	46,437	324.58	11,344	1,653.25	57,781	27,324	17,664	744	481	28,068	18,145
Payette.....		4	4				3.26	114	3.26	114						
Power.....		19	19				167.64	5,859	167.64	5,859			11	7	11	7
Shoshone.....	24	113	137	1,071,059	3,114.62	108,856	860.73	29,733	3,965.35	138,589	7,062,428	4,565,610	212	137	7,062,640	4,565,747
Twin Falls.....		38	38				169.24	5,915	169.24	5,915			6	4	6	4
Valley.....	5	17	22	56,589	10,981.00	383,786	113.05	3,951	11,094.05	387,737	26,020	16,821	14	9	26,034	16,830
Washington.....	1		2	560	4.95	173	12.33	431	17.28	604	17,062	11,030			17,062	11,030
Total, 1933.....	291	1,172	1,463	1,287,182	57,560.83	2,011,751	27,256.37	952,610	84,817.20	2,964,361	7,385,615	4,774,539	8,528	5,513	7,394,143	4,780,052
	188	334	522	1,190,851	41,302.33	1,055,687	23,289.90	1,595,290	64,592.23	1,650,977	6,980,717	2,443,251	7,243	2,535	6,987,960	2,445,786

1 Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+per ounce).

GOLD, SILVER, COPPER, LEAD, AND ZINC IN IDAHO

Mine production of gold, silver, copper, lead, and zinc in Idaho in 1934, by counties, in terms of recovered metals—Continued

County	Copper		Lead		Zinc		Total value		
	Pounds	Value	Pounds	Value	Pounds	Value	Lode	Placer	Lode and placer
Ada.....							\$1,338	\$4,737	\$6,075
Bear Lake.....			9,676	\$358			367		367
Benewah.....								1,019	1,019
Bingham.....								340	340
Blaine.....	975	\$78	33,189	1,228			6,770		6,770
Boise.....	6,550	524	9,865	365			175,343	177,902	353,245
Bonner.....	762	61	638,486	23,624			41,953		41,953
Bonneville.....							78	1,736	1,814
Boundary.....	75	6	54,000	1,998			2,613		2,613
Butte.....	1,863	149	5,162	191			1,970		1,970
Camas.....	350	28	11,703	433	1,023	\$44	14,967	1,952	16,919
Canyon.....									116
Cassia.....	75	6	2,892	107			170	109	279
Clearwater.....							859	50,675	51,534
Custer.....	13,975	1,118	1,117,648	41,363			101,289	5,567	106,856
Elmore.....	5,975	478					1,045,795	6,799	1,052,594
Gem.....			730	27			2,362		3,272
Gooding.....								910	1,442
Idaho.....	1,250	100	3,270	121				612,520	855,795
Jefferson.....							243,275		139
Jerome.....									2,568
Latah.....									3,025
Lemhi.....	10,375	830	84,730	3,135			72,822	24,293	97,115
Lewis.....									135
Minidoka.....									3,332
Nez Perce.....	525	42					346	822	1,168
Owyhee.....	600	48	243	9			64,158	11,825	75,983
Payette.....									114
Power.....									5,866
Shoshone.....	1,472,275	117,782	140,662,811	5,204,524	49,597,628	2,132,698	12,129,470	29,870	12,159,340
Twin Falls.....									5,919
Valley.....	6,000	480	1,162	43			401,130	3,960	405,090
Washington.....	10,000	800	12,649	468			12,471	431	12,902
Total, 1933.....	1,531,625	122,530	142,648,216	5,277,984	49,598,651	2,132,742	14,319,546	958,123	15,277,669
	1,562,234	99,983	148,726,701	5,502,888	41,935,977	1,761,311	10,863,120	1,597,825	11,460,945

¹ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+per ounce).

Gold and silver produced at placer mines in Idaho in 1934, by counties, in fine ounces, in terms of recovered metals

County	Sluicing		Dry-land dredges ¹		Floating dredges		Total	
	Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver
Ada.....	135.02	28					135.02	28
Benewah.....	29.10	3					29.10	3
Bingham.....	9.73						9.73	
Boise.....	2,080.02	530	2,990.28	545			5,070.30	1,075
Bonneville.....	49.67						49.67	
Camas.....	9.48	3			45.80	28	55.28	31
Canyon.....	3.32						3.32	
Cassia.....	3.12						3.12	
Clearwater.....	593.68	119			849.81	229	1,443.49	349
Custer.....	158.34	51					158.34	51
Elmore.....	193.59	51					193.59	51
Gem.....	25.98	3					25.98	3
Gooding.....	41.06	11					41.06	11
Idaho.....	2,202.65	468	258.42	48	14,956.44	5,328	17,417.61	5,844
Jefferson.....	3.98						3.98	
Jerome.....	73.42	3					73.42	3
Latah.....	86.35	11					86.35	11
Lemhi.....	693.62	79					693.62	79
Lewis.....	3.86						3.86	
Minidoka.....	95.28	3					95.28	3
Nez Perce.....	23.52						23.52	
Owyhee.....	324.58	744					324.58	744
Payette.....	3.26						3.26	
Power.....	167.64	11					167.64	11
Shoshone.....	850.73	212					850.73	212
Twin Falls.....	169.24	6					169.24	6
Valley.....	113.05	14					113.05	14
Washington.....	12.33						12.33	
Total, 1933.....	8,155.62	2,350	3,248.70	593	15,852.05	5,585	27,256.37	8,528
	5,147.97	1,164	781.16	149	17,360.77	5,930	23,289.90	7,243

¹ Drag-line and power-shovel excavators with sluices or special amalgamators.

MINING INDUSTRY

Judging from the value of the metal output of Idaho in 1934 and the increase in production of gold, silver, and zinc, the mines of the State were in a much better condition than at any time since 1930. The feature of the year was the marked improvement in gold output, due mainly to the advance in price to \$35 an ounce. In 1930 Idaho produced 21,445 ounces of gold and in 1934 nearly four times that amount. There were large increases in gold at both lode and placer mines, and notable production was made at the Boise-Rochester mine at Atlanta, at the Yellow Pine at Stibnite, and by dredges at Warren. In general, mining conditions in the Coeur d'Alene region, aided by the better price of silver, were improved greatly, as shown by the production of silver, lead, and zinc at the large mines near Kellogg and Wallace; the lead output, however, decreased slightly as the result of a decrease at the Bunker Hill property. Despite the fact that several zinc producers were idle, a large gain was made in output of zinc, especially at the Morning, Bunker Hill, Golconda, and Page mines. The smelter and refinery of the Bunker Hill & Sullivan Mining & Concentrating Co. were active throughout the year but at reduced capacity.

ORE CLASSIFICATION

Ore, old tailings, etc., sold or treated in Idaho in 1934, with content in terms of recovered metals

Source	Mines producing	Ore, old tailings, etc.	Gold	Silver	Copper	Lead	Zinc
		<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Dry gold ore.....	195	¹ 199,821	55,468.36	161,274	26,488	32,439	-----
Dry gold and silver ore.....	11	² 879	308.98	13,348	676	1,878	-----
Dry silver ore.....	25	³ 2,084	45.06	96,378	26,960	28,449	-----
	231	202,784	55,822.40	271,000	54,124	62,766	-----
Copper ore.....	5	⁴ 1,020	12.66	4,349	5,160	1,434	-----
Lead ore.....	52	⁵ 240,465	397.00	1,339,797	184,911	45,388,796	628,869
Copper-lead ore.....	4	118,927	116.41	3,695,013	769,991	334,769	-----
Lead-zinc ore.....	7	723,986	1,212.36	2,075,456	517,439	96,860,451	48,969,782
	68	1,084,398	1,738.43	7,114,615	1,477,501	142,585,450	49,598,651
Total, lode mines.....	⁶ 291	1,287,182	57,560.83	7,385,615	1,531,625	142,648,216	49,598,651
Total, placers.....	1,172	-----	27,256.37	8,528	-----	-----	-----
	1,463	1,287,182	84,817.20	7,394,143	1,531,625	142,648,216	49,598,651
Total, 1933.....	522	1,190,851	64,592.23	6,987,960	1,562,234	148,726,701	41,935,977

¹ Includes 145 tons of old tailings and 1 ton of old mill cleanings treated by amalgamation; 3,035 tons of old tailings treated by cyanidation; 845 tons of old tailings concentrated; and 190 tons of old tailings, 5 tons of old mill cleanings, and 134 tons of calcines sold to a smelter.

² Includes 250 tons of old tailings concentrated and 4 tons of old mill cleanings sold to a smelter.

³ Includes 50 tons of old tailings concentrated and 4 tons of old mill cleanings sold to a smelter.

⁴ Includes 4 tons of old mill cleanings sold to a smelter.

⁵ Includes 51 tons of old mill cleanings and 3 tons of old tailings sold to a smelter.

⁶ A mine producing more than one class of ore is counted but once in arriving at total for all classes.

Value of metals from ore, old tailings, etc., sold or treated in Idaho in 1934, by classes of ore

Class	Ore, old tailings, etc. (short tons)	Gold	Silver	Copper	Lead	Zinc	Total value
Dry gold ore.....	199,821	\$1,938,619	\$104,258	\$2,119	\$1,200	-----	\$2,046,196
Dry gold and silver ore.....	879	10,799	8,629	54	69	-----	19,551
Dry silver ore.....	2,084	1,575	62,305	2,157	1,053	-----	67,090
	202,784	1,950,993	175,192	4,330	2,322	-----	2,132,837
Copper ore.....	1,020	442	2,812	413	53	-----	3,720
Lead ore.....	240,465	13,875	866,131	14,793	1,679,386	\$27,041	2,601,226
Copper-lead ore.....	118,927	4,069	2,388,695	61,599	12,386	-----	2,466,749
Lead-zinc ore.....	723,986	42,372	1,341,709	41,395	3,583,837	2,105,701	7,115,014
	1,084,398	60,758	4,599,347	118,200	5,275,662	2,132,742	12,186,709
Total, lode mines.....	1,287,182	2,011,751	4,774,539	122,530	5,277,984	2,132,742	14,319,546
Total, placers.....	-----	952,610	5,513	-----	-----	-----	958,123
	1,287,182	2,964,361	4,780,052	122,530	5,277,984	2,132,742	15,277,669
Total, 1933.....	1,190,851	1,650,977	2,445,786	99,983	5,502,888	1,761,311	11,460,945

¹ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

Gold ore.—The output of gold ore, old tailings, etc., was 199,821 tons from 195 properties in 1934 compared with 131,052 tons from 137 properties in 1933; it represented nearly 16 percent of the total output of ore, old tailings, etc., in the State in 1934. There were 17 mines producing more than 1,000 tons each in 1934; their combined output was nearly 94 percent of the State total. Except for the Golden Chest mine at Murray and the Gnome mine at Golden, the output from which decreased slightly, there were increases in gold ore

produced at all 17 of these properties. The leading producers, in order of output, were: Boise-Rochester, Yellow Pine, Golden Chariot, Gold Hill, Friday, Lone Pine, Orogrande, Grunter, and Gnome mines; the other producers of importance were: War Eagle, Belshazzar, Sunnyside, Big Buffalo, Golden Chest, Walker-Wilcox, Twin Sister, and Shamrock mines.

Gold and silver ore.—Sixty-two percent of the total siliceous gold and silver ore, etc., was produced at the Demming property in the Steele district, Owyhee County. The remainder was chiefly old tailings from the Carson district, Owyhee County, and small lots of ore from Butte, Custer, Idaho, and Owyhee Counties.

Silver ore.—Silver ore, old tailings, and mill clean-up from 25 properties increased to 2,084 tons in 1934. The material was mined chiefly at the Crescent mine in the Yreka district, the Addie Darris in the Washington district, and the Weber in the Lakeview district. Carload lots of high-grade silver ore shipped came chiefly from the Katherine mine in Bonner County, the Little Amie in Owyhee County, and the Morning in Shoshone County.

Copper ore.—Copper ore and miscellaneous material increased to 1,020 tons in 1934 as a result of activity at the Ima mine in the Blue Wing district, Lemhi County. Small lots of copper ore, etc., were shipped for smelting from mines in Custer, Lemhi, and Nez Perce Counties.

Lead ore.—The output of lead ore (including 54 tons of old tailings and mill clean-up smelted) was 240,465 tons from 52 properties in 1934 compared with 630,305 tons from 35 properties in 1933. This large drop (62 percent) in output was due partly to a decrease at the Bunker Hill mine but also to the fact that most of the Bunker Hill ore in 1934 was classed as a lead-zinc product. Other producers of lead ore, each of which reported increased output, were the Hecla, Gold Hunter, Camp Bird, Hope, and Caledonia mines. The Vienna property in Blaine County, a producer of lead ore in 1933, was idle in 1934. A large quantity of lead ore was mined and milled at the Camp Bird mine in the Bay Horse district, Custer County, a new producer.

Copper-lead ore.—The output of copper-lead ore decreased 2,842 tons in 1934, but the gold and silver recovered increased. As in the past, most of the material came from the Yankee Boy mine of the Sunshine Mining Co.; nearly all the remainder came from the Crescent mine on the west side of Big Creek near the Sunshine mine. Aside from a test lot of smelting ore from the Hunter district, all the copper-lead ore mined in 1934 was treated at flotation plants on Big Creek.

Lead-zinc ore.—The output of lead-zinc ore increased from 307,573 tons from 9 properties in 1933 to 723,986 tons from 7 properties in 1934. Except for a small lot of ore from Camas County, all the lead-zinc ore in 1934 came from 6 mines in Shoshone County and was treated by flotation. It represented more than 56 percent of the State total ore, etc. The Bunker Hill property became the leading producer of lead-zinc ore, followed by the Morning mine of the Federal Mining & Smelting Co. which led in output in 1933. Decided increases were recorded at the Golconda, Page, and Blackhawk mines, but there was a decrease at the Frisco mine. The Star mine in the Hunter district made no production in 1934, and the output from the Jack Waite mine in 1934 came from the Montana section of the property.

Ore, old tailings, etc., sold or treated in Idaho in 1934, by counties, with content in terms of recovered metals

DRY GOLD ORE

County	Ore, old tailings, etc.	Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Ada.....	403	35.07	45			
Blaine.....	1589	67.45	307	472	1,007	
Boise.....	² 13,949	4,291.54	37,122	6,513	9,502	
Bonneville.....	13	2.23				
Camas.....	916	329.80	235	173	1,975	
Clearwater.....	270	23.89	37			
Custer.....	³ 967	125.87	996	15	1,276	
Elmore.....	⁴ 69,610	28,448.27	78,968	5,975		
Gem.....	98	64.88	73			
Idaho.....	⁵ 27,494	6,817.00	7,206	1,250	3,270	
Lemhi.....	⁶ 6,690	1,801.81	1,431	4,715	10,054	
Owyhee.....	⁷ 11,950	1,019.16	8,579		162	
Shoshone.....	⁸ 10,305	1,460.39	580	1,375	4,031	
Valley.....	56,567	10,981.00	25,695	6,000	1,162	
Total, 1933.....	199,821 131,052	55,468.36 40,463.41	161,274 144,976	26,488 10,744	32,439 27,986	

DRY GOLD AND SILVER ORE

Butte.....	19	10.06	548	76	1,878	
Custer.....	7	5.27	207			
Idaho.....	⁹ 1	1.77	123			
Owyhee.....	¹⁰ 852	291.88	12,470	600		
Total, 1933.....	879 75	308.98 85.19	13,348 3,498	676	1,878	

DRY SILVER ORE

Ada.....	3	0.24	116			
Blaine.....	23	.70	701	65	258	
Boise.....	⁹ 4	3.25	546	37	363	
Bonner.....	528	4.75	4,506	342	2,130	
Butte.....	¹¹ 91	3.14	1,087	1,729	1,450	
Camas.....	13	.41	545	24	517	
Custer.....	2	1.16	244	10	58	
Lemhi.....	18	2.74	552	550	38	
Owyhee.....	79	17.63	6,275		81	
Shoshone.....	741	6.09	64,419	14,203	10,905	
Valley.....	22		325			
Washington.....	560	4.95	17,062	10,000	12,649	
Total, 1933.....	2,084 60	45.06 5.52	96,378 2,269	26,960 774	28,449 758	

COPPER ORE

Custer.....	6	4.52	2,770	660	272	
Lemhi.....	1,007	.33	1,531	3,975	1,162	
Nez Perce.....	¹² 7	7.81	48	525		
Total, 1933.....	1,020 17	12.66 12.53	4,349 80	5,160 3,407	1,434 81	

¹ Includes 125 tons of old tailings concentrated.

² Includes 70 tons of old tailings treated by amalgamation, 120 tons of old tailings concentrated, and 1 ton of old tailings sold to a smelter.

³ Includes 1 ton of old mill cleanings treated by amalgamation and 600 tons of old tailings concentrated.

⁴ Includes 1 ton of old mill cleanings and 134 tons of calcines sold to a smelter.

⁵ Includes 2,600 tons of old tailings treated by cyanidation and 1 ton of old mill cleanings sold to a smelter.

⁶ Includes 400 tons of old tailings treated by cyanidation and 1 ton of old mill cleanings and 189 tons of old tailings sold to a smelter.

⁷ Includes 75 tons of old tailings treated by amalgamation and 2 tons of old mill cleanings sold to a smelter.

⁸ Includes 35 tons of old tailings treated by cyanidation.

⁹ Old mill cleanings sold to a smelter.

¹⁰ Includes 250 tons of old tailings concentrated and 3 tons of old mill cleanings sold to a smelter.

¹¹ Includes 50 tons of old tailings concentrated.

¹² Includes 4 tons of old mill cleanings sold to a smelter.

Ore, old tailings, etc., sold or treated in Idaho in 1934, by counties, with content in terms of recovered metals—Continued

LEAD ORE

County	Ore, old tailings, etc.	Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Bear Lake	6	0.06	11	---	9,676	---
Blaine	¹³ 103	13.11	3,051	438	31,924	---
Bonner	¹⁴ 6,708	1.23	23,429	420	636,356	---
Boundary	49	---	942	75	54,000	---
Butte	7	.16	164	58	1,834	---
Camas	36	1.10	3,582	153	8,125	---
Cassia	3	1.00	34	75	2,892	---
Custer	16,256	18.24	78,334	13,230	1,115,909	---
Gem	4	.10	26	---	730	---
Lemhi	188	42.59	3,119	1,135	73,476	---
Shoshone	217,105	319.41	1,227,105	169,327	43,453,874	628,869
Total, 1933	240,465 630,305	397.00 428.15	1,339,797 2,479,659	184,911 450,151	45,388,796 104,688,631	628,869 11,690,950

COPPER-LEAD ORE

Custer	1	0.02	49	60	133	---
Shoshone	118,926	116.39	3,694,964	769,931	334,636	---
Total, 1933	118,927 121,769	116.41 50.02	3,695,013 3,413,255	769,991 875,539	334,769 399,573	---

LEAD-ZINC ORE

Camas	4	0.02	96	---	1,086	1,023
Shoshone	723,982	1,212.34	2,075,360	517,439	96,859,365	48,968,759
Total, 1933	723,986 307,573	1,212.36 257.51	2,075,456 936,980	517,439 221,619	96,860,451 43,609,672	48,969,782 30,245,027

¹³ Includes 3 tons of old tailings and 4 tons of old mill cleanings sold to a smelter.

¹⁴ Includes 47 tons of old mill cleanings sold to a smelter.

Zinc products (as marketed from Idaho mines and mills) sold to smelters and electrolytic plants in 1934

Classification	County	Quantity (dry weight)	Gross zinc	Average assay of ore and concentrates	Recovered zinc
		<i>Short tons</i>	<i>Pounds</i>	<i>Percent</i>	<i>Pounds</i>
Zinc concentrates	Camas and Shoshone	51,591	54,761,806	53.07	49,598,651
Total, 1933		51,591 43,134	54,761,806 46,308,699	53.07 53.68	49,598,651 41,935,977

METALLURGIC INDUSTRY

Of the 1,287,182 tons of ore, old tailings, etc., produced in 1934 in Idaho, 121,169 tons (9.41 percent) were treated at gold and silver mills, 1,147,611 tons (89.16 percent) were treated at concentration plants, and 18,402 (1.43 percent) were shipped to smelters.

There were 79 gold and silver mills in operation in Idaho in 1934—53 amalgamation plants, 7 cyanide plants, 12 combined amalgamation and gravity concentration plants, and 7 combined amalgamation and flotation concentration plants. There were 49 active concentration

plants—28 straight flotation plants (15 treating siliceous material, 1 copper ore, 2 copper-lead ore, 5 lead ore, and 5 lead-zinc ore), 2 combined gravity and flotation plants (1 treating lead ore and 1 lead-zinc ore), and 19 straight gravity concentration plants (15 treating siliceous material, 1 copper ore, and 3 lead ore).

Of the ore, etc., treated at gold and silver mills, 20,810 tons (including 145 tons of old tailings and 1 ton of mill clean-up) were treated at straight amalgamation plants, 87,107 tons of ore were treated by combined amalgamation and concentration, and 13,252 tons (including 3,035 tons of old tailings) were treated at straight cyanidation plants. There were marked increases in 1934 in ore treated by amalgamation and by cyanidation, especially at the Boise-Rochester mine in Elmore County where ore was treated by amalgamation and flotation.

The following table gives the material treated at gold and silver mills in Idaho in 1934 and the gold and silver recovered by amalgamation and cyanidation.

Mine production of metals from gold and silver mills in Idaho in 1934, by counties, in terms of recovered metals

County	Ore, old tailings, etc. treated (dry weight)		Recovered in bullion			
	Ore	Old tailings, etc.	Amalgamation		Cyanidation	
			Gold	Silver	Gold	Silver
	<i>Short tons</i>	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>
Ada.....	403		21.07	15		
Blaine.....	107		2.22	2	5.52	24
Boise.....	10,841	170	2,325.40	605		
Bonneville.....	13		2.23			
Camas.....	87		32.72	20		
Clearwater.....	30		10.42	4		
Custer.....	177	¹ 1	28.46	32		
Elmore.....	69,142		18,636.27	15,676		
Gem.....	95		54.68	30		
Idaho.....	21,235	² 2,600	3,355.10	1,440	2,704.68	1,855
Lemhi.....	961	³ 400	348.12	38	17.90	8
Owyhee.....	11,820	¹ 75	752.11	772		
Shoshone.....	510	³ 35	63.30	18	5.13	2
Valley.....	2,567		466.87	275		
Total, 1933.....	117,988	3,181	26,098.97	18,927	2,733.23	1,889
	78,220	1,385	14,694.35	12,421	4,130.68	1,973

County	Concentrates and recovered metal				
	Concentrates produced	Gold	Silver	Copper	Lead
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>
Ada.....	15	14.00	30		
Boise.....	150	203.55	1,600	400	108
Clearwater.....	1	1.03			
Custer.....	9	22.00	243	15	1,276
Elmore.....	1,592	9,538.08	60,932	5,800	
Idaho.....	19	65.52	1,915	89	81
Lemhi.....	23	37.70	36	246	
Owyhee.....	32	227.98	7,575		162
Valley.....	2	22.77	36		
Total, 1933.....	1,843	10,132.63	72,367	6,550	1,627
	980	8,375.85	84,813	3,377	1,989

¹ Old tailings amalgamated.

² Old mill cleanings amalgamated.

³ Old tailings cyanided.

Ore and old tailings treated at straight concentration plants increased from 1,097,413 tons in 1933 to 1,147,611 tons in 1934. Siliceous material treated at concentration plants increased 28,217 tons, as a result of the increase in price of gold. Copper-lead ore concentrated decreased from 121,769 tons in 1933 to 118,925 tons in 1934, due largely to the treatment of a smaller tonnage of better-grade ore at the Sunshine (Yankee Boy) mine. On account of the change (previously mentioned) in classification of the Bunker Hill ore there was a large decrease in lead ore concentrated and a large increase in lead-zinc ore milled; however, there was a net increase of 23,822 tons in the combined total of lead ore and lead-zinc ore concentrated in 1934.

The following tables give ore-concentration data for Idaho in 1934.

Idaho ore and old tailings concentrated in 1934, by classes of ore and old tailings, methods of concentration, and classes of concentrates

Class of ore and old tailings concentrated	Method of concentration	Ore and old tailings concentrated	Gross content of mill feed				
			Gold	Silver	Copper	Lead	Zinc
		<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Siliceous gold ore.....	Flotation.....	72,452	15,612.15	34,203	17,810	20,180	
Siliceous gold old tailings.....	do.....	725	93.20	2,703	85	250	
Siliceous silver ore.....	do.....	500	4.00	2,100	300	2,400	
Copper sulphide ore.....	do.....	11,003	2.25	2,012	3,015	2,500	
Copper-lead sulphide ore.....	do.....	118,925	145.00	3,823,391	1,096,180	376,600	
Lead sulphide and oxidized ore.....	do.....	43,855	19.75	175,620	12,265	4,796,544	
Lead-zinc sulphide ore.....	do.....	465,185	775.04	1,373,826	516,804	66,866,161	63,093,467
		² 702,645	16,651.42	5,413,872	1,646,439	72,064,635	63,093,467
Lead sulphide ore.....	Gravity and flotation.....	165,636	300.00	781,802	194,000	30,087,200	3,942,000
Lead-zinc sulphide ore.....	do.....	258,801	750.00	942,035	310,561	46,066,573	20,082,957
		424,437	1,050.00	1,723,837	504,561	76,153,778	24,024,957
Siliceous gold ore and old tailings.....	Gravity.....	³ 4,076	1,051.60	8,838	8,055	3,260	
Siliceous gold and silver ore and old tailings.....	do.....	⁴ 262	29.60	850			
Siliceous silver ore and old tailings.....	do.....	⁵ 90	7.60	1,535		2,700	
Lead sulphide ore.....	do.....	16,101	18.00	80,070	12,040	1,314,370	
		² 20,529	1,106.80	91,293	20,095	1,320,330	
		⁶ 1,147,611	18,808.22	7,229,002	2,171,095	149,538,743	87,118,424

Class of ore and old tailings concentrated	Method of concentration	Concentrates produced		Gross content of concentrates				
		Class	Quantity	Gold	Silver	Copper	Lead	Zinc
			<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Siliceous gold ore.....	Flotation.....	Siliceous gold.....	4,134	13,243.36	28,490	13,527	16,187	
Siliceous gold old tailings.....	do.....	do.....	9	47.50	708	64	192	
Siliceous silver ore.....	do.....	Siliceous silver.....	21	3.02	1,613	229	1,024	
Copper sulphide ore.....	do.....	Copper sulphide.....	724	1.65	1,529	2,346	1,045	
Copper-lead sulphide ore.....	do.....	Copper-lead sulphide.....	4,700	116.39	3,694,847	1,021,977	348,698	
Lead sulphide and oxidized ore.....	do.....	Lead sulphide and oxidized.....	3,937	14.46	143,774	9,853	4,162,914	

Lead-zinc sulphide ore.....	do.....	Lead sulphide..... Zinc sulphide.....	40,885	184.41	1,034,320	220,762	57,410,375	-----
			44,716	418.95	180,100	185,452	2,930,108	48,027,661
			² 85,601	603.36	1,214,420	406,214	60,340,483	48,027,661
			98,516	14,029.74	5,085,381	1,454,210	64,872,343	48,027,661
Lead sulphide ore.....	Gravity and flotation.....	Lead sulphide..... Zinc sulphide.....	28,044	222.12	752,523	159,850	29,267,652	-----
			742	6.14	5,134	2,918	112,561	688,795
			28,786	228.26	757,657	162,768	29,380,213	688,795
Lead-zinc sulphide ore.....	do.....	Lead sulphide..... Zinc sulphide..... Iron sulphide.....	40,850	589.00	841,273	220,222	40,394,073	-----
			6,133	68.00	19,681	17,740	525,079	6,045,350
			86	2.00	82	-----	3,332	-----
			47,069	609.00	861,036	237,962	40,922,484	6,045,350
			75,855	837.26	1,618,693	400,730	70,302,697	6,734,145
Siliceous gold ore and old tailings.....	Gravity.....	Siliceous gold.....	⁸ 690	818.89	7,071	6,375	2,568	-----
Siliceous gold and silver ore and old tailings.....	do.....	Siliceous gold and silver.....	⁹ 5	20.51	627	-----	-----	-----
Siliceous silver ore and old tailings.....	do.....	Siliceous silver.....	¹⁰ 20	6.61	1,312	-----	2,094	-----
Lead sulphide ore.....	do.....	Lead sulphide.....	883	14.50	64,232	9,335	1,052,577	-----
			¹¹ 1,598	860.51	73,242	15,710	1,057,239	-----
			¹¹ 175,969	15,727.51	6,777,316	1,870,650	136,232,279	54,761,806

¹ Consists of 1,000 tons of copper-tungsten ore treated by flotation and 3 tons of copper ore treated by gravity concentration.
² 3 tons of copper sulphide ore treated by gravity concentration and yielding 1 ton of copper sulphide concentrates included under flotation.
³ Includes 120 tons of siliceous gold old tailings.
⁴ Includes 260 tons of siliceous gold and silver old tailings.
⁵ Includes 50 tons of siliceous silver old tailings.
⁶ Figures do not include ore and old tailings treated at gold and silver mills.
⁷ Consists of 23 tons of copper concentrates from copper-tungsten ore and 1 ton of copper concentrates from copper ore.
⁸ Includes 24 tons of concentrates from old tailings.
⁹ Includes 3 tons of concentrates from old tailings.
¹⁰ Includes 17 tons of concentrates from old tailings.
¹¹ Figures do not include concentrates from ore and old tailings treated at gold and silver mills.

Mine production of metals from Idaho concentrates in 1934, in terms of recovered metals—Continued

BY CLASSES OF CONCENTRATES

	Concentrates	Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Dry and siliceous.....	6,803	24,266.82	112,253	20,459	23,110	-----
Copper.....	24	1.65	1,529	2,260	1,162	-----
Lead.....	114,604	982.19	2,836,139	458,684	126,738,633	-----
Zinc.....	51,591	493.09	204,915	192,592	3,318,310	49,598,651
Copper-lead.....	4,790	116.39	3,694,847	769,871	334,303	-----

The quantity of ore shipped crude from Idaho mines increased nearly 39 percent in 1934. The following tables give the contents of the crude ore smelted in 1934, by classes and by counties.

Gross metal content of Idaho crude ore shipped to smelters in 1934, by classes of ore

Class of ore	Quantity (dry weight)	Gross metal content			
		Gold	Silver	Copper	Lead
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>
Dry and siliceous.....	3,173	2,467.82	135,011	45,043	46,395
Copper.....	13	4.65	2,782	3,783	285
Lead.....	14,819	134.33	370,136	70,298	12,632,486
Copper-lead.....	2	.02	166	178	486
Total, 1933.....	18,007	2,606.82	508,095	119,302	12,679,652
	12,973	1,448.34	299,319	49,887	11,238,366

Mine production of metals from Idaho crude ore shipped to smelters in 1934, in terms of recovered metals

BY COUNTIES

	Ore	Gold	Silver	Copper	Lead
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>
Ada.....	3	0.24	116	-----	-----
Bear Lake.....	6	.06	11	-----	9,676
Blaine.....	93	8.46	2,962	626	27,780
Boise.....	202	1,244.33	28,209	1,492	8,500
Bonner.....	127	2.46	5,256	277	109,783
Boundary.....	49	-----	942	75	54,000
Butte.....	67	12.96	1,497	1,863	3,712
Camas.....	78	73.04	4,224	325	9,671
Cassia.....	3	1.00	34	75	2,892
Custer.....	184	20.27	17,359	6,515	115,372
Elmore.....	89	102.04	387	175	-----
Gem.....	4	10.30	57	-----	209
Idaho.....	96	193.33	280	136	398
Lemhi.....	783	495.53	4,179	6,768	78,162
Owyhee.....	670	314.26	17,124	600	81
Shoshone.....	14,971	123.59	408,071	57,510	11,731,175
Valley.....	22	-----	325	-----	-----
Washington.....	560	4.95	17,062	10,000	12,649
Total, 1933.....	18,007	2,606.82	508,095	86,437	12,164,060
	12,973	1,448.34	299,319	38,240	10,785,547

BY CLASSES OF ORE

Dry and siliceous.....	3,173	2,467.82	135,011	32,867	41,242
Copper.....	13	4.65	2,782	2,460	272
Lead.....	14,819	134.33	370,136	50,990	12,122,080
Copper-lead.....	2	.02	166	120	466

Miscellaneous material (395 tons) treated in Idaho in 1934, not included in the tables under "Metallurgic Industry", consisted of 193 tons of old tailings, 134 tons of old calcines, and 68 tons of old mill cleanings, all shipped for smelting.

REVIEW BY COUNTIES AND DISTRICTS

Mine production of gold, silver, copper, lead, and zinc in Idaho in 1934, by counties and districts, in terms of recovered metals

County and district	Mines producing		Ore, old tailings, etc.	Gold			Silver			Copper	Lead	Zinc	Total value
	Lode	Placer		Lode	Placer	Total	Lode	Placer	Total				
Ada County:			Short tons	Fine ounces	Fine ounces	Fine ounces	Fine ounces	Fine ounces	Fine ounces	Pounds	Pounds	Pounds	
Black Hornet.....	7		406	35.31		35.31	161		161				\$1,338
Boise.....		6			4.12	4.12							144
Highland (Boise River).....		14			107.61	107.61		28	28				3,779
Snake River.....		2			23.29	23.29							814
Bear Lake County: Sharon.....	1		6	.06		.06	11		11		9,676		367
Benewah County: Tyson Creek.....		4			29.10	29.10		3	3				1,019
Bingham County: Snake River.....		2			9.73	9.73							340
Blaine County:													
Mineral Hill.....	17		679	74.79		74.79	2,181		2,181	675	17,595		4,729
Vienna.....	1		4	5.35		5.35	447		447		567		497
Warm Springs.....	4		32	1.12		1.12	1,431		1,431	300	15,027		1,544
Boise County:													
Banner.....	1	5	3	5.52	10.27	15.79	3	3	6				556
Boise Basin.....	24	106	13,761	4,197.71	4,934.42	9,132.13	37,125	1,035	38,160	5,900	9,865		344,674
Garden Valley.....		2			19.83	19.83		3	3				695
Highland (Boise River).....		12			36.45	36.45		11	11				1,281
Miller Creek.....		2			3.66	3.66		3	3				130
Payette River.....		2			4.98	4.98							174
Shaw Mountain.....	5		62	14.68		14.68	8		8				518
South Fork of Payette River.....		16			52.02	52.02		14	14				1,827
Summit Plat.....	3		98	61.40		61.40	365		365	650			2,434
Twin Springs.....		4			8.67	8.67		6	6				307
West View.....	3		29	15.48		15.48	167		167				649
Bonner County:													
Lakeview.....	2		507	3.72		3.72	1,813		1,813	225	2,540		1,414
Pend d'Oreille.....	6		6,729	2.26		2.26	26,122		26,122	537	635,946		40,539
Bonneville County: Mt. Pisgah.....	1	8	13	2.23	49.67	51.90							1,814
Boundary County: Porthill.....	1		49				942		942	75	54,000		2,613
Butte County:													
Hamilton.....	1		1	.03		.03	20		20		189		21
Lava Creek.....	4		116	13.33		13.33	1,779		1,779	1,863	4,973		1,949
Camas County:													
Little Smoky.....	3	3	74	13.39	52.42	65.81	4,285	31	4,316	325	10,757	1,023	5,558
Rosetta.....		2			2.86	2.86							100
Skeleton Creek.....	2		883	315.71		315.71	167		167	25	946		11,179
Soldier Mountain.....	1		12	2.23		2.23	6		6				82
Canyon County: Boise River.....		3			3.32	3.32							116

Cassia County:																						
Snake River		1			3.12	3.12																109
Stokes	1		3	1.00		1.00		34			34		75									170
Clearwater County:																						
Burnt Creek		12			212.56	212.56				48	48											7,460
Clearwater River		12			20.20	20.20				3	3											708
Moose Creek	1	8	1	1.00	34.22	35.22					3											1,233
North Fork of Clearwater River		9			26.44	26.44					3											926
Pierce	4	68	269	22.89	1,150.07	1,172.96			37	291	328											41,207
Custer County:																						
Bay Horse	6	1	16,238	15.42	1.29	16.71		79,825			79,825		13,650									94,288
East Fork	1	1	183	13.85		13.85		6			6											488
Loon Creek	1	1			2.20	2.20																77
Salmon River	1	1			1.17	1.17																41
Seafoam	3		25	4.78		4.78		427			427											732
Stanley Basin	2	12	27	33.16	96.14	129.30		34	34		68											4,608
Yankee Fork	6	9	766	87.87	57.54	145.41		2,308	17		2,325		325									6,622
Elmore County:																						
Bear Creek	13	5	316	95.08	10.44	105.52		48	3		51											3,721
Black Warrior	1	1	12	3.26	3.09	6.35		3			3											224
Boise River		14			71.39	71.39			28		28											2,513
Middle Boise	5	14	69,159	28,261.43	52.42	28,313.85		78,538	17		78,555		5,800									1,040,816
Neal	3	2	52	3.12	3.29	6.41		3			3											226
Fine Grove	4	5	71	85.38	8.07	93.45		376			376		175									3,523
Snake River	4	10			44.89	44.89			3		3											1,571
Gem County:																						
Payette River		3			3.66	3.66																128
West View	5	9	102	64.98	22.32	87.30		99	3		102		730									3,144
Gooding County: Snake River		17			41.06	41.06					11											1,442
Idaho County:																						
Blacktail		2			25.52	25.52					3											894
Camp Howard		101			247.44	247.44					45											8,677
Clearwater River		6			11.19	11.19					3											393
Dewey	1		90	25.15		25.15		28			28											897
Dixie	8	12	122	41.89	47.15	89.04		54	11		65		38									3,165
Elk City	4	27	56	97.77	815.42	913.19		34	158		192											32,040
Florence	5	9	157	43.55	17.94	61.49		20	6		26											2,166
Lower Salmon River		56			286.64	286.64					51											10,051
Maggie and Pete King Creeks		6			13.82	13.82					3											485
Marshall Lake	7		2,202	785.12		785.12		2,212			2,212		112									28,882
Newsome	2	4	836	108.87	9.96	118.83		31	3		34											4,175
Orogrande	8	4	10,062	2,469.70	19.54	2,489.24		690	3		693		63									87,464
Pardee	1				2.12	2.12																74
Ramey Ridge	1	1	350	223.49	1.43	224.92		51			51											7,894
Robbins	4		6,055	739.77		739.77		2,970			2,970		1,025									27,958
Salmon River		11			29.27	29.27					11											1,030
Selway	1		1	2.23		2.23					3											80
Simpson	1	61	14	42.66	290.04	332.70		3			51											11,663
South Fork of Clearwater River		4			10.76	10.76					3											378
Ten Mile	6	16	7,487	2,185.78	154.22	2,340.00		1,089	28		1,117		12									82,513
Warren	4	16	63	52.79	15,433.82	15,486.61		144	5,465		5,609											544,883
White Mike Creek		1			1.23	1.23																43

GOLD, SILVER, COPPER, LEAD, AND ZINC IN IDAHO

Mine production of gold, silver, copper, lead, and zinc in Idaho in 1934, by counties and districts, in terms of recovered metals—Continued

County and district	Mines producing		Ore, old tailings, etc.	Gold			Silver			Copper	Lead	Zinc	Total value
	Lode	Placer		Lode	Placer	Total	Lode	Placer	Total				
			Short tons	Fine ounces	Fine ounces	Fine ounces	Fine ounces	Fine ounces	Fine ounces	Pounds	Pounds	Pounds	
Jefferson County: Snake River.....		1			3.98	3.98							\$139
Jerome County: Snake River.....		18			73.42	73.42			3	3			2,568
Latah County:													
Gold Creek.....		4			29.64	29.64							1,036
Gold Hill.....		1			1.80	1.80							63
Hoodoo.....		11			16.08	16.08							562
Moscow Mountain.....		9			38.83	38.83			11	11			1,364
Lemhi County:													
Blackbird.....	1		94	73.16		73.16	68		68				2,601
Blue Wing.....	1		1,000	.20		.20	1,519		1,519	2,175	1,162		1,206
Bohannon Creek.....		1			3.03	3.03							106
Boyle Creek.....	1		2	2.49		2.49	113		113	50	1,081		204
Eldorado.....	1		14	10.13		10.13	14		14	400			395
Eureka.....		9			86.98	86.98		11	11				3,047
Gibbonsville.....	10	9	584	439.57	52.42	491.99	447	3	450	3,500	4,162		17,920
Indian Creek.....		2	549	48.44		48.44	34		34	50			1,719
Junction.....		2	36	.40		.40	461		461	100	11,730		754
Kirtley Creek.....		5			110.67	110.67		11	11				3,875
McDevitt.....	1		16	2.72		2.72	277		277	450			310
Mackinaw.....	4	73	902	365.18	285.81	650.99	1,997	28	2,025	2,650	38,595		25,701
Middle Fork of Salmon River.....		2			12.36	12.36		3	3				434
Mineral Hill.....	1	2	4,569	837.31	3.55	840.86	744		744	425	5,406		30,103
Parker Mountain.....	1		7	5.55		5.55	51		51				227
Pratt Creek.....	1		11	7.24		7.24	14		14	25	486		282
Salmon River.....		42			125.55	125.55		20	20				4,401
Spring Mountain.....	1		1				34		34		351		35
Texas.....	3		109	39.37		39.37	854		854	300	21,757		2,757
Yellow Jacket.....	3	3	9	15.71	13.25	28.96	6	3	9	250			1,038
Lewis County:													
Clearwater River.....		1			1.63	1.63							57
Salmon River.....		1			2.23	2.23							78
Minidoka County: Snake River.....		7			95.28	95.28		3	3				3,332
Nez Perce County:													
Clearwater River.....		3			5.92	5.92							207
Deer Creek.....	1		7	7.81		7.81	48		48	525			346
Snake River.....		8			17.80	17.80							615

Owyhee County:																			
Carson	26	6	12,270	1,068.44	158.14	1,226.58	12,358	738	13,096			162							51,341
Castle Creek	3		31	9.10		9.10	4,155		4,155			81							3,007
Flint	1		30	5.55		5.55	894		894										772
Rough Mountain	1		2				68		68										44
Snake River		19			166.44	166.44		6											5,821
Steele	2		548	245.58		245.58	9,849		9,849		600								14,998
Payette County:																			
Payette River		3			2.20	2.20													77
Snake River		1			1.06	1.06													37
Power County: Snake River		19			167.64	167.64		11	11										5,866
Shoshone County:																			
Beaver	1	8	18	37.31	83.52	120.83	31	14	45										4,252
Coeur d'Alene	1	22	7,442	1,060.00	385.01	1,445.01	365	62	427		25	1,081							50,821
Eagle		1			4.12	4.12													144
Evolution	1		108,605	108.04		108.04	3,456,568		3,456,568	700,000	258,000								2,303,871
Hunter	4		313,830	304.12		304.12	956,784		956,784	177,175	42,799,027	28,333,000							3,445,213
Lelande	5		211,245	336.91		336.91	1,101,075		1,101,075	196,275	40,515,892	4,358,279							2,425,777
Placer Center	1		32				775		775	60	29,135								1,853
St. Joe		2			22.66	22.66													792
Summit	5	78	2,980	363.92	345.38	709.30	611	136	747	1,475	106,838								29,344
Yreka	6	2	426,957	904.32	10.04	914.36	1,546,219		1,546,219	397,275	56,952,838	16,906,349							3,897,543
Twin Falls County: Snake River		38			169.24	169.24		6	6										5,919
Valley County:																			
Big Creek		2			42.52	42.52		11	11										1,493
Deadwood Basin	2	1	137	22.03	3.26	25.29		14	14										893
Hurdy Creek		1			2.06	2.06													72
Lake City		3			18.51	18.51		3	3										649
Middle Fork of Salmon River		1			4.38	4.38													153
Payette River		5			8.10	8.10													283
Seafoam		1			1.83	1.83													64
South Fork of Salmon River		2			5.12	5.12													179
Thunder Mountain	1	1	2,430	467.61	27.27	494.88	297		297										17,488
Yellow Pine	2		54,022	10,491.36		10,491.36	25,709		25,709	6,000	1,162								383,816
Washington County:																			
Snake River		1			12.33	12.33													431
Washington	1		560	4.95		4.95	17,062		17,062	10,000	12,649								12,471
Total Idaho, 1934	291	1,172	1,287,182	57,560.83	27,256.37	84,817.20	7,385,615	8,528	7,394,143	1,531,625	142,648,216	49,598,651							15,277,669
1933	188	334	1,190,851	41,302.33	23,289.90	64,592.23	6,980,717	7,243	6,987,960	1,562,234	148,726,701	41,935,977							11,460,945

¹ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

In the following review by counties and mining districts only the more important operations are mentioned. Many small producing mines and several entire districts whose output is included in the foregoing table have been omitted from this review. Details on the operation of the various mines of Idaho, with notes and references for the year, will be found in the 1934 report of the State Inspector of Mines, Boise, Idaho.

ADA COUNTY

Black Hornet district.—During October 1934 a 25-ton stamp mill was run on ore from the Montana mine of the Shirley Gold Mining Corporation 12 miles east of Boise; a little gold bullion was marketed, but the concentrates were stored. A test lot of silver ore was shipped in 1934 from the Gold Leaf claim, and gold ore from the Desert View and Sorrel Horse properties was amalgamated.

Boise district.—Small lots of placer gold were marketed in 1934 from the Boise, Cut Bank, and other claims on Picket Pin Creek.

Highland (Boise River) district.—Most of the gold output (all placer) of the Highland district in 1934 was recovered from the Pinto, Pinto No. 1, and Triangle group, 16 miles east of Boise. The Pick & Shovel and Gooseneck claims near by were also productive.

Snake River district.—Exceptionally fine placer gold was recovered in 1934 from the Rogers and other claims on the north bank of Snake River near Grand View.

BEAR LAKE COUNTY

Sharon district.—A small lot of lead ore from the Leona claim was shipped to Midvale, Utah, in 1934 for smelting.

BENEWAH COUNTY

Tyson Creek district.—Most of the output (all placer) from the Tyson Creek district in 1934 came from the Tysons, Cedar Creek, and Camas Cove placers near Santa and Fernwood.

BINGHAM COUNTY

Snake River district.—A little placer gold was recovered in 1934 from two properties on the Snake River near Moreland.

BLAINE COUNTY

Mineral Hill district.—The Croesus group near Hailey was operated under lease in 1934 and produced gold concentrates from ore and old tailings. One lot of gold concentrates also was marketed from the Camas No. 2 group of the Daisy Mining & Milling Co. The remaining output of the Mineral Hill district comprised small lots of gold ore, silver ore, and lead ore, chiefly from the Black Barb, Golden Bell, and Lucky Boy properties.

Vienna district.—A small lot of mill clean-up was shipped in 1934 from the Vienna property north of Ketchum.

Warm Springs district.—The Independence property of the Federal Mining & Smelting Co. was idle in 1934, but a small lot of silver-lead ore was shipped by a lessee. The Hailey Bonanza produced 1 car of lead ore of good grade.

BOISE COUNTY

Banner district.—The output of the Banner district in 1934 consisted of small lots of placer gold, chiefly from the Fighting Chance and Crows Nest claims, and a small lot of gold ore from the Segó Lilly mine, which was amalgamated.

Boise Basin district (Centerville, Placerville, Idaho City, Pioneer-ville).—The output of gold from lode mines in the Boise Basin district in 1934 was nearly three times that in 1933 and the output from placers more than three times.

The output from lode mines was siliceous gold ore, old tailings, and mill clean-up, chiefly from the Gold Hill, Belshazzar, Come-Back, Twin Sister, and Mountain Chief mines; among the other productive lode properties were the Hay Fork, K. C. Group, Native Missourian, and Mammoth mines. The Gold Hill mine was worked the first 9 months of the year by Talache Mines, Inc., and the last 3 months by the Harris Mining Corporation under lease; the output of gold bullion, worth about \$48,000, was recovered in a 25-ton amalgamation mill which was enlarged to 100 tons capacity late in the year. Rich gold concentrates were shipped from the Belshazzar mine of the Idawa Gold Mining Co., and unusually rich gold ore containing considerable silver was shipped from the Come-Back property. Bullion and a little crude ore valued at about \$13,000 were recovered at the Twin Sister property owned by the Mineral Mining Co. Lessees operated the Mountain Chief mine of the National Mining & Development Co. and produced gold bullion and concentrates valued at about \$18,000.

Of the \$319,168 in gold from Boise Basin in 1934, \$172,458 was recovered from 106 placers. By far the most important operation was that of McFarland & Whitman, who worked a dragline and washing plant on the Wharton claims and recovered gold valued at nearly \$105,000. The Gold Hill placers were next in order of output, followed by the Garden Gulch, Golden Age, R. N. Bell claim, and Leary & Brogan group.

Garden Valley district.—A little placer gold was recovered in 1934 from claims on Wash and Horn Creeks.

Highland (Boise River) district.—The output of the Highland district in 1934 was placer gold from the Highland group and claims near the Arrow Rock dam.

Shaw Mountain district.—Small lots of gold were recovered in 1934 from gold ore treated by amalgamation, chiefly from the Honey Bee, McCarty, and Skyline claims.

South Fork of Payette River district.—The district output was placer gold from claims along the South Fork of Payette River, chiefly the Gold Nugget placer near Grimes Pass.

Summit Flat district.—The Argonaut Gold Mines Co. marketed 1 car of gold ore of smelting grade in 1934, and the Rock Creek group produced gold ore treated by amalgamation.

West View district.—The output of the West View district was unusually small in 1934; it was chiefly gold ore with some silver from the Osborne mine near Horse Shoe Bend.

BONNER COUNTY

Lakeview district.—One car of rich silver concentrates was shipped in 1934 from the Weber mine near Lakeview where ore was treated in a 15-ton flotation mill. A small lot of first-class ore was shipped by Minerva Silver, Inc.

Pend d'Oreille district.—The only important production in the Pend d'Oreille district in 1934 was silver-lead ore from the Elsie K. mine of the Hope Mining Co., which shipped concentrates to Montana for smelting. Rich lead ore was marketed from the Lawrence mine, and clean-up material was shipped from the Whitedelf property which was idle in 1934.

BONNEVILLE COUNTY

Mt. Pisgah district.—Aside from a small lot of gold ore amalgamated from the Paymaster group, the output of the Mt. Pisgah district in 1934 was placer gold recovered chiefly at the Idaho Consolidated, McCoy Creek, and Lucky Strike claims near Gray.

BOUNDARY COUNTY

Porthill district.—One car of rich lead ore of smelting grade was shipped in 1934 from the Idaho Continental property by lessees.

BUTTE COUNTY

The output of Butte County in 1934 consisted of a test lot of lead ore from the Red Rock group in the Hamilton district and shipments (1 car or less each) from the Hornsilver, Silver Bell, Martin, and Ella properties in the Lava Creek district.

CAMAS COUNTY

Little Smoky district.—One car of gold ore from the Five Points mine was shipped in 1934, 2 cars of mixed ore from the Isabella property were smelted, and a test lot of lead-zinc ore from the Lost Cabin property was shipped to a custom plant. The placer output, partly from the Axolotl property, was chiefly gold recovered by the Little Smoky Dredging Co. by dredging on Little Smoky River. The dredge formerly was operated in the Steele district, Owyhee County.

Skeleton Creek district.—The chief output of the Skeleton Creek district in 1934 was gold recovered by amalgamation and concentration at the El Oro property; a small lot of rich gold ore was shipped from the Red Horse claim.

CANYON COUNTY

Boise River district.—Placer gold was recovered in 1934 from stream gravel near Caldwell.

CASSIA COUNTY

A test lot of lead ore was shipped in 1934 from the Flagstaff property in the Stokes district, and a little placer gold was recovered from the banks of Snake River.

CLEARWATER COUNTY

Burnt Creek district.—The output of the Burnt Creek district in 1934 was placer gold, most of which was recovered from the McGann placer on Swamp Creek.

Moose Creek district.—Production in the Moose Creek district in 1934 was virtually all placer gold, chiefly from the Independence, Lilly, Dodo Amended, and Pioneer claims.

North Fork of Clearwater River district.—Placer gold in small lots was marketed in 1934 from the banks of the North Fork near Orofino.

Pierce district.—The value of the metal output from lode mines and placers in the Pierce district increased to \$41,207 in 1934. The largest production was placer gold recovered on Rhodes Creek by Gold Dredging, Inc., which operated a floating dredge near Pierce. The Hay Creek placers made a fair output by dragline and sluices. Mills were operated for short periods on ore from the Ozark, Idaho Queen, and Democrat mines.

CUSTER COUNTY

Bay Horse district.—The Camp Bird group of the Clayton Mining Co., an important producer in 1934, operated a 75-ton gravity-concentration plant erected during the year. The new mill was run 9 months; the concentrates produced, containing considerable silver and lead, were shipped to Utah for smelting. The property of the Ramshorn Mines Co., a large producer in the past, was operated in 1934 by lessees who shipped 144 tons of copper ore and lead ore. The remainder of the Bay Horse district output comprised test lots of smelting ore, chiefly lead ore, and a little placer gold.

East Fork district.—Nearly 200 tons of gold ore from the Dewey claim were concentrated by the Washington Basin Mining & Milling Co., which shipped a rich gold concentrate in 1934 to Salt Lake City, Utah, for smelting.

Seafoam district.—The Reliance mine was the only property in the Seafoam district with a production of note in 1934; its output consisted of 1 car of oxidized lead ore containing gold and silver.

Stanley Basin district.—Gold bullion, gold concentrates, and a test lot of gold ore were shipped from the Mountain Girl group in 1934; a small lot of high-grade gold ore was shipped from the Homestake property near Stanley. Although numerous placers near Stanley were productive the only important ones were the Golden Rule & Hot Stuff group in Joe's Gulch and the Mormon Bar claim near Stanley.

Yankee Fork district.—The lode output of the Yankee Fork district in 1934 consisted of small lots, chiefly gold ore, that were either treated locally or shipped to Utah for smelting. The Snowdrift property shipped both crude ore and concentrates, as did the Custer Slide mine. Old tailings from the Sunbeam property, an old producer of gold, were treated in a small flotation plant. A little gold was recovered from a small lot of gold ore from the Valley Creek mine. Other ore containing gold and silver was treated at a local custom plant. At the Rough Creek placer property 22 miles west of Clayton two hydraulic giants were operated and produced gold valued at \$1,526 from nearly 8,500 cubic yards of gravel.

ELMORE COUNTY

Bear Creek district.—A new 50-ton flotation plant was built at the Morning Star property by Canada Gold Mines, Inc., and nearly 200 tons of ore were concentrated in 1934; a little ore also was treated in the old amalgamation plant before the new mill was finished. Small lots of gold ore from the Pick & Shovel, Best Bet, Mountain Home & Overland, and Commonwealth properties were treated by amalgamation in 1934; a little ore from the Chieftain mine was concentrated; and small lots of smelting ore from the Chieftain and other properties were shipped. The placer output of the Bear Creek district consisted of small lots from the banks of Feather River.

Black Warrior district.—A test lot of gold ore from the Lone Cabin property was treated in 1934 by amalgamation, and a little placer gold was recovered at the Horseshoe claim.

Boise River district.—Most of the production (all placer) from the Boise River district in 1934 came from the Sunflower, Little Fiddler, and Bonanza claims on the Boise River east of Boise.

Middle Boise district.—The outstanding operation in the Middle Boise district in 1934 was that of the St. Joseph Lead Co. at the Boise-Rochester group at Atlanta. The 200-ton mill was operated continuously, and the company treated nearly 70,000 tons of gold ore by amalgamation and flotation; the amalgamation bullion was shipped east for refining, and the concentrates were shipped to Utah for smelting. The company increased its gold output more than 65 percent in 1934 and was again the largest gold producer in Idaho. A small lot of gold ore from the Vrenon group near Atlanta was shipped for smelting, and gold ore from the Good Luck mine and two prospects was amalgamated. Placer bullion was marketed from the Felix, Calumet & Rex, Buck Creek, and other placers along the Middle Fork of Boise River.

Pine Grove district.—Gold ore of smelting grade was shipped in 1934 from the Jingo & Hornet and Stiles properties near Hill City, and test lots of gold ore were shipped from the Objective and Mountain View claims. Small lots of placer gold were recovered from various claims near Pine.

Snake River district.—Most of the output in 1934 from placer properties on the Snake River near King Hill and Hammett came from the Gold Dollar claim, where 2,000 cubic yards of gravel were treated.

GEM COUNTY

West View district (Emmett, Eagle).—Gold ore from the Iron Dollar property of the McKenney Gold Mining Co. at Pearl was treated in a small amalgamation mill in 1934, and a test lot was shipped for smelting. Bullion was also recovered by the amalgamation of gold ore from the Black Rock group, an extension of the Iron Dollar property. Most of the placer output of the West View district came from the Last Chance and Blue Bell properties near Emmett.

GOODING COUNTY

Snake River district.—Placer bullion was reported recovered in 1934 from several claims on Snake River near Hagerman and Jerome.

IDAHO COUNTY

Blacktail district.—Nearly all the output of the Blacktail district in 1934 came from the Old Channel placers on the South Fork of Clearwater River east of Grangeville, which were worked 3 months by sluicing.

Camp Howard (Salmon River) district (White Bird).—Considerable work was done in 1934 on placer claims on the Salmon River in the vicinity of White Bird. Placer gold recovered by many small operators was sold to bullion buyers at White Bird and Cottonwood.

Dewey (Harpster) district (Grangeville).—A little gold ore from the Dewey mine near Grangeville was treated by cyanidation in 1934.

Dixie district.—The placer output of the Dixie district in 1934, valued at about \$1,600, came from small operations on the Salmon River near Sand Creek or Dixie. Productive lode mines worthy of note were the Sixty-Four, Slip Easy, American No. 3, North Star, and Sheridan claims from which gold ore was either shipped crude or treated.

Elk City district.—The lode production of the Elk City district in 1934 consisted of gold ore treated by amalgamation, chiefly from the Stickner Quartz and George Trout properties, and a little ore from the Telluride mine shipped for smelting. The production of placer gold in the district was eight times that from lodes. At the Deadwood placer, the largest producer, 258 ounces of gold were recovered by a dry-land dredge from the treatment of 80,000 cubic yards of gravel. Fair production was reported by sluicing at the Tri-Delt, Little Million, Columbus, and Gold Hill & American Hill properties.

Florence district.—Nearly all the output from lode mines in the Florence district in 1934 was gold ore from the Waverly, Golden Dyke, Liberty, and Rising Sun properties, treated by amalgamation. Placer production came from the Miller Creek, Happy Dream, and other claims near the old town of Florence.

Lower Salmon River district.—Considerable placer gold was recovered in 1934 from the section of the Salmon River near Boles. Part of the output came from the Frank Hatke claim, operated nearly 6 months, but most of it came from numerous small operations along the Salmon River.

Maggie and Pete King Creeks (Selway) district.—Placer bullion was recovered from claims on Maggie and Pete King Creeks near Kooskia in 1934.

Marshall Lake district (Burgdorf).—About 2,000 tons of gold ore from the Walker-Wilcox group were treated in 1934 by the Sherman Howe Mining Co., Inc., in a 150-ton mill equipped for amalgamation and flotation; the gold bullion went to Denver, Colo., and the concentrates to Midvale, Utah. Gold ore from the Holte group of the Golden Anchor Mining Co. also was treated at the Sherman Howe mill. Gold ore from the Cuban, Leadville, War Eagle, and Blue Bucket claims was treated by amalgamation, and a little ore from the War Eagle was shipped for smelting.

Newsome district.—Low-grade gold ore was treated by amalgamation in 1934 in a 15-ton mill at the Imogene property and rich gold ore in a small plant at the Red Monarch mine. Small lots of placer bullion were recovered from Hay Fork and Newsome Creeks near Stites.

Orogrande district.—The lode production of the Orogrande district in 1934 was important, and almost all of it came from the Gnome mine of the Gnome Gold Mining Co., which treated 4,420 tons of gold ore in a cyanidation plant. The quantity of ore produced by this company was nearly as large as in 1933 but the gold recovered was much less, and the property was closed in September. More than 5,600 tons of low-grade gold ore were treated by cyanidation by the Orogrande-Frisco Gold Mines, Inc.; the ore was extracted by steam shovel from opencuts. The remainder of the district lode output included small lots of gold ore treated at the Ophir and Union claims and small lots of ore shipped crude from the Diamond Hitch and Portland properties. Slight placer production was made from the Baker Gulch property and other claims south of Orogrande.

Ramey Ridge district.—The Golden Hand, Inc., produced gold in 1934 valued at about \$7,800 from ore amalgamated. The output was comparatively small, as the mill was idle during construction work to increase its capacity and most of the work in the mine was development.

Robbins district.—The most interesting and productive work in the Robbins district in 1934 was done at the War Eagle group of the Central Idaho Mining & Milling Co. Nearly 3,200 tons of gold ore were treated in a 50-ton flotation plant, and rich iron concentrates containing gold, silver, copper, and lead were shipped for smelting. Old tailings were treated by cyanidation at the Jumbo and Big Buffalo dumps. Bullion was recovered by amalgamation and one lot of concentrates was made by table concentration at the Venture mine.

Salmon River district.—The output of the Salmon River district near Riggins in 1934 was chiefly gold from the Hattier Bar placer.

Simpson (Salmon River) district (Lucile).—One car of rich gold ore was shipped from the McKinley mine near Lucile in 1934. The output from placers in the Salmon River district increased nearly 75 percent; the Spring Bar and Slate Creek properties each produced about 40 fine ounces of gold, and the Katie B, Betty Jean, Squaw Bar, and various small operations yielded the remainder.

Ten Mile district (Golden).—The Lone Pine mine near Golden was again in 1934 by far the most important producing mine in the Ten Mile district. Profitable operations were conducted at this property throughout the year, and 5,864 tons of gold ore were treated in a 40-ton amalgamation plant; the ore contains free gold associated with a small quantity of galena, pyrite, sphalerite, and arsenopyrite. Three small lots of rich gold ore, averaging 3 to 6 ounces of gold to the ton, were shipped from the Center Star mine; some gold ore from the New York property was amalgamated; 182 tons of gold ore were treated by amalgamation at the Mackey mine; 1,000 tons were treated similarly at the Shamrock property; and a small flotation plant intermittently tested ore from the Gilt Edge mine. Most of the placer output of the district came from the Key placers on Fall Creek and the Moose Creek property east of Golden.

Warren district.—Nearly all the placer production of the Warren district in 1934 came from dredge operations; it was slightly less than that in 1933. The Idaho Gold Dredging Co. operated two floating dredges on the Warren Meadows group throughout the year and held first place in placer production in Idaho. The Warren Creek Dredge-

ing Co. treated 1,142,472 cubic yards of gravel from Warren Creek in a floating dredge equipped with 72 buckets; the company produced 7,209 fine ounces of gold and held second place in placer production in the State. Most of the remainder of the district placer output came from the Bench, Golden Rule, Shissler Creek, Laughing Water, and Buck Diggings properties. The output from lode mines consisted of gold ore from the Onstott, Linten, and Verna properties treated by amalgamation, and a little mill clean-up material from the old mill of the Unity Gold Production Co. shipped for smelting.

JEFFERSON AND JEROME COUNTIES

Placer gold was marketed in 1934 from the banks of Snake River in both Jefferson and Jerome Counties; most of it came from the Ray, Yellow Metal, Rainbow, and Rocky Point claims in Jerome County.

LATAH COUNTY

Gold Creek district.—Placer gold was recovered from various claims near Princeton in 1934, chiefly from the Lead To placer on Gold Creek.

Hoodoo district.—Placer bullion in small lots was marketed in 1934 from claims on the North Fork of Palouse River near Harvard.

Moscow Mountain district.—Most of the output of the Moscow Mountain district in 1934 came from the Bowers and Howard Creek placers near Moscow.

LEMHI COUNTY

Blackbird district.—The Musgrove group northwest of Forney shipped 2 cars of gold ore in 1934 to Utah for smelting.

Blue Wing district.—The Ima mine 15 miles northeast of May produced silver-copper-tungsten ore which was treated in a 100-ton flotation plant that separates tungsten concentrates in the form of huebnerite from silver-copper concentrates shipped to Utah for smelting.

Eldorado district (Salmon).—One car of gold ore from the Ranger group was shipped to Utah in January 1934 for smelting.

Eureka district.—Of the nine properties producing placer gold in the Eureka district in 1934, the Gilkey was the only one credited with a production as large as 25 fine ounces. Gold in lots ranging from 5 to 10 ounces was shipped from the McNutt, Specie Payment, Aurora, and Greenhorn claims.

Gibbonsville district.—The largest lode producer in the Gibbonsville district in 1934 was the Rescue property at Gibbonsville, from which crude gold ore and old tailings were shipped for smelting, chiefly to Utah. More than 120 tons of gold ore were shipped from the Lamoreaux property, but the International Consolidated Gold Mining Co. relinquished the lease after operating the mine most of the year. Aside from small lots, almost all the remainder of the district lode output was ore from the Big Four group of the Premier Gold Mines, Ltd., of which some was smelted and some was treated by amalgamation; more than 50 tons of gold ore were treated in the company's 10-stamp mill equipped with tables. Most of the district placer production came from the Gambler, Sundown, High Land, Kieth, and Gold Pin claims near Gibbonsville.

Indian Creek district.—A small production of gold was made in 1934 at the old Kittie Burton property by the Indian Creek Mining Co., Inc., which shipped 1 car of old tailings for smelting and treated 400 tons of old tailings by cyanidation. Gold ore from the Shaughnessy, Ulysses, and Kittie Burton group was treated by amalgamation.

Junction district.—Aside from a small lot of silver ore from the Dig More claim, the output of the Junction district in 1934 was silver-lead ore from the Jordan mine near Leadore.

Kirtley Creek district.—The output of the Kirtley Creek district in 1934 was placer bullion, most of it recovered from the Howard claim northeast of Salmon.

McDevitt district.—One small car of smelting ore containing gold, silver, and copper was shipped in 1934 from the Inspiration group near Tendoy.

Mackinaw district.—Production in the Mackinaw district, especially gold, increased decidedly in 1934. The Shoo Fly group was operated intermittently and yielded bullion from nearly 800 tons of ore treated by amalgamation. Several cars of mixed ore containing chiefly gold and silver were shipped from the Ringbone Cayuse, and a small lot of gold ore was shipped from the Italian property. The placer output came from many small operations near Leesburg, including the Hockensmith & K. G. W., Big Jureano, Richardson, and Arnett Creek placers.

Mineral Hill district.—Aside from small lots of placer gold from North Boulder Creek and claims near Shoup, the output of the Mineral Hill district in 1934 was gold ore from the Grunter group of the American Consolidated Mining & Milling Co. More than 500 feet of development were done in the mine, and the flotation mill was run from April 1 to December 31; iron concentrates containing chiefly gold were shipped to smelters in Utah and Montana.

Parker Mountain district.—The Pinch Hit group of the Twin Peaks Gold Mining Co. 86 miles northwest of Mackay was worked part of July and August 1934 and produced a small lot of gold ore.

Salmon River district.—Placer dust and bullion valued at \$4,401 were recovered in 1934 by various operators along the Salmon River west of Salmon.

Texas district.—The output of ore in the Texas district at Gilmore was small in 1934 but increased over 1933. Several cars of gold ore were shipped from the Martha mine by lessees. The Latest Out mine, formerly a large producer of silver and lead, yielded 1 car of lead ore; a small lot of similar material came from the Tidal Wave property.

Yellow Jacket district.—Most of the placer output of the Yellow Jacket district in 1934 came from the High Bar and Yellow Jacket claims near Forney. Small lots of rich gold ore were shipped from the Tin Cup Lode and the Steen group. The Yellow Jacket lode mine, a famous producer of gold in the past, was idle.

LEWIS AND MINIDOKA COUNTIES

The output in both counties in 1934 was placer bullion; it came from the Clearwater River and Salmon River districts in Lewis County and from claims on the Snake River in Minidoka County. The largest production came from gravel mined at the Depression placer near Rupert in Minidoka County.

NEZ PERCE COUNTY

Deer Creek district.—A small lot of concentrates (from copper ore milled) and clean-up material containing gold were shipped from the Deer Creek mine near Forest in 1934.

Snake River district.—The output of the Snake River district in 1934 was placer gold from the bars of Snake River.

OWYHEE COUNTY

Carson district (Silver City).—The ore output of the Carson district increased from 428 tons in 1933 to 12,270 tons in 1934, and the value of the recovered metals increased to more than \$51,000. The Golden Chariot group of the Golden Chariot-War Eagle Mines Co. was the chief producer in the district in 1934; the property is equipped with a milling plant using amalgamation and flotation, from which the gold bullion went to Denver, Colo., and Seattle, Wash., for refining and the concentrates containing considerable silver to Utah. Other lode mines producing ore that was either treated locally or shipped for smelting included the Brownie, Gold Bug, Hazzard, Crown Point, Pauper, Village Blacksmith, Alpine, Empire State, Ida Bell, Shannon, Sunnyside, Morning Glory, Ohio, Ontario, Bergh, and Black Jack properties. Part of the placer output came from unlocated ground on Jordan Creek and from the Myrtle placer near by, but most of it came from the Wilson claim near De Lamar. The bullion from the Wilson placer is unusual in that it contains nearly six times as much silver as gold.

Castle Creek district.—Test lots of ore were shipped in 1934 from the Badger and Blue Bird mines near Oreana, and one car of silver ore was shipped from the Little Amie group on Castle Creek.

Flint district.—A small lot of ore from the Flint mine was treated in 1934 by concentration, but the mill was run only a few days on account of water shortage.

Snake River district.—Most of the output from the Snake River district in 1934 came from the Comet placer near Melba, the Valley Pride placer near Grand View, the Foster Bar 80 miles southwest of Boise, and the Dollar claim near Hammett.

Steele district.—The output of the Steele district in 1934, aside from a test lot of silver ore from the Silver Dollar claim, came from the Demming mine of the Rowland Mining Co. Nearly 550 tons of ore containing gold and silver, mined at this property, were shipped from Murphy to a smelter in Utah.

PAYETTE AND POWER COUNTIES

A little gold was marketed from placers on the Payette and Snake Rivers in Payette County in 1934. Most of the output from bars along Snake River in Power County came from the Big Bend, Depression, Bonanza, Eagle Rock, and Fly claims near American Falls.

SHOSHONE COUNTY

COEUR D'ALENE REGION

Mine production of gold, silver, copper, lead, and zinc in the Coeur d'Alene region, Shoshone County, Idaho, 1933-34, and total, 1884-1934, in terms of recovered metals

Year	Lode mines	Placers	Ore, old tailings, etc.	Gold	Silver	Copper	Lead	Zinc	Total value
			Short tons	Fine ounces	Fine ounces	Pounds	Pounds	Pounds	
1933-----	24	17	1,052,889	¹ 1,584.33	² 6,762,537	1,544,343	147,851,459	41,916,167	³ \$9,737,204
1934-----	24	113	1,071,059	² 3,965.35	² 7,062,640	1,472,275	140,662,811	49,597,628	12,159,340
Total, 1884-1934-----	-----	-----	(⁴)	353,283.93	282,650,229	86,823,548	⁵ 4,522,449	965,146,814	760,102,127

¹ Includes old tailings as follows: 1933, 120 tons cyanided; 1934, 35 tons cyanided.

² Includes placer production as follows: 1933, 586.84 ounces of gold and 77 ounces of silver; 1934, 850.73 ounces of gold and 212 ounces of silver.

³ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

⁴ Figures not available.

⁵ Short tons.

Beaver district.—The output of the Beaver district increased decidedly in 1934; it consisted of 1 car of gold ore from the New Deal mine near Murray and of placer bullion chiefly from the Blue Eagle, Accident, and Otto properties in Potosi Gulch, Placer Creek, and Trail Gulch, respectively.

Coeur d'Alene district.—The value of metal production in 1934 in the Coeur d'Alene district near Murray was almost 10 times that in 1933 as a result of the work of the Four Square Gold Syndicate operating the Friday group. Nearly 7,500 tons of gold ore were treated in the company's new 100-ton flotation plant from February to December, and the flotation concentrates were shipped to Kellogg for smelting. A large part (232 fine ounces) of the placer production came from the Nugget Gulch placers operated by drift mining. The Beehive Bar placer on Prichard Creek was the only other operation of importance.

Eagle district.—The only output in 1934 reported from the Eagle district was a small lot of placer gold from the upper part of Eagle Creek. The Jack Waite property, purchased May 1, 1934, by the American Smelting & Refining Co., lies in both Shoshone County, Idaho, and Sanders County, Mont., but the entire output from the mine in 1934 came from Montana.

Evolution district.—In 1934 the Yankee Boy mine of the Sunshine Mining Co. exceeded its 1933 record of production and continued as the largest silver producer in the United States. The 500-ton flotation plant treated 108,605 tons of ore containing chiefly silver and made 4,200 tons of concentrates which were shipped to Kellogg for smelting; the concentrates contained more than 3,455,000 ounces of silver, as well as some gold, copper, and lead. The mine and mill were operated almost continuously, and the company paid dividends in 1934 of \$1,012,399. About 1,000 feet of development were reported for 1934.

Hunter district (Mullan).—In 1934 the value of the metal output of the Hunter district (\$3,445,213) was second in Idaho only to that of the Yreka district. The largest producing property was the

Morning mine of the Federal Mining & Smelting Co., whose 1,200-ton flotation plant treated 220,022 tons of lead-zinc ore; the lead concentrates and zinc concentrates were shipped to East Helena and Anaconda, Mont. According to the annual printed report of the company the combined concentrates contained 684,377 ounces of silver, 35,724,000 pounds of lead, and 27,204,000 pounds of zinc, a fair increase in the three metals. The company reported nearly 1,000 feet of development done in 1934, including 126 feet of shaft sinking. The Golconda Lead Mines shipped 2 cars of crude lead ore to East Helena, Mont., for smelting and treated about 57,700 tons of lead-zinc ore in the 250-ton flotation plant; the production of silver, lead, and zinc in lead concentrates and zinc concentrates was approximately double that in 1933. The company did 1,700 feet of development work in 1934. The Gold Hunter mine has been operated under lease since July 1933; in 1934 more than 3,300 tons of lead concentrates containing chiefly silver and lead were shipped to the Bunker Hill plant for smelting, and there was a decided increase in the production of both metals. Except for a very small amount of development work, the Star mine of the Sullivan Mining Co. was idle in 1934.

Lelande district (Burke, Mace, Frisco).—The value of metal production in the Lelande district increased more than \$576,000 in 1934, due especially to the output of the Hecla mine at Burke. The Hecla Mining Co., according to its annual printed report, shipped 12,460 tons of first-class lead ore and treated 170,309 tons of lead ore by gravity and flotation concentration, making 28,786 tons of concentrates. The company operated the 750-ton mill continuously, did 3,377 feet of development in the mine, and paid \$400,000 in dividends in 1934. Production included 1,054,216 ounces of silver, 40,223,002 pounds of lead, and 688,795 pounds of zinc, a decided increase from 1933. The Hull Leasing Co. treated about 33,000 tons of lead-zinc ore and shipped 682 tons of lead concentrates and 3,709 tons of zinc concentrates; the metal output as given in the annual printed report of the Federal Mining & Smelting Co. was 24 ounces of gold, 39,725 ounces of silver, 1,208,000 pounds of lead, and 4,140,000 pounds of zinc. The remainder of the district output consisted of small lots of lead ore of smelting grade from the Ambergris, Mace, and Hercules mines. The Sherman Lead Co. was idle.

Placer Center district.—One car of lead ore of smelting grade was shipped in 1934 by a lessee from the property of the Tamarack & Custer Consolidated Mining Co. The Dayrock Mining Co. and the Callahan Zinc-Lead Co. were both idle.

St. Joe district.—From the Gold Producer placer on Bostonian Creek in 1934 were recovered about 18 ounces of bullion 0.950 fine in gold. A few ounces of gold were also produced at the Falls placer, reached from Superior, Mont.

Summit district (Murray).—The value of the metal output of the Summit district increased appreciably in 1934 due largely to production from the Golden Chest, Idaho Mother Lode, Mountain Lion, and Bear Top mines. Two cars of lead ore were shipped from the Bear Top, 1 car of rich gold concentrates was shipped from the Idaho Mother Lode, gold bullion was recovered by amalgamation at the Mountain Lion, and ore containing chiefly gold was treated by flotation at the Golden Chest mine. Most of the placer gold recovered came from various operations near Murray. The most important

work done was on ground formerly operated by the Yukon Dredging Co. east of Murray. Fair production of placer bullion was made by the Big Mud Leasing Co.

Yreka district (Kellogg).—The total value of the metal output of the Yreka district in 1934 was nearly as large as that in 1933, but there were decided decreases in ore treated and silver and lead produced. The largest output was, as usual, that of the Bunker Hill & Sullivan Mining & Concentrating Co., which produced more lead than any other mine in Idaho. According to its printed annual report the company treated 362,388 tons of ore in the large concentration plants at Kellogg—part by flotation and part by gravity concentration and flotation. Production from concentrates and 401 tons of crude lead ore included more than 1,036,200 ounces of silver, 48,243,300 pounds of lead, and nearly 15,653,000 pounds of zinc. The property was operated the entire year at about 50 percent of capacity, and 2,357 feet of development were done. The Crescent mine, controlled by this company, produced 10,320 tons of mill ore treated in a 120-ton flotation plant and shipped copper-lead concentrates and first-class silver ore. The Federal Mining & Smelting Co. treated lead-zinc ore from the Page and Blackhawk mines (chiefly the former) in a 300-ton flotation mill west of Bradley; the output was nearly doubled at both mines. One car of lead ore was shipped from the Sierra Nevada property, and 1,000 tons of silver-lead ore were shipped from the Caledonia mine.

TWIN FALLS COUNTY

Snake River district.—Placer bullion recovered by various operators from the banks of Snake River near Kimberly, Twin Falls, and Hansen was valued at more than \$5,900 in 1934. Most of the work was done at the Depression, Sandy Bar, Weasel, Gold Eagle, and River's Bend claims.

VALLEY COUNTY

Big Creek district.—Placer bullion was recovered in 1934 by sluicing at the Smith Creek placers near Edwardsburg.

Deadwood Basin district.—A little gold bullion and concentrates were shipped in 1934 from the Long Chance mine, and gold ore from the Merry Blue mine was amalgamated.

Lake City district.—The output of the Lake City district in 1934 was chiefly from the New Deal and Blue Gulch placers near McCall.

Thunder Mountain district.—Considerable gold bullion and one lot of concentrates were shipped in 1934 from the Sunnyside mine near Stibnite. Placer gold was recovered at the Bonanza claim.

Yellow Pine district.—The mine and mill of the Yellow Pine Co. were operated throughout 1934, and 54,000 tons of ore containing principally gold and antimony were treated by flotation; more than 3,700 tons of concentrates were marketed, chiefly at Midvale, Utah. The company was second only to the Boise-Rochester mine at Atlanta in production of gold in Idaho. During the year 3,195 feet of development were done in the mine. One car of silver ore from the Silver Creek group was shipped by way of Cascade.

WASHINGTON COUNTY

A little placer gold was recovered in 1934 from Smith Bar on the Snake River, and siliceous silver ore (560 tons) was shipped from the Silver Still property near Mineral in the Washington district.

GOLD, SILVER, COPPER, LEAD, AND ZINC IN NEVADA

(DETAILED STATISTICS—MINE REPORT)

By H. M. GAYLORD¹

SUMMARY OUTLINE

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The output of gold, silver, copper, lead, and zinc from Nevada ores and gravels in 1934, in terms of recovered metals, was 144,275.17 fine ounces of gold, 3,057,114 fine ounces of silver, 41,611,119 pounds of copper, 21,981,874 pounds of lead, and 27,880,790 pounds of zinc. These totals compare with a production in 1933 of 98,590.28 ounces of gold, 1,148,621 ounces of silver, 28,489,610 pounds of copper, 4,606,732 pounds of lead, and 12,774,550 pounds of zinc. The combined output of the five metals from 635 lode mines and 160 placers in 1934 was valued at \$12,359,826 compared with \$5,452,300 from 422 lode mines and 116 placers in 1933. The increases in quantity were as follows: Gold, 46 percent; silver, 166 percent; copper, 46 percent; lead, 377 percent; and zinc, 118 percent. The increased average prices of the metals, notably gold and silver, resulted in greater mining activity in the State, and large gains in total value of output of each of the five metals were recorded.

Calculation of value of metal production.—The value of metal production herein reported has been calculated at the figures given in the table that follows. Gold in 1930–32 is figured at \$20.671835 per ounce, the Treasury legal coinage value for fine gold from January 18, 1835, to January 31, 1934; in 1933 at \$25.56 and in 1934 at \$34.95 per ounce, the average weighted yearly United States Government prices.² The silver price in 1930–33 is the average New York price for bar silver; in 1934 the Treasury buying price for newly mined silver, \$0.64646464 + per ounce. The copper, lead, and zinc prices are weighted averages, for each year, of all grades of primary metal sold by producers.

Prices of gold, silver, copper, lead, and zinc, 1930–34

Year	Gold	Silver	Copper	Lead	Zinc
	<i>Per fine ounce</i>	<i>Per fine ounce</i>	<i>Per pound</i>	<i>Per pound</i>	<i>Per pound</i>
1930.....	1 \$20.67+	\$0.385	\$0.130	\$0.050	\$0.048
1931.....	1 20.67+	.290	.091	.037	.038
1932.....	1 20.67+	.282	.063	.030	.030
1933.....	25.56	.350	.064	.037	.042
1934.....	34.95	.646+	.080	.037	.043

¹ \$20.671835.

² \$0.64646464.

¹ Assisted by O. Y. Sharman.

² The Treasury from Feb. 1, 1934, through December 1934 has calculated all gold, old and new, at \$35.00 per ounce, under authority of the Gold Reserve Act of Jan. 31, 1934. Details of the U. S. Government fluctuating price of gold in 1933 to Jan. 31, 1934, may be found in Minerals Yearbook, 1934, pp. 25–28.

Mine production of gold, silver, copper, lead, and zinc in Nevada, 1930-34, in terms of recovered metals

Year	Mines producing		Ore, old tailings, etc. (short tons)	Gold		Silver	
	Lode	Placer		Fine ounces	Value	Fine ounces	Value
1930.....	247	33	4,757,178	149,064.47	\$3,081,436	4,219,832	\$1,624,635
1931.....	271	65	3,565,472	142,293.76	2,941,473	2,562,071	743,001
1932.....	382	103	1,855,031	129,719.83	2,681,547	1,304,365	367,831
1933 ¹	422	116	1,678,454	98,590.28	2,519,968	1,148,621	402,017
1934.....	635	160	2,899,782	144,275.17	5,042,417	3,057,114	1,976,316

Year	Copper		Lead		Zinc		Total value
	Pounds	Value	Pounds	Value	Pounds	Value	
1930.....	109,203,512	\$14,196,457	23,058,381	\$1,152,919	29,168,117	\$1,490,070	\$21,455,517
1931.....	72,634,497	6,609,739	15,860,634	586,843	20,861,348	792,731	11,673,787
1932.....	31,487,606	1,983,719	880,986	26,430	254,795	7,644	5,067,171
1933 ¹	28,489,610	1,823,335	4,606,732	170,449	12,774,550	536,531	5,452,800
1934.....	41,611,119	3,328,890	21,981,874	813,329	27,880,790	1,198,874	12,359,826

¹ Figures include gold, silver, copper, lead, and zinc recovered from zinc concentrates produced in 1931 but not marketed until 1933.

² Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

Gold and silver produced at placer mines in Nevada, 1930-34

Year	Gold		Silver	
	Fine ounces	Value	Fine ounces	Value
1930.....	1,859.44	\$38,438	847	\$326
1931.....	2,883.25	59,602	860	249
1932.....	5,408.22	111,798	1,743	492
1933.....	5,769.54	¹ 147,470	1,991	697
1934.....	5,248.91	183,449	1,594	1,030

¹ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

Gold.—The production of gold in Nevada in 1934, in terms of recovered metal, was 144,275.17 fine ounces valued at \$5,042,417, an increase of 45,684.89 ounces in quantity and \$2,522,449 in value over 1933. Only 5,248.91 ounces of the 1934 output came from placer mines, mostly in Lander and Nye Counties.

Nye was again the leading gold-producing county in Nevada, followed in order by White Pine, Esmeralda, Storey, and Pershing, each with a yield of between 10,000 and 30,000 ounces. The Manhattan district produced 42 percent of the total Nye County output; the Round Mountain and Tonopah districts contributed 26 and 20 percent, respectively. The property of the White Caps Gold Mining Co. (worked by lessees) 50 miles south of Tonopah was the largest producer in the Manhattan district; the Sunnyside and Fairview lode mines of the Nevada Porphyry Gold Mines, Inc., and the property of the Tonopah Mining Co. (worked by lessees) led in the Round Mountain and Tonopah districts, respectively. The Robinson district yielded almost all the gold produced in White Pine County, owing to the activity of the Nevada Consolidated Copper Corporation which was the largest gold producer in the State. The company mined and treated copper ore in its flotation mill and operated its smelter at McGill intermittently throughout the year. In addition to the company concentrates smelted, much siliceous ore from the Lane City area was treated. Lessees worked the properties of the Consolidated Coppermines Corporation, and ore on company account was

shipped to Utah for smelting. In Esmeralda County the gold output came largely from the Silver Peak and Goldfield districts. The chief activity was at the Mary mine north of Silver Peak, and at the tailings plant of Bradshaw Syndicate, Inc., who took over and enlarged the plant of Bradshaw, Inc., in order to handle a large tonnage of low-grade tailings (Goldfield Consolidated) previously considered not treatable. The value of the gold output of Storey County increased from \$129,293 in 1933 to \$582,460, owing to revival of gold mining on the Comstock Lode; many of the old mines were rehabilitated, and mills in the district were reequipped or enlarged to take care of the increased ore tonnage. The adjoining Silver City district, Lyon County, was also notably active. In Pershing County the chief activity was in the Seven Troughs district, principally at the property of the Nevada State Gold Mines Co. where mining was on leasing account; the ore was treated in the company 100-ton cyanide plant.

Twenty-six companies mining in Nevada in 1934 produced 66 percent of the total gold yield of the State; 18 of these companies had outputs of between 1,000 and 5,000 ounces each, 7 companies between 5,000 and 10,000 ounces, and 1 company over 15,000 ounces.

Silver.—The production of silver in Nevada in 1934, in terms of recovered metal, was 3,057,114 fine ounces valued at \$1,976,316, an increase over 1933 of 1,908,493 ounces in quantity and \$1,574,299 in value. This increase of 166 percent in quantity of silver produced was due largely to the reopening of the Tybo mine of the Treadwell Yukon Co., Ltd., in the Tybo district of Nye County about 70 miles northeast of Tonopah. Lead-zinc ore was milled in the company flotation plant; the lead concentrate was shipped to the Selby (Calif.) smelter and the zinc concentrate to the Amarillo (Tex.) smelter. The Tybo district ranked first in silver output. The Tonopah district, Nye and Esmeralda Counties, where lessees worked the property of the Tonopah Mining Co. and the General Metals Recovery Corporation treated Tonopah Mining Co. tailings, ranked second. The third largest yield of silver came from the Pioche district, Lincoln County, where the Combined Metals Reduction Co. carried on operations throughout the year; ore from the Pioche mines was shipped to the company flotation mill at Stockton, Utah. These three districts yielded 1,777,939 ounces of silver, or 58 percent of the State output. Ten companies produced a total of 2,266,758 ounces of silver, or 74 percent of the State yield; only five had an output of between 100,000 and 800,000 ounces.

Copper.—The production of recoverable copper in Nevada in 1934 was 41,611,119 pounds valued at \$3,328,890, an increase of 13,121,509 pounds in quantity and \$1,505,555 in value from 1933. The Robinson district, White Pine County, continued as the chief copper-producing section of the State and yielded 98 percent of the total output. The next largest yield of copper came from direct-smelting ore mined in the Jack Rabbit district, Lincoln County, by the Bristol Silver Mines Co.

Lead.—The production of recoverable lead in Nevada in 1934 was 21,981,874 pounds valued at \$813,329, an increase of 17,375,142 pounds in quantity and \$642,880 in value over 1933. Only three companies in Nevada produced more than 1,000,000 pounds of lead in 1934—the Combined Metals Reduction Co., Pioche district, Lincoln County; the Treadwell Yukon Co., Ltd., Tybo district, Nye

County; and the Bristol Silver Mines Co., Jack Rabbit district, Lincoln County. These companies had a combined output of 19,646,707 pounds, or 89 percent of the State total. Most of the lead recovered came from the milling of lead-zinc ore, and the large increase over 1933 was due to resumption of mining by the Treadwell Yukon Co., Ltd.

Zinc.—The production of recoverable zinc in Nevada in 1934 was 27,880,790 pounds valued at \$1,198,874, an increase of 15,106,240 pounds in quantity and \$662,343 in value over 1933. Practically all the zinc output came from milling ore mined in Lincoln and Nye Counties.

MINE PRODUCTION BY COUNTIES

Mine production of gold, silver, copper, lead, and zinc in Nevada in 1934, by counties, in terms of recovered metals

County	Gold				Silver (lode and placer)		
	Lode		Placer		Total value	Fine ounces	Value
	Fine ounces	Value	Fine ounces	Value			
Churchill.....	1,728.16	\$60,399			\$60,399	12,124	\$7,838
Clark.....	3,906.26	136,524	11.51	\$402	136,926	19,783	12,789
Douglas.....	126.81	4,432			4,432	90	58
Elko.....	3,413.03	119,285	175.05	6,118	125,403	95,537	61,761
Esmeralda.....	20,414.09	713,472	229.00	8,004	721,476	114,659	74,123
Eureka.....	2,051.01	71,683	410.50	14,347	86,030	21,143	13,668
Humboldt.....	1,785.03	62,387	46.58	1,628	64,015	18,469	11,940
Lander.....	5,960.97	208,336	1,129.36	39,471	247,807	107,129	69,255
Lincoln.....	5,908.52	206,503			206,503	709,555	458,702
Lyon.....	9,120.80	318,772	121.46	4,245	323,017	24,570	15,884
Mineral.....	3,659.33	127,894	39.92	1,395	129,289	16,380	10,589
Nye.....	27,725.52	969,007	1,693.24	59,179	1,028,186	1,260,153	814,644
Ormsby.....	97.29	3,400			3,400	242	156
Pershing.....	9,904.11	346,149	557.15	19,472	365,621	53,939	34,870
Storey.....	16,311.64	570,092	353.89	12,368	582,460	296,504	191,679
Washoe.....	820.67	28,682	59.28	2,072	30,754	1,209	782
White Pine.....	26,093.02	911,951	207.26	7,244	919,195	306,583	197,549
Undistributed ¹			214.71	7,504	7,504	45	29
Total, 1933.....	139,026.26	4,858,968	5,248.91	183,449	5,042,417	3,057,114	1,976,316
	92,820.74	2,372,498	5,769.54	147,470	2,519,968	1,148,621	402,017

County	Copper		Lead		Zinc		Total value
	Pounds	Value	Pounds	Value	Pounds	Value	
Churchill.....	1,596	\$128	152,232	\$5,633			\$73,998
Clark.....	10,352	828	154,437	5,714	28,635	\$1,231	157,488
Douglas.....							4,490
Elko.....	17,866	1,429	984,377	36,422			225,015
Esmeralda.....	10,154	812	11,555	428			796,839
Eureka.....	14,358	1,149	296,738	10,979			111,826
Humboldt.....	3,366	269	14,883	551			76,775
Lander.....	125,170	10,014	69,868	2,585			329,661
Lincoln.....	415,910	33,273	11,441,164	423,323	22,392,736	962,888	2,084,689
Lyon.....	12,245	980	1,000	37			339,918
Mineral.....	5,028	402	9,497	351			140,631
Nye.....	37,922	3,034	8,590,287	317,841	5,452,094	234,440	2,398,145
Ormsby.....			770	28			3,584
Pershing.....	3,853	308	35,838	1,326			402,125
Storey.....	1,981	158	269	10			774,307
Washoe.....	15,357	1,229	219	8			32,773
White Pine.....	40,935,961	3,274,877	218,740	8,093	7,325	315	4,400,029
Undistributed ¹							7,533
Total, 1933.....	41,611,119	3,328,890	21,981,874	813,329	27,880,790	1,198,874	12,359,828
	28,489,610	1,823,335	4,606,732	170,449	12,774,550	536,531	5,452,300

¹ Gold and silver that could not be allocated.

² Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

Ore, old tailings, etc., sold or treated and lode mines producing in Nevada, 1933-34, by counties

County	Ore, old tailings, etc. (short tons)		Lode mines producing		County	Ore, old tailings, etc. (short tons)		Lode mines producing	
	1933	1934	1933	1934		1933	1934	1933	1934
Churchill.....	78	2,545	6	17	Mineral.....	2,035	8,100	40	54
Clark.....	5,381	16,391	23	40	Nye.....	102,135	188,657	63	98
Douglas.....	65	182	4	4	Ormsby.....	-----	31	-----	4
Elko.....	4,355	9,934	35	53	Pershing.....	3,291	24,648	35	47
Esmeralda.....	242,461	438,948	38	42	Storey.....	32,193	155,563	22	33
Eureka.....	655	4,505	9	11	Washoe.....	335	841	11	18
Humboldt.....	2,281	6,786	21	41	White Pine.....	1,225,428	1,872,498	44	59
Lander.....	3,765	10,725	24	55					
Lincoln.....	47,137	124,083	18	28					
Lyon.....	6,889	35,395	29	31					
						1,678,454	2,899,782	422	635

MINING INDUSTRY

The ore, old tailings, etc., sold or treated in Nevada totaled 2,899,782 short tons in 1934 compared with 1,678,454 tons in 1933. Indicative of the better prices for gold and silver were the increased ore tonnages in Esmeralda, Lyon, Nye, Pershing, and Storey Counties, where gold, gold-silver, and silver ores are found. Several tailings dumps were worked that are too low in grade to be worked profitably at the former statutory price of gold (\$20.67+ per ounce). The General Metals Recovery Corporation installed a plant to treat the sands from the old cyanide plant of the Tonopah Mining Co. at Millers; operations were begun in September 1934, and about 43,000 tons of tailings were treated. Approximately 2,000,000 tons of tailings in which the values are mostly silver with subordinate amounts of gold are reported available at this property. Notable factors in the recorded increases in metal output in Nevada in 1934 were the resumption of operations by the Treadwell Yukon Co., Ltd., at the Tybo mine, Nye County; leasing operations at old established properties in the Divide, Tonopah, and Manhattan districts; and the reopening of old mines on the Comstock Lode.

ORE CLASSIFICATION

Ore, old tailings, etc., sold or treated in Nevada in 1934, with content in terms of recovered metals

Source	Ore, old tailings, etc.	Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Dry gold ore.....	1 809,525	110,128.15	614,960	113,809	120,290	-----
Dry gold-silver ore.....	2 73,824	7,873.88	623,467	2,159	18,895	-----
Dry silver ore.....	3 18,105	985.23	271,217	6,797	88,137	-----
Copper ore.....	1,819,913	16,138.79	74,225	41,015.015	1,250	-----
Lead ore.....	4 24,931	1,792.96	277,986	429,684	3,906,921	-----
Copper-lead ore.....	5 72	13.80	3,398	7,216	21,162	-----
Lead-zinc ore.....	153,412	2,093.45	1,190,267	36,439	17,827,219	-----
Total, lode mines.....	2,899,782	139,026.26	3,055,520	41,611,119	21,981,874	27,880,790
Total, placers.....	-----	5,248.91	1,594	-----	-----	-----
Total, 1933 ⁶	2,899,782	144,275.17	3,057,114	41,611,119	21,981,874	27,880,790
	1,678,454	98,590.28	1,148,621	28,489,610	4,606,732	12,774,550

¹ Includes 437,055 tons of old tailings cyanided; 580 tons of old tailings and 3 tons of assay cleanings amalgamated; 45 tons of old tailings concentrated; and 308 tons of old tailings, 62 tons of mill cleanings, 11 tons of slag, 32 tons of gravel concentrates, and 6 tons of assay cleanings smelted.

² Includes 42,928 tons of old tailings cyanided, 12,000 tons of old tailings concentrated, and 2,362 tons of old tailings and 266 tons of mill cleanings smelted.

³ Includes 900 tons of old tailings cyanided, 800 tons of old tailings concentrated, and 175 tons of old tailings and 3 tons of mill cleanings smelted.

⁴ Includes 573 tons of old tailings smelted.

⁵ Includes 18 tons of slag smelted.

⁶ Figures include gold, silver, copper, lead, and zinc recovered from zinc concentrates produced in 1931 but not marketed until 1933.

Value of metals from ore, old tailings, etc., sold or treated in Nevada in 1934, by classes of ore

Class	Ore, old tailings, etc. (short tons)	Gold	Silver	Copper	Lead	Zinc	Total value
Dry gold ore.....	809,525	\$3,848,979	\$397,550	\$9,105	\$4,451	-----	\$4,260,085
Dry gold-silver ore.....	73,824	275,192	409,049	173	625	-----	679,039
Dry silver ore.....	18,105	34,434	175,332	544	3,261	-----	213,571
Copper ore.....	1,819,913	564,051	47,984	3,281,201	46	-----	3,893,282
Lead ore.....	24,931	62,664	179,708	34,375	144,556	-----	421,303
Copper-lead ore.....	72	482	2,197	577	783	-----	4,039
Lead-zinc ore.....	153,412	73,166	769,466	2,915	659,607	\$1,198,874	2,704,023
Total, 1933 ¹	2,899,782 1,678,454	4,858,968 2,372,498	1,975,286 401,320	3,328,890 1,823,335	813,329 170,449	1,198,874 536,531	12,175,347 25,304,133

¹ Figures include value of gold, silver, copper, lead, and zinc recovered from zinc concentrates produced in 1931 but not marketed until 1933.

² Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

Ore, old tailings, etc., sold or treated in Nevada in 1934, by counties, with content in terms of recovered metals¹

DRY GOLD ORE

County	Ore, old tailings, etc.	Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Churchill.....	2,140	1,602.34	1,388	-----	-----	-----
Clark.....	¹ 11,391	3,850.24	13,687	9,187	15,776	-----
Douglas.....	182	126.81	90	-----	-----	-----
Elko.....	² 6,368	3,391.61	45,271	1,027	1,188	-----
Esmeralda.....	⁴ 393,458	18,972.19	11,413	10,084	9,520	-----
Eureka.....	1,800	943.56	8,876	2,717	39,076	-----
Humboldt.....	3,132	1,738.48	7,889	2,143	3,352	-----
Lander.....	9,025	5,752.91	36,460	77,613	35,616	-----
Lincoln.....	⁵ 27,828	3,926.32	14,621	1,117	1,165	-----
Lyon.....	⁶ 35,329	9,107.90	23,252	82	-----	-----
Mineral.....	⁷ 7,828	3,549.41	6,382	4,931	2,669	-----
Nye.....	⁸ 103,954	20,941.00	18,844	120	3,682	-----
Ormsby.....	⁹ 31	97.29	242	-----	770	-----
Pershing.....	¹⁰ 24,225	9,697.28	36,647	2,420	6,011	-----
Storey.....	¹¹ 143,562	16,066.44	284,875	881	140	-----
Washoe.....	769	810.17	326	-----	-----	-----
White Pine.....	38,503	9,554.20	104,697	1,487	1,325	-----
Total, 1933.....	809,525 421,754	110,128.15 72,524.35	614,960 204,635	113,869 74,316	120,290 20,825	-----

¹ In 1934, no zinc ore produced. In 1933, 80,124 pounds of zinc recovered from 202 tons of zinc ore and 198.00 ounces of gold, 60,835 ounces of silver, 18,760 pounds of copper, 213,520 pounds of lead, and 4,295,670 pounds of zinc recovered from zinc concentrates produced in Nye County in 1931 but not marketed until 1933.

² Includes 3,780 tons of old tailings cyanided and 44 tons of old tailings and 32 tons of gravel concentrates smelted.

³ Includes 1 ton of old tailings amalgamated and 13 tons of mill cleanings smelted.

⁴ Includes 367,555 tons of old tailings cyanided.

⁵ Includes 24,400 tons of old tailings cyanided and 255 tons of old tailings smelted.

⁶ Includes 128 tons of old tailings cyanided and 1 ton of mill cleanings and 9 tons of slag smelted.

⁷ Includes 65 tons of old tailings amalgamated.

⁸ Includes 24,555 tons of old tailings cyanided and 1 ton of old tailings and 2 tons of slag smelted.

⁹ Includes 3 tons of assay cleanings amalgamated and 6 tons of assay cleanings smelted.

¹⁰ Includes 4,637 tons of old tailings cyanided and 27 tons of mill cleanings smelted.

¹¹ Includes 12,000 tons of old tailings cyanided, 514 tons of old tailings amalgamated, 45 tons of old tailings concentrated, and 8 tons of old tailings and 21 tons of mill cleanings smelted.

Ore, old tailings, etc., sold or treated in Nevada in 1934, by counties, with content in terms of recovered metals—Continued

DRY GOLD-SILVER ORE

County	Ore, old tailings, etc.	Gold	Silver	Copper	Lead	Zinc
		Short tons	Fine ounces	Fine ounces	Pounds	Pounds
Clark	97	38.01	2,487		215	
Esmeralda	¹² 45,285	1,415.18	100,079			
Humboldt	18	4.50	329		610	
Lincoln	2,028	344.18	17,716	1,059	15,713	
Mineral	59	17.29	1,093			
Nye	¹³ 9,878	5,391.44	456,114			
Pershing	87	25.66	1,729		228	
Storey	¹⁴ 12,000	245.00	11,500	1,100	129	
White Pine	¹⁵ 4,372	392.62	32,420			
	73,824	7,873.88	623,467	2,159	16,895	
Total, 1933	20,549	2,458.92	106,264	1,165	4,360	

DRY SILVER ORE

Churchill	43	6.58	2,173		270	
Clark	112	13.60	3,056	190		
Elko	¹⁶ 878	3.64	4,050	450	63,614	
Esmeralda	203	24.82	2,819	70	1,835	
Eureka	44	2.13	1,529	101	1,682	
Humboldt	3,582	28.07	9,255	1,223	3,372	
Lander	803	37.06	58,319	3,038	10,335	
Lincoln	408	12.46	12,193	1,002	3,716	
Lyon	8	1.10	1,198	120	578	
Mineral	¹⁷ 177	74.04	7,487			
Nye	¹⁸ 1,474	568.72	61,263		1,138	
Pershing	219	105.64	10,367	603	1,442	
Storey	1	.20	30			
White Pine	¹⁹ 10,153	107.17	97,478		155	
	18,105	985.23	271,217	6,797	88,137	
Total, 1933	6,681	4,926.07	469,249	1,898	27,790	

COPPER ORE

Clark	2	0.04	4	975		
Elko	62	1.30	258	13,632		
Eureka	10	.47	1,372	510		
Lander	767	109.40	7,872	44,171		
Lyon	52	.40	6	9,533		
Nye	18	2.72	1,163	1,792	1,010	
Pershing	10	2.10	658	830	240	
Washoe	71	10.50	852	15,357		
White Pine	1,818,921	16,011.86	62,040	40,928,215		
	1,819,913	16,138.79	74,225	41,015,015	1,250	
Total, 1933	1,197,498	11,545.65	69,605	28,226,322	895	

LEAD ORE

Churchill	362	119.24	8,563	1,596	151,962	
Clark	4,725	4.37	547		118,221	
Elko	²⁰ 2,026	16.48	45,935	2,757	919,575	
Esmeralda	2	1.90	262		200	
Eureka	2,651	1,104.85	9,330	11,030	255,980	
Humboldt	54	13.68	990		7,549	
Lander	127	61.60	2,830	247	23,606	
Lincoln	13,716	312.13	195,681	410,808	2,188,575	
Lyon	4	.13	13		300	
Mineral	36	18.59	1,327	97	6,828	
Nye	67	42.45	1,401	266	14,705	
Pershing	107	73.43	4,424		27,917	
Washoe	1	.10	10		219	
White Pine	453	23.94	6,673	2,883	191,284	
	24,931	1,792.96	277,966	429,684	3,906,921	
Total, 1933	1,583	724.99	33,594	4,476	628,705	

¹² Includes 42,928 tons of old tailings cyanided and 1 ton of mill cleanings smelted.
¹³ Includes 265 tons of mill cleanings smelted.
¹⁴ Old tailings concentrated.
¹⁵ Includes 2,362 tons of old tailings smelted.
¹⁶ Includes 800 tons of old tailings concentrated.
¹⁷ Includes 175 tons of old tailings smelted.
¹⁸ Includes 3 tons of mill cleanings smelted.
¹⁹ Includes 900 tons of old tailings cyanided.
²⁰ Includes 573 tons of old tailings smelted.

Ore, old tailings, etc., sold or treated in Nevada in 1934, by counties, with content in terms of recovered metals—Continued

COPPER-LEAD ORE

County	Ore, old tailings, etc.	Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Lander.....	3		1,474	101	311	
Lincoln.....	21 24	1.46	525	1,562	4,558	
Lyon.....	2	11.40	41	2,510	122	
White Pine.....	43	.94	1,358	3,043	16,171	
	72	13.80	3,398	7,216	21,162	
Total, 1933.....	2,885	32.56	32,345	151,893	449,050	

LEAD-ZINC ORE

Clark.....	64				20,225	28,635
Lincoln.....	80,029	1,311.97	468,819	362	9,227,437	22,392,736
Nye.....	73,266	779.19	720,580	35,744	8,569,752	5,452,094
White Pine.....	53	2.29	868	333	9,805	7,325
	153,412	2,093.45	1,190,267	36,439	17,827,219	27,880,790
Total, 1933.....	27,302	410.20	170,103	10,780	3,261,587	8,398,756

¹ Includes 18 tons of slag smelted.

METALLURGIC INDUSTRY

Improved mining conditions in Nevada in 1934 brought about many changes in milling practice and resulted in the alteration of old mills, installation of new mills and cyanide equipment for treatment of old and current tailings, and increased milling tonnages at the various custom mills in the State, particularly in Storey and Lyon Counties. The Caliente Cyaniding Co. completed a 150-ton cyanide plant in the Ferguson (Delamar) district, Lincoln County; the Arizona Comstock Corporation added cyanide equipment for the treatment of tailings from its 300-ton flotation mill; and the Dayton Consolidated Mines Co. completed the erection of a 120-ton all-slime cyanide plant. Active mills along the Comstock Lode were the Overland 50-ton flotation mill, the Hartford 50-ton cyanide mill (completed in the latter part of the year), the Overman 150-ton flotation mill, the Bradley flotation plant for treatment of the Lynch tailings dump, the Donovan amalgamation and cyanide plant, and the Trimble 10-stamp amalgamation mill; the Donovan and Trimble mills treated considerable custom ore. The Kernick mill at Sodaville, Mineral County, treated not only ore from the Kernick mine but also ore from neighboring properties.

Mine production of metals in Nevada in 1934, by methods of recovery

Method of recovery	Material treated	Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Ore, old tailings, etc., amalgamated.....	131,648	28,506.06	30,606			
Ore and old tailings cyanided.....	539,962	26,864.70	155,741	2,158		
Ore, old tailings, etc., smelted.....	124,758	53,211.46	1,356,152	638,931	3,970,999	28,635
Concentrates smelted:						
Flotation.....	114,468	29,485.15	1,501,074	40,969,537	17,880,935	27,852,155
Table.....	253	958.89	11,947	493	129,940	
Total, lode mines.....		139,026.26	3,055,520	41,611,119	21,981,874	27,880,790
Total, placers.....		5,248.91	1,594			
		144,275.17	3,057,114	41,611,119	21,981,874	27,880,790
Total, 1933.....		98,590.28	1,148,621	28,489,610	4,606,732	12,774,550

¹ Includes 3,418 tons of old tailings, 331 tons of mill cleanings, 32 tons of gravel concentrates, 29 tons of slag, and 6 tons of assay cleanings.

Mine production of metals from gold and silver mills in Nevada in 1934, by counties, in terms of recovered metals

County	Ore, old tailings, etc., treated		Recovered in bullion			
			Amalgamation		Cyanidation	
	Ore	Old tailings, etc.	Gold	Silver	Gold	Silver
	<i>Short tons</i>	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>
Churchill.....	1,688		1,190.92	858		
Clark.....	1,903	¹ 3,780	807.36	1,606	565.67	425
Douglas.....	106		50.59	8		
Elko.....	² 5,954	1	732.72	987	1,869.79	35,425
Esmeralda.....	20,237	³ 410,483	3,070.60	1,073	8,153.51	52,883
Eureka.....	226		40.64	9		
Humboldt.....	2,442		641.75	309	478.00	3,330
Lander.....	1,123		387.61	266	42.77	41
Lincoln.....	5	⁴ 24,400	9.15	18	524.26	1,359
Lyon.....	34,519	128	2,339.82	1,906	5,430.76	16,554
Mineral.....	5,855	65	1,692.16	815		
Pershing.....	70,578	24,555	9,806.12	5,156	2,220.76	212
Ormsby.....	4	3	67.69	58		
Pershing.....	18,245	4,637	1,109.71	801	5,500.83	7,908
Storey.....	26,467	12,514	5,765.25	16,536	2,078.05	35,444
Washoe.....	760		774.70	246		
White Pine.....	32	900	19.27	4	30	2,160
Total, 1933.....	190,144 101,675	481,466 ⁵ 271,566	28,506.06 23,569.69	30,606 15,180	26,864.70 14,409.51	155,741 66,859

County	Concentrates and recovered metal				
	Concentrates produced	Gold	Silver	Copper	Lead
		<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>
Clark.....	1	11.20	21		
Elko.....	16	72.95	1,092	50	637
Esmeralda.....	93	1,682.10	811		4,050
Lander.....	3	9.90	81		1,103
Lyon.....	81	404.34	3,012	82	
Mineral.....	63	601.02	615		310
Pershing.....	18	126.68	1,908		
Storey.....	17	148.37	1,947	110	140
White Pine.....	2	4.60	22		
Total, 1933.....	294 80	3,061.16 1,146.00	9,509 2,416	242 210	6,240 2,400

¹ Yielded also 240 pounds of copper recovered from "cyanide" precipitates.
² Yielded also 218 pounds of copper recovered from "cyanide" precipitates.
³ Yielded also 1,510 pounds of copper recovered from "cyanide" precipitates.
⁴ Yielded also 190 pounds of copper recovered from "cyanide" precipitates.
⁵ Yielded also 1,870 pounds of copper recovered from "cyanide" precipitates.

Gross metal content of concentrates from concentrating mills in Nevada in 1934, by classes of concentrates

Class of concentrates	Concentrates produced	Gross metal content				
		Gold	Silver	Copper	Lead	Zinc
		<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	Pounds
Dry and siliceous.....	4,926	8,633.92	250,476	4,103	119,179	
Copper.....	65,762	16,011.86	62,040	41,133,884		
Lead.....	15,453	2,132.22	1,005,049	23,673	17,946,973	
Zinc.....	28,286	604.88	185,947	27,056	884,607	31,513,082
Total, 1933 ¹	114,427 63,774	27,382.88 15,368.88	1,503,512 349,157	41,188,716 28,870,230	18,950,759 3,641,865	31,513,082 14,290,487

¹ Figures include zinc concentrates produced in 1931 but not marketed until 1933.

Nevada ore and old tailings concentrated in 1934, by methods of concentration

Method of concentration	Ore and old tailings concentrated	Concentrates and metal content		
		Concentrates produced	Gold	Silver
Flotation.....	<i>Short tons</i> 2,094,612	<i>Short tons</i> 114,260	<i>Fine ounces</i> 27,071.19	<i>Fine ounces</i> 1,495,684
Table.....	8,802	167	311.69	7,828
	2,103,414	114,427	27,382.88	1,503,512

Method of concentration	Concentrates and metal content—Continued					
	Copper		Lead		Zinc	
	Gross	Recovered	Gross	Recovered	Gross	Recovered
Flotation.....	<i>Pounds</i> 41,188,324	<i>Pounds</i> 40,969,455	<i>Pounds</i> 18,816,199	<i>Pounds</i> 17,876,885	<i>Pounds</i> 31,513,082	<i>Pounds</i> 27,852,155
Table.....	392	333	134,560	127,750	-----	-----
	41,188,716	40,969,788	18,950,759	18,004,635	31,513,082	27,852,155

Mine production of metals from concentrating mills in Nevada in 1934, in terms of recovered metals

BY COUNTIES

	Ore and old tailings treated		Concentrates and recovered metal					
	Ore	Old tailings	Concentrates produced	Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Short tons</i>	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Churchill.....	250	-----	9	142.60	63	-----	-----	-----
Clark.....	9,798	-----	261	1,200.34	7,615	2,934	129,731	-----
Elko.....	-----	800	81	52	2,224	-----	63,614	-----
Esmeralda.....	150	-----	26	8.89	923	70	1,835	-----
Humboldt.....	3,500	-----	25	17.89	6,663	410	2,332	-----
Lincoln.....	80,029	-----	34,493	1,311.97	468,819	362	9,227,437	22,392,736
Mineral.....	681	-----	2	110.57	1,315	-----	-----	-----
Nye.....	73,266	-----	12,608	779.19	720,580	35,744	8,569,752	5,452,094
Storey.....	103,921	12,045	1,144	7,796.76	232,402	1,720	129	-----
White Pine.....	1,818,974	-----	65,778	16,014.15	62,908	40,928,548	9,805	7,325
Total, 1933 ¹	2,090,569	12,845	114,427	27,382.88	1,503,512	40,969,788	18,004,635	27,852,155
	1,246,033	-----	63,774	15,368.88	349,157	27,913,484	3,457,600	12,671,080

BY CLASSES OF CONCENTRATES

Dry and siliceous.....	4,926	8,633.92	250,476	2,911	113,086	-----
Copper.....	65,762	16,011.86	62,040	40,928,215	-----	-----
Lead.....	15,453	2,132.22	1,005,049	18,387	17,139,591	-----
Zinc.....	28,286	604.88	185,947	20,275	751,958	27,852,155
	114,427	27,382.88	1,503,512	40,969,788	18,004,635	27,852,155

¹ Figures include zinc concentrates produced in 1931 but not marketed until 1933.

GOLD, SILVER, COPPER, LEAD, AND ZINC IN NEVADA 107

Gross metal content of Nevada concentrates produced in 1934, by classes of concentrates

Class of concentrates	Concentrates produced	Gross metal content				
		Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Dry and siliceous.....	5, 210	11, 671. 08	259, 862	4, 387	125, 110	-----
Copper.....	65, 762	16, 011. 86	62, 040	41, 133, 884	-----	-----
Lead.....	15, 463	2, 156. 22	1, 005, 172	23, 743	17, 949, 126	-----
Zinc.....	28, 286	604. 88	185, 947	27, 056	884, 607	31, 513, 082
Total, 1933 ¹	114, 721 63, 854	30, 444. 04 16, 514. 88	1, 513, 021 351, 573	41, 189, 071 28, 870, 532	18, 958, 843 3, 645, 298	31, 513, 082 14, 290, 487

¹ Figures include zinc concentrates produced in 1931 but not marketed until 1933.

Mine production of metals from Nevada concentrates in 1934, in terms of recovered metals

BY COUNTIES

	Concentrates	Gold	Silver	Copper	Lead	Zinc
		<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Churchill.....	<i>Short tons</i> 9	142. 60	63	-----	-----	-----
Clark.....	262	1, 211. 54	7, 636	2, 934	129, 731	-----
Elko.....	97	73. 47	3, 316	50	64, 251	-----
Esmeralda.....	119	1, 690. 99	1, 734	70	5, 855	-----
Humboldt.....	25	17. 89	6, 663	410	2, 332	-----
Lander.....	3	9. 90	81	-----	1, 103	-----
Lincoln.....	34, 493	1, 311. 97	468, 819	362	9, 227, 437	22, 392, 736
Lyon.....	81	404. 34	3, 012	82	-----	-----
Mineral.....	65	711. 59	1, 930	-----	310	-----
Nye.....	12, 608	779. 19	720, 580	35, 744	8, 569, 752	5, 452, 094
Pershing.....	18	126. 68	1, 908	-----	-----	-----
Storey.....	1, 161	7, 945. 13	234, 349	1, 830	269	-----
White Pine.....	65, 780	16, 018. 75	62, 930	40, 928, 548	9, 805	7, 325
Total, 1933.....	114, 721 63, 854	30, 444. 04 16, 514. 88	1, 513, 021 351, 573	40, 970, 030 27, 913, 694	18, 010, 875 3, 460, 000	27, 852, 155 12, 671, 080

BY CLASSES OF CONCENTRATES

Dry and siliceous.....	5, 210	11, 671. 08	259, 862	3, 103	117, 276	-----
Copper.....	65, 762	16, 011. 86	62, 040	40, 928, 215	-----	-----
Lead.....	15, 463	2, 156. 22	1, 005, 172	18, 437	17, 141, 643	-----
Zinc.....	28, 286	604. 88	185, 947	20, 275	751, 956	27, 852, 155
Total, 1933.....	114, 721	30, 444. 04	1, 513, 021	40, 970, 030	18, 010, 875	27, 852, 155

Gross metal content of Nevada crude ore shipped to smelters in 1934, by classes of ore

Class of ore	Ore	Gross metal content				
		Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Dry and siliceous.....	100, 197	50, 067. 92	1, 018, 238	124, 379	198, 519	-----
Copper.....	992	126. 93	12, 185	90, 884	1, 482	-----
Lead.....	19, 635	1, 789. 86	269, 082	510, 614	3, 816, 948	-----
Copper-lead.....	54	12. 59	3, 159	7, 459	21, 003	-----
Lead-zinc.....	64	-----	-----	-----	28, 893	32, 914
Total, 1933.....	120, 942 58, 863	51, 997. 30 37, 535. 13	1, 302, 664 657, 358	733, 336 629, 210	4, 066, 845 1, 222, 748	32, 914 127, 000

Mine production of metals from Nevada crude ore shipped to smelters in 1934, in terms of recovered metals

BY COUNTIES

	Ore	Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Churchill.....	607	394.64	11,203	1,596	152,232	-----
Clark.....	834	1,143.95	5,457	6,277	22,990	28,635
Douglas.....	76	76.22	82	-----	-----	-----
Elko.....	2,593	618.45	46,986	17,598	784,486	-----
Esmeralda.....	8,077	7,492.89	58,400	8,574	5,670	-----
Eureka.....	4,279	2,010.37	21,098	14,358	296,738	-----
Humboldt.....	844	647.39	8,161	2,956	12,551	-----
Lander.....	9,602	5,520.69	106,567	125,170	68,765	-----
Lincoln.....	19,326	3,896.97	238,834	414,224	2,210,948	-----
Lyon.....	738	911.77	3,020	12,163	1,000	-----
Mineral.....	1,324	1,181.58	6,116	5,028	9,187	-----
Nye.....	19,987	14,649.00	521,722	2,178	26,535	-----
Ormsby.....	18	6.75	152	-----	770	-----
Pershing.....	1,739	3,103.09	42,336	3,853	35,838	-----
Storey.....	587	457.65	9,842	151	-----	-----
Washoe.....	81	45.97	942	15,357	219	-----
White Pine.....	50,230	9,839.92	221,746	7,413	208,935	-----
Total, 1933.....	120,942	51,997.30	1,302,664	636,896	3,830,864	28,635
	58,863	37,535.13	657,358	574,046	1,146,605	103,476

BY CLASSES OF ORE

Dry and siliceous.....	100,197	50,067.92	1,018,238	114,548	138,558	-----
Copper.....	992	126.93	12,185	86,800	1,250	-----
Lead.....	19,635	1,789.86	269,082	429,466	3,652,448	-----
Copper-lead.....	54	12.59	3,159	6,082	18,383	-----
Lead-zinc.....	64	-----	-----	-----	20,225	28,635
	120,942	51,997.30	1,302,664	636,896	3,830,864	28,635

REVIEW BY COUNTIES AND DISTRICTS

Mine production of gold, silver, copper, lead, and zinc in Nevada in 1934, by counties and districts, in terms of recovered metals ¹

County and district ¹	Mines producing		Ore, old tallings, etc.	Gold			Silver (lode and placer) ²	Copper	Lead	Zinc	Total value
	Lode	Placer		Lode	Placer	Total					
Churchill County:			<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	
Alpine.....	1		3	1.34		1.34	40		311		\$85
Broken Hills.....	2		3	6.68		6.68	303				429
Eagleville.....	2		12	5.74		5.74	129				284
Fairview.....	1		1	2.10		2.10	1				74
Fireball.....	1		19	21.20		21.20	11				748
Gold Butte.....	1		411	363.80		363.80	171				12,826
Holy Cross.....	1		4	.58		.58	298				213
Wonder.....	4		1,697	1,173.76		1,173.76	2,619		270		42,726
Undistributed as to district ³	(?)		20	17.14		17.14	5				602
Clark County:											
Crescent.....	3		235	232.27		232.27	317	155	1,170		8,378
Eldorado Canyon.....	3	1	4,086	927.55	3.19	930.74	6,731	1,813	9,911		37,392
Goodsprings.....	1		1	18.16		18.16	1				636
Ivanpah.....	2		106	11.60		11.60	2,816	190			2,240
Logan.....	1		2	.04		.04	4				82
Searchlight.....	24	1	6,701	1,745.52	8.32	1,753.84	8,478	2,237	4,951		67,140
Yellow Pine.....	6		5,280	971.12		971.12	1,436	4,982	138,405	28,635	41,620
Douglas County:											
Delaware.....	1		100	39.92		39.92	5				1,398
Red Canyon.....	1		5	8.49		8.49	3				299
Wellington.....	1		75	71.50		71.50	78				2,549
Elko County:											
Alder.....	2		61	18.97		18.97	192				787
Blue Jacket.....	1		3				156	82	180		115
Carlin.....		4			9.35	9.35	1				328
Centennial.....	2		85	37.47		37.47	57	92	1,113		1,395
Charleston.....	2	3	31	59.93	90.26	150.19	60	933			5,363
Contact.....	2		103	1.50		1.50	540	14,500	3,920		1,706
Delano.....	3		3,122	14.02		14.02	44,893	320	861,320		61,407
Dolly Varden.....	1		1				9		205		14
Gold Circle.....	9		5,330	2,728.38		2,728.38	42,765				123,003
Island Mountain.....	1	1	6	7.83	54.08	61.91	12				2,172
Jarvis.....	8		659	472.98		472.98	2,078				17,873
Lee.....	1		2				3	202			18
Loray.....	2		7	.30		.30	784	160			530
Mountain City.....	1	2	6	2.72	4.25	6.97	401				503
Pilots Peak.....	1		3				440	143			295

¹ See footnotes at end of table.

Mine production of gold, silver, copper, lead, and zinc in Nevada in 1934, by counties and districts, in terms of recovered metals—Continued

County and district	Mines producing		Ore, old tailings, etc.	Gold			Silver (lode and placer)	Copper	Lead	Zinc	Total value
	Lode	Placer		Lode	Placer	Total					
Elko County—Continued.			<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	
Railroad.....	4		15	7.09		7.09	562	50	3,250		\$735
Rowland.....	1		130	32.82		32.82	30	218			1,183
Ruby Valley.....	1		5	.10		.10	25		4,355		181
Spruce Mountain.....	5		152	1.47		1.47	1,708	1,166	65,376		3,667
Tecoma.....	1		96	1.21		1.21	730		42,952		2,103
Tuscarora.....	4	5	60	26.24	17.11	43.35	72				1,562
Warm Creek.....	1		3				19		1,706		75
Esmeralda County:											
Desert.....	4		1,692	238.10		238.10	788				8,831
Divide.....	8		2,462	901.72		901.72	53,219	100	3,420		66,054
Goldfield.....	10		361,766	8,530.24		8,530.24	5,376	9,580	170		302,379
Hornsilver.....	2		45	14.42		14.42	1,710				1,609
Klondike.....	2		213	40.89		40.89	1,401	70	3,205		2,460
Lids.....	1	2	25	10.64	229.00	239.64	91				8,434
Lone Mountain.....	1		5	.20		.20	82				60
Silver Peak.....	10		29,686	9,991.79		9,991.79	3,612	287	4,760		351,747
Tokop.....	1		6	4.10		4.10	7				148
Eureka County:											
Cortez.....	2		7	6.72		6.72	341		240		464
Eureka.....	6		3,868	1,448.67		1,448.67	18,064	13,332	295,056		74,312
Lynn.....	1	9	582	594.22	410.50	1,004.72	145	415			35,242
Safford.....	1		10	.47		.47	1,372	510			944
Humboldt County:											
Amos.....	4		549	350.70		350.70	107				12,326
Central.....	2		21	20.73		20.73	244				883
Clear Creek.....	1		85	28.44		28.44	234		360		1,158
Disaster.....	1		1	2.39		2.39					84
Gold Run.....	3		107	62.84		62.84	717	318	6,257		2,917
National.....	4		2,048	541.99		541.99	6,073	410	2,332		22,938
Paradise Valley.....	3	1	3,014	46.97	2.77	49.74	4,047				4,354
Platinum.....	1		60	30.60		30.60	17				1,080
Sawtooth.....	1	2	50	34.60	23.11	57.71	38				2,042
Sulphur.....	3		140	103.64		103.64	1,508				4,597
Valmy.....	1		95	23.40		23.40	8				823
Varyville.....		1			11.43	11.43	1				400
Winnemucca.....	14	(9)	312	315.51	9.27	324.78	5,386	1,178	5,934		15,147
Lander County:											
Battle Mountain.....	30	21	7,213	4,330.63	914.85	5,245.48	36,136	72,157	39,905		213,940
Bullion.....	7	4	963	248.81	208.73	457.54	9,088	44,357	5,002		25,600
Dean.....	1		16	10.08		10.08	170		1,296		510
Hilltop.....	3	1	533	668.07	4.28	672.35	3,287	4,513			25,985

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Jackson	1		47	57.21		57.21	414	87	4,910		2,456
Kingston	1		11	18.00		18.00	58		101		670
McCoy	3		911	280.00		280.00	2,755	677	8,008		11,917
Reese River	5		12	7.92		7.92	4,554				3,240
Undistributed as to district	(3)		50	120.70		120.70	101	101	311		4,283
Lincoln County:											
Comet	3		974	62.24		62.24	14,759	1,284	229,903		20,325
Eagle Valley	4		158	53.34		53.34	4,978	369	8,674		5,608
Ferguson	4		26,359	2,521.30		2,521.30	8,693	892	565		93,831
Freiburg	1		5	9.15		9.15					332
Groom	1		48	.36		.36	751	324	50,973		2,410
Pahranagat	3		35	.74		.74	1,206	718	2,373		951
Pioche	8		83,703	3,046.80		3,046.80	495,875	3,586	9,288,128	22,392,736	1,733,888
Templute	1		268	3.08		3.08	6,940	140	780		4,634
Viola	1		2				92				69
Lyon County:											
Eldorado Canyon		1			3.38	3.38		8			123
Ramsey	1		224	494.01		494.01	13				177
Silver City	22		34,662	8,248.75		8,248.75	21,764	82	300		302,332
Talapoosa	4		444	285.67		285.67	2,404	120	580		11,569
Yerington	4	5	65	92.37	118.08	210.45	381	12,043	120		8,569
Mineral County:											
Aurora	2		682	111.07		111.07	1,329				4,741
Bell	2		378	198.63		198.63	448	4,340			7,581
Fitting	3		20	48.04		48.04	160		414		1,797
Garfield	1		175	74.00		74.00	7,428				7,388
Hawthorne	7	1	319	453.62	7.08	460.70	256	310	750		16,319
King	1		30	4.30		4.30	3				152
Pilot Mountain	6		154	129.30		129.30	116				4,594
Rand	1		22	27.30		27.30	813				1,480
Regent (Rawhide)	8	2	139	111.83	31.77	143.65	455		310		5,326
Santa Fe	2		145	49.53		49.53	518				2,066
Silver Star	17		5,083	1,804.71		1,804.71	3,552	97	6,854		65,633
Sunnyside	2		52	94.90		94.90	940	281	1,169		3,990
Nye County:											
Athens	1		388	341.02		341.02	259				12,088
Beatty		1			3.99	3.99					139
Bellehelen	5		434	455.24		455.24	2,641				17,618
Belmont	2		9	1.97		1.97	566		100		439
Bullfrog	11		1,650	1,274.48		1,274.48	7,351	250	5,342		49,513
Clifford	1		1	.35		.35	3				14
Cloverdale		2			11.03	11.03					389
Currant	2		9	3.35		3.35	22				131
Ellendale	1		31	18.33		18.33	9				647
Gold Crater	1		40	26.80		26.80	583				1,314
Hannapah	3		47	1.84		1.84	1,671				1,144
Jackson	1		2	.81		.81	23				53
Mammoth	4		59	19.70		19.70	1,409	1,792	1,010		1,780
Manhattan	26	31	41,685	11,398.03	811.06	12,209.09	1,881		863		427,956
Round Mountain	7	3	57,883	6,937.57	826.00	7,763.57	4,612				274,318

See footnotes at end of table.

Mine production of gold, silver, copper, lead, and zinc in Nevada in 1934, by counties and districts, in terms of recovered metals—Continued

County and district	Mines producing		Ore, old tailings, etc.	Gold			Silver (lode and placer)	Copper	Lead	Zinc	Total value
	Lode	Placer		Lode	Placer	Total					
Nye County—Continued.											
San Antonio	1		Short tons 2	Fine ounces 2.31	Fine ounces	Fine ounces 2.31	Fine ounces 174	Pounds	Pounds 619	Pounds	\$216
Silver Bow	2		147	82.90		82.90	3,048				4,867
Tolicha	1		15	6.40		6.40	23				239
Tonopah	21		11,890	6,023.83		6,023.83	513,032	136	11,713		542,634
Union	3		34	15.17		15.17	2,018		627		1,858
Ormsby County:											
Carson City	3		13	90.54		90.54	90				3,250
Voltaire	1		18	6.75		6.75	152		770		334
Pershing County:											
Echo	1		1	1.03		1.03					36
Farrell	1		1	3.30		3.30	1				116
Kennedy	3		292	637.86		637.86	8,071	2,162	12,671		28,153
Imlay (Humboldt)	7		878	127.77		127.77	1,363	830	1,326		5,462
Loring	1		8	8.58		8.58	10				306
Rabacrites		3			23.01	23.01	4				807
Rabbit Hole		2			21.61	21.61	7				760
Rochester	6	14	606	292.86	113.15	406.01	11,857	603	1,442		21,956
Rosebud	4	9	756	1,625.34	314.40	1,939.74	18,363				79,665
Sacramento		4			4.67	4.67	3				165
Scossa	5	1	192	176.75	22.08	198.83	193				7,074
Seven Troughs	12		21,512	6,509.98		6,509.98	11,098	258	14,378		235,251
Sierra	5		394	515.07		515.07	2,858		6,021		20,073
Trinity (Oreana)	2		8	5.57		5.57	103				261
Undistributed as to district		(¹)			58.23	58.23	8				2,040
Storey County: Comstock	33	2	155,563	16,311.64	353.89	16,665.53	296,504	1,981	269		774,307
Washoe County:											
Jumbo	1		38	4.76		4.76	2				168
Peavine	7		18	38.36		38.36	81				1,393
Pyramid	1		71	10.50		10.50	852	15,357			2,147
White Horse	9	3	714	767.05	59.28	826.33	274		219		29,065
White Pine County:											
Aurum	4		549	9.44		9.44	23,673	816	5,912		15,918
Black Horse	1		2	12.11		12.11	5				426
Cherry Creek	9		5,865	710.30		710.30	39,379				50,282
Duck Creek	5		125	2.13		2.13	1,309	632	65,701		3,441
Eagle	2		88	2.43		2.43	1,376	692	30,865		2,172
Gold Canyon	3		3,192	873.53		873.53	25,311				46,893
Granite	1		5	3.00		3.00	2				106
Osceola	4	10	27	33.06	207.26	240.32	64				8,440
Peacock	2		163	70.96		70.96	36				2,503

Robinson.....	22		1,861,417	24,265.14		24,265.14	211,863	40,933,710	115,634	7,325	4,263,996
Shoshone.....	1		41	2.86		2.86	550				456
Ward.....	1		69	83.37		83.37	87				2,970
White Pine.....	4		955	24.69		24.69	2,368	111	628		2,426
Combined districts ⁷	25	8	132,449	3,142.34	43.73	3,186.07	1,006,197	450,893	10,592,948	5,452,094	1,424,277
Undistributed as to county ⁸		(⁹)			214.71	214.71	45				7,533
Total Nevada, 1934.....	635	160	2,899,782	139,026.26	5,248.91	144,275.17	* 3,057,114	41,611,119	21,981,874	27,880,790	12,359,826
1933 ⁹	422	116	1,678,454	92,820.74	5,769.54	98,590.28	1,148,621	28,489,610	4,606,732	12,774,550	¹⁰ 5,452,300

¹ Only those districts shown separately for which Bureau of Mines is at liberty to publish figures; other producing districts listed in footnote 7 and output included under "Combined districts." Purchases by bullion buyers and production by itinerant miners included in district totals with production by regular producers or under respective counties where information as to source is available; otherwise, included under "Undistributed as to county."

² Of the 3,057,114 ounces of silver produced in 1934, 3,055,520 ounces were from lode mines and 1,594 ounces from placers.

³ No information as to district or number of producers.

⁴ No information as to number of producers.

⁵ Battle Mountain district lies in both Humboldt and Lander Counties.

⁶ Tonopah district lies in both Esmeralda and Nye Counties.

⁷ Includes following districts: Jessup, Sand Springs, and Westgate, Churchill County; Gardnerville, Douglas County; Oneota, Palmetto, and Tonopah, Esmeralda County; Mineral Hill, Eureka County; Battle Mountain and Warm Springs, Humboldt County; Lewis and New Pass, Lander County; Caliente and Jack Rabbit, Lincoln County; Pine Grove, Mineral County; Fairplay, Johnnie, and Tybo, Nye County.

⁸ No information as to county or number of producers.

⁹ Figures include gold, silver, copper, lead, and zinc recovered from zinc concentrates produced in 1931 but not marketed until 1933.

¹⁰ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

Mine production of gold, silver, copper, and lead in the Goldfield district, Esmeralda County, Nev., 1903-34

Period	Ore and old tailings		Gold (lode and placer)	Silver (lode and placer)	Copper	Lead	Total value
	Ore	Old tailings					
	<i>Short tons</i>	<i>Short tons</i>		<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	
1903-10.....	895, 334	-----	\$45, 130, 812	297, 773	160, 903	-----	\$45, 323, 025
1911-20.....	2, 914, 281	-----	37, 300, 661	1, 045, 780	7, 391, 660	27, 540	39, 406, 543
1921-30.....	28, 196	934, 000	1, 817, 220	46, 712	51, 513	5, 950	1, 854, 454
1931.....	586	274, 000	267, 071	6, 359	10, 537	-----	269, 874
1932.....	834	281, 700	361, 933	9, 282	5, 475	-----	364, 896
1933.....	1, 693	231, 000	198, 841	3, 017	2, 175	-----	1200, 036
1934.....	2, 766	359, 000	298, 132	5, 376	9, 580	170	302, 379
Total, 1903-34.....	3, 841, 690	2, 079, 700	85, 374, 670	1, 414, 299	7, 631, 843	33, 660	\$27, 721, 212

¹ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

² Dividends paid by 9 companies to end of 1934 total \$33,294,125. No dividends reported paid in 1934

Mine production of gold, silver, copper, and lead in the Tonopah district, Esmeralda and Nye Counties, Nev., 1901-34

Period	Ore, old tailings, etc.	Gold	Silver	Copper	Lead	Total value
1901-10.....	1, 359, 321	\$10, 681, 687	49, 443, 336	2, 726	8, 390	\$38, 856, 109
1911-20.....	4, 588, 552	18, 679, 537	84, 254, 831	3, 448	10, 625	75, 867, 500
1921-30.....	2, 267, 933	7, 261, 421	33, 356, 493	164	389	32, 501, 331
1931.....	16, 534	198, 081	823, 872	-----	-----	437, 004
1932.....	10, 604	181, 728	646, 687	1, 611	-----	364, 195
1933.....	5, 130	123, 808	419, 008	-----	220	1270, 469
1934.....	54, 818	233, 149	561, 327	136	11, 713	596, 471
Total, 1901-34.....	8, 322, 892	37, 379, 411	169, 505, 554	8, 085	31, 337	\$148, 893, 079

¹ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

² Dividends paid by 9 companies to end of 1934 total \$37,023,224. No dividends reported paid in 1934.

Mine production of gold, silver, copper, lead, and zinc in the Robinson district, White Pine County, Nev., 1908-34

Period	Ore	Gold	Silver	Copper	Lead	Zinc	Total value
1908-10.....	4, 476, 288	\$888, 237	217, 868	136, 193, 007	707, 300	-----	\$18, 577, 527
1911-20.....	33, 109, 972	5, 242, 356	854, 309	697, 386, 163	2, 051, 135	4, 962, 652	144, 230, 352
1921-30.....	36, 561, 422	7, 734, 946	1, 288, 126	831, 291, 095	2, 252, 956	1, 107, 373	128, 101, 175
1931.....	2, 945, 270	768, 578	164, 871	71, 333, 607	-----	-----	7, 307, 749
1932.....	1, 374, 039	336, 611	83, 214	30, 884, 862	-----	-----	2, 305, 823
1933.....	1, 220, 700	1428, 583	111, 780	28, 188, 334	71, 550	62, 210	12, 277, 039
1934.....	1, 861, 417	848, 067	211, 363	40, 933, 710	115, 634	7, 325	4, 263, 996
Total, 1908-34.....	81, 549, 108	16, 247, 378	2, 931, 531	1, 836, 211, 078	5, 198, 575	6, 139, 560	307, 063, 661

¹ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

STONE

(DETAILED STATISTICS)

By A. T. COONS

SUMMARY OUTLINE

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SUMMARY

PRODUCTION, BY KINDS

Stone sold or used by producers in the United States, 1930-34, by kinds

[Quantities approximate]

Year	Granite		Basalt and related rocks (trap rock)		Marble		Limestone	
	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value
1930.....	10,047,430	\$30,423,853	14,532,250	\$17,053,031	477,240	\$12,905,596	88,741,440	\$100,002,114
1931.....	8,068,470	25,973,510	12,552,880	13,822,835	350,420	10,419,834	66,751,040	71,875,886
1932.....	5,118,550	15,978,363	9,328,580	8,879,702	342,830	7,532,309	46,913,520	48,015,748
1933.....	4,422,250	11,327,371	7,394,290	6,596,248	224,670	6,399,004	45,922,280	44,499,311
1934.....	6,791,850	14,889,155	11,642,830	11,269,853	177,280	3,370,917	57,501,510	53,790,846

Year	Sandstone		Other stone ¹		Total	
	Short tons	Value	Short tons	Value	Short tons	Value
1930.....	4,594,310	\$10,285,391	8,603,670	\$8,278,626	126,996,340	\$178,948,611
1931.....	4,581,780	7,575,320	5,628,590	5,418,242	97,933,190	135,085,627
1932.....	2,973,040	4,081,804	5,967,790	4,575,682	70,644,310	89,063,608
1933.....	2,799,920	4,145,329	9,458,800	7,978,345	70,222,210	80,945,608
1934.....	3,605,420	4,714,284	12,344,940	10,944,881	92,063,830	98,979,936

¹ Includes mica schist, conglomerate, argillite, various light-colored volcanic rocks, serpentine not used as marble, soapstone sold as dimension stone (1932-34), and such other stone as cannot properly be classed in any main group.

PRODUCTION, BY USES

Stone sold or used by producers in the United States, 1933-34, by uses

Use	1933		1934	
	Quantity	Value	Quantity	Value
Building stone.....cubic feet..	11,512,490	\$15,337,939	9,026,270	\$8,538,847
Approximate equivalent in short tons.....	870,070		711,090	
Monumental stone.....cubic feet..	2,006,820	5,320,880	2,291,890	6,226,986
Approximate equivalent in short tons.....	166,260		186,920	
Paving blocks.....number.....	5,921,580	585,708	5,895,270	618,041
Approximate equivalent in short tons.....	59,610		63,740	
Curbing.....cubic feet.....	688,800	618,706	984,400	885,040
Approximate equivalent in short tons.....	55,780		78,590	
Flagging.....cubic feet.....	181,070	133,827	299,820	190,335
Approximate equivalent in short tons.....	14,400		23,440	
Rubble.....short tons.....	141,590	186,900	293,430	317,640
Riprap.....do.....	3,254,860	3,486,155	6,052,970	5,894,259
Crushed stone.....do.....	45,490,610	39,018,736	60,567,920	56,466,607
Furnace flux ¹.....do.....	7,984,710	5,512,533	9,230,880	6,297,579
Refractory stone ².....do.....	501,440	710,526	677,410	863,078
Agriculture (limestone).....do.....	994,540	1,239,724	1,612,380	1,788,142
Manufacturing industries (limestone and marble).....short tons.....	5,637,900	4,533,465	5,373,110	4,493,530
Other uses ³.....do.....	5,050,440	4,260,509	7,191,950	6,399,852
Total (quantities approximate, in short tons).....	70,222,210	80,945,608	92,063,830	98,979,936

¹ 1933: Limestone and marble; 1934: Limestone.² Gansiter, mica schist, soapstone, and dolomite.

³ 1933: Includes 4,402,870 tons of stone valued at \$2,611,560 used as road base (of which 4,127,380 tons valued at \$2,546,335 were from Pennsylvania) and 97,680 tons of roofing granules valued at \$720,356. There were also produced 146,880 tons of slate granules valued at \$1,024,917 used for roofing and included in the chapter on Slate in Minerals Yearbook, 1934. 1934: Includes 6,358,580 tons of stone valued at \$4,381,731 used as road base (of which 5,371,370 tons valued at \$4,050,447 were from Pennsylvania) and 85,410 tons of roofing granules valued at \$687,386. There were also produced 123,290 tons of slate granules valued at \$902,078 used for roofing and included in the chapter on Slate in Minerals Yearbook, 1935.

PRODUCTION, BY STATES

Stone sold or used by producers in the United States in 1934, by States

State	Number of active plants	Short tons (approximate)	Value	State	Number of active plants	Short tons (approximate)	Value
Alabama.....	25	1 542,500	1 \$660,458	Nevada.....	8	1 64,880	1 \$74,219
Alaska.....	3	48,890	74,919	New Hampshire.....	22	50,670	547,997
Arizona.....	21	392,250	346,975	New Jersey.....	37	1,368,490	1,662,968
Arkansas.....	16	1 397,150	1 268,667	New Mexico.....	6	1 215,940	1,094,609
California.....	199	5 597,040	5 520,311	New York.....	195	8 400,690	8 516,754
Colorado.....	36	1 1 191,480	1 1 270,965	North Carolina.....	72	1 193,690	1 831,351
Connecticut.....	36	1 1 293,510	1 1 356,144	North Dakota.....	3	1 5,700	1 2,132
Delaware.....	2	(?)	(?)	Ohio.....	181	5 974,850	5 490,800
Florida.....	32	1 1 095,800	1 945,515	Oklahoma.....	40	966,020	731,675
Georgia.....	36	953,050	2 526,786	Oregon.....	73	1 997,030	1 863,447
Hawaii.....	13	1 304,950	1 552,856	Pennsylvania.....	376	15 251,330	14 501,246
Idaho.....	50	1 764,730	1 575,103	Puerto Rico.....	13	116,060	112,072
Illinois.....	104	3 915,880	2 894,538	Rhode Island.....	12	185,280	397,540
Indiana.....	109	1 2 057,440	1 4 140,960	South Carolina.....	12	431,790	847,860
Iowa.....	145	1 2 276,440	1 1 934,364	South Dakota.....	45	1 237,510	1 497,200
Kansas.....	93	1 1 371,300	1 1 350,391	Tennessee.....	98	1 2 094,890	1 2 396,510
Kentucky.....	69	1 1 992,820	1 760,756	Texas.....	123	1 2 749,270	1 2 183,435
Louisiana.....	2	(?)	(?)	Utah.....	26	1 389,820	1 236,714
Maine.....	41	1 138,620	1 949,632	Vermont.....	49	238,140	3 321,801
Maryland.....	36	1 897,830	1 1 127,798	Virginia.....	100	1 2 883,140	1 3 103,403
Massachusetts.....	55	2 347,080	3 743,875	Washington.....	141	3 059,130	2 796,231
Michigan.....	35	1 6 617,770	1 3 718,398	West Virginia.....	111	2 106,130	1 912,766
Minnesota.....	72	797,510	1 925,753	Wisconsin.....	202	2 679,860	3 114,882
Mississippi.....	1	(?)	(?)	Wyoming.....	18	655,030	658,375
Missouri.....	181	1 2 436,260	1 2 913,415	Undistributed.....		587,240	715,640
Montana.....	32	434,260	407,363				
Nebraska.....	16	294,690	402,367				
					3,423	92,063,830	98,979,936

¹ To avoid disclosing confidential information, certain State totals are slightly incomplete, the figures not included being combined under "Undistributed."

² Included under "Undistributed."

DIMENSION STONE

The term "dimension stone" is applied to blocks or slabs of natural stone, of which most are cut to definite shapes and sizes. It includes cut, carved, sawed, and roughhewn blocks of building stone, memorial stone, paving blocks, curbing, flagging, and roofing slabs, as well as many special products such as tubs, sinks, tanks, blackboards, steps, baseboards, and floor tile. The term also includes rubble, consisting of more or less irregular fragments used with mortar in building masonry walls. Dimension-stone products are quite distinct from crushed, broken, and pulverized stone, which comprise irregular fragments or grains sized chiefly by mechanical screening or air separation. Processes of quarrying and manufacturing, uses, and market channels of dimension stone bear no similarity to those of crushed stone. Because these two great branches of the industry differ so widely, the figures for dimension stone are presented separately in the following table and those for crushed and broken stone on page 120. Slate is treated in a separate chapter in Minerals Yearbook, 1935; however, in order that the figures here presented may be comprehensive, the total quantity and value of slate sold as dimension stone and as granules and flour are added to these two stone tables.

Dimension stone sold or used by producers in the United States, 1933-34, by kinds and uses

Kind and use	1933	1934	
		Total	Percent of change
Granite:			
Building stone:			
Rough construction..... short tons	109,820	121,740	+10.9
Value.....	\$149,941	\$231,505	+54.4
Average per ton.....	\$1.37	\$1.90	+38.7
Cut stone, slabs, and mill blocks..... cubic feet	1,160,400	1,130,650	-2.6
Value.....	\$2,736,223	\$2,411,113	-11.9
Average per cubic foot.....	\$2.36	\$2.13	-9.7
Monumental stone..... cubic feet	1,580,520	1,826,980	+15.6
Value.....	\$3,962,110	\$4,751,560	+19.9
Average per cubic foot.....	\$2.51	\$2.60	+3.6
Rubble..... short tons	39,050	66,310	+69.8
Value.....	\$36,052	\$74,047	+105.4
Paving blocks..... number	5,800,680	5,838,120	+6
Value.....	\$577,524	\$613,879	+6.3
Curbing..... cubic feet	528,820	621,190	+17.5
Value.....	\$489,006	\$603,397	+23.4
Total:			
Quantity..... approximate short tons	476,750	543,360	+14.0
Value.....	\$7,950,856	\$8,685,501	+9.2
Basalt and related rocks (trap rock):			
Building stone..... short tons	6,090	7,760	+27.4
Value.....	\$6,777	\$10,388	+53.3
Average per ton.....	\$1.11	\$1.53	+37.8
Rubble..... short tons	3,800	3,530	-7.1
Value.....	\$4,823	\$2,544	-47.3
Total:			
Quantity..... short tons	9,890	11,290	+14.2
Value.....	\$11,600	\$12,932	+11.5
Marble:			
Building stone (cut stone, slabs, and mill blocks)..... cubic feet	1,344,310	500,010	-62.8
Value.....	\$4,877,738	\$1,719,456	-64.7
Average per cubic foot.....	\$3.63	\$3.44	-5.2
Monumental stone..... cubic feet	426,300	404,910	-9.1
Value.....	\$1,358,770	\$1,475,426	+8.6
Average per cubic foot.....	\$3.19	\$3.17	-.6
Total:			
Quantity..... approximate short tons	150,070	81,720	-45.5
Value.....	\$6,236,508	\$3,194,882	-48.8

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Dimension stone sold or used by producers in the United States, 1933-34, by kinds and uses—Continued

Kind and use	1933	1934	
		Total	Percent of change
Limestone:			
Building stone:			
Rough construction..... short tons..	78, 790	156, 000	+98. 0
Value.....	\$108, 100	\$179, 337	+65. 9
Average per ton.....	\$1. 37	\$1. 15	-16. 1
Cut stone, slabs, and mill blocks..... cubic feet..	5, 637, 450	3, 158, 660	-44. 0
Value.....	\$6, 308, 123	\$3, 212, 118	-49. 1
Average per cubic foot.....	\$1. 12	\$1. 02	-8. 9
Rubble..... short tons..	79, 060	190, 080	+140. 4
Value.....	\$94, 046	\$179, 791	+91. 2
Flagging..... cubic feet..	73, 610	116, 610	+48. 3
Value.....	\$32, 134	\$49, 886	+55. 2
Total:			
Quantity..... approximate short tons..	550, 850	585, 510	+6. 3
Value.....	\$6, 642, 403	\$3, 621, 132	-44. 7
Sandstone:			
Building stone:			
Rough construction..... short tons..	12, 700	23, 680	+86. 5
Value.....	\$42, 705	\$50, 133	+17. 4
Average per ton.....	\$3. 36	\$2. 12	-36. 9
Cut stone, slabs, and mill blocks..... cubic feet..	668, 310	339, 570	-49. 2
Value.....	\$780, 315	\$481, 244	-38. 4
Average per cubic foot.....	\$1. 17	\$1. 42	+21. 4
Rubble..... short tons..	5, 830	14, 030	+140. 7
Value.....	\$10, 917	\$21, 310	+93. 2
Paving blocks..... number..	120, 900	57, 150	-52. 7
Value.....	\$3, 184	\$4, 162	+49. 1
Curbing..... cubic feet..	159, 980	363, 210	+127. 0
Value.....	\$129, 700	\$281, 643	+117. 1
Flagging..... cubic feet..	102, 460	183, 210	+78. 8
Value.....	\$101, 693	\$140, 449	+38. 1
Total:			
Quantity..... approximate short tons..	90, 210	106, 900	+18. 5
Value.....	\$1, 074, 014	\$978, 941	-8. 9
Miscellaneous stone: ¹			
Building stone..... cubic feet..	191, 630	102, 870	-46. 3
Value.....	\$327, 517	\$243, 553	-25. 6
Average per ton.....	\$1. 71	\$2. 37	+38. 6
Rubble..... short tons..	13, 850	19, 480	+40. 6
Value.....	\$41, 062	\$39, 948	-2. 7
Total:			
Quantity..... approximate short tons..	29, 940	28, 430	-5. 0
Value.....	\$368, 579	\$283, 501	-23. 1
Dimension stone, exclusive of slate, by uses:			
Building stone:			
Rough construction..... short tons..	223, 490	309, 180	+38. 3
Value.....	\$635, 040	\$471, 363	-25. 8
Cut stone, slabs, and mill blocks..... cubic feet..	8, 810, 470	5, 231, 760	-40. 6
Value.....	\$14, 702, 899	\$8, 067, 484	-45. 1
Monumental stone..... cubic feet..	2, 006, 820	2, 291, 890	+14. 2
Value.....	\$5, 320, 880	\$6, 226, 986	+17. 0
Paving blocks..... number..	5, 921, 580	5, 895, 270	-. 4
Value.....	\$585, 708	\$618, 041	+5. 5
Curbing..... cubic feet..	688, 800	984, 400	+42. 9
Value.....	\$618, 706	\$885, 040	+43. 0
Flagging..... cubic feet..	181, 070	299, 820	+65. 6
Value.....	\$133, 827	\$190, 335	+42. 2
Rubble..... short tons..	141, 590	293, 430	+107. 2
Value.....	\$186, 900	\$317, 640	+70. 0
Total:			
Quantity..... approximate short tons..	1, 307, 710	1, 357, 210	+3. 8
Value.....	\$22, 183, 960	\$16, 776, 889	-24. 4
Slate as dimension stone ² approximate short tons..	73, 240	66, 570	-9. 1
Value.....	\$1, 515, 863	\$1, 641, 828	+8. 3
Grand total:			
Quantity..... approximate short tons..	1, 380, 950	1, 423, 780	+3. 1
Value.....	\$23, 699, 823	\$18, 418, 717	-22. 3

¹ Includes soapstone, mica schist, volcanic rocks, argillite, and other varieties that cannot properly be classed in any main group.

² Details of production, by uses, are given in the chapter on Slate in Minerals Yearbook, 1935.

Building stone sold or used by producers in the United States in 1934, by kinds

Kind	Rough			
	Constructional		Architectural	
	Cubic feet	Value	Cubic feet	Value
Granite.....	1,383,350	\$231,505	433,910	\$320,453
Basalt and related rocks (trap rock).....	91,720	10,388		
Marble.....			100,470	211,337
Limestone.....	2,018,200	179,337	1,345,350	533,839
Sandstone.....	301,240	50,133	85,800	54,949
Miscellaneous.....			(1)	(1)
	3,794,510	471,363	1,965,530	1,120,578

Kind	Finished				Total	
	Sawed ¹		Cut ²			
	Cubic feet	Value	Cubic feet	Value	Cubic feet	Value
Granite.....	396,180	\$820,994	300,560	\$1,269,666	2,514,000	\$2,642,618
Basalt and related rocks (trap rock).....					91,720	10,388
Marble.....	171,470	721,305	228,070	786,814	500,010	1,719,456
Limestone.....	499,080	392,175	1,814,230	2,286,104	5,176,860	3,391,455
Sandstone.....	195,690	231,668	58,080	194,627	640,810	531,377
Miscellaneous.....			102,870	1243,553	102,870	243,553
	1,262,420	2,166,142	2,003,810	4,780,764	9,026,270	8,538,847

¹ A small amount of rough architectural included under cut stone.

² For granite, sawed stone corresponds to dressed stone for construction work (walls, foundations, bridges) and cut stone to architectural stone for high-class buildings.

CRUSHED AND BROKEN STONE

Crushed and broken stone, as distinguished from dimension stone, includes railroad ballast and crushed aggregates for concrete and road metal and also other stone which is crushed, pulverized, and sized by mechanical screening or air separation, stone broken for road-base work, large and irregular-size stone broken for jetty work, riprap and other harbor construction, and waste stone used for many purposes. Crushed and broken stone sold or used by producers in 1933 and 1934, by principal uses, is summarized for ready reference in the following table; asphaltic stone, slate crushed for granules and flour, and stone used in the manufacture of lime and of cement are shown in order to cover the total output of crushed and broken stone. Asphaltic stone, slate, lime, and cement are treated in the respective reports on these subjects.

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Crushed and broken stone sold or used by producers in the United States, 1933-34, by principal uses

Use	1933			1934				
	Short tons	Value		Short tons	Value		Percent of change in—	
		Total	Average		Total	Average	Tonnage	Average value
Concrete and road metal.....	40,857,120	\$35,843,318	\$0.88	55,244,470	\$52,471,430	\$0.95	+35.2	+8.0
Railroad ballast.....	4,633,490	3,175,418	.69	5,323,450	3,995,177	.75	+14.9	+8.7
Metallurgical.....	7,984,710	5,512,533	.69	9,230,880	6,297,579	.68	+15.6	-1.4
Alkali works.....	4,193,650	2,120,908	.51	3,814,060	2,015,506	.53	-9.1	+3.9
Riprap.....	3,254,860	3,486,155	1.07	6,052,970	5,894,259	.97	+86.0	-9.3
Agricultural.....	994,540	1,239,724	1.25	1,612,380	1,788,142	1.11	+62.1	-11.2
Refractory (ganister, mica schist, dolomite, soapstone).....	501,440	710,526	1.42	677,410	863,078	1.27	+35.1	-10.6
Asphalt filler.....	126,780	332,159	2.62	172,170	361,404	2.10	+35.8	-19.8
Calcium carbide works.....	117,740	75,077	.64	305,600	177,458	.58	+159.6	-9.4
Sugar factories.....	607,990	887,630	1.46	479,900	658,502	1.37	-21.1	-6.2
Glass factories.....	199,720	245,835	1.23	161,220	260,410	1.62	-19.3	+31.7
Paper mills.....	196,440	285,850	1.46	262,160	408,022	1.56	+33.5	+6.8
Other uses.....	5,246,020	4,846,515	.92	7,369,950	7,012,080	.95	+40.5	+3.3
Portland cement (including "cement rock") ¹	68,914,500	58,761,648	.85	90,706,620	82,203,047	.91	+31.6	+7.1
Natural cement ("cement rock") ¹	16,117,000	(?)	-----	19,730,000	(?)	-----	+22.4	-----
Lime ²	4,450,000	(?)	-----	4,800,000	(?)	-----	+7.9	-----
Total stone.....	89,481,500	(?)	-----	115,236,620	(?)	-----	+28.8	-----
Asphaltic stone.....	285,070	1,125,164	3.95	410,453	1,762,376	4.29	+44.0	+8.6
Slate granules and flour.....	186,380	1,180,322	6.33	166,160	1,066,100	6.42	-10.8	+1.4

¹ Value reported as cement in the chapter on Cement.
² No value available for stone used in manufacture of cement and lime.
³ Value reported as lime in the chapter on Lime.

Crushed stone sold or used by producers in the United States in 1934, by kinds and uses

Kind	Concrete and road metal		Railroad ballast		Total		
	Short tons	Value	Short tons	Value	Short tons	Value	
						Total	Average
Granite.....	4,335,310	\$4,617,986	827,870	\$634,021	5,163,180	\$5,252,007	\$1.02
Basalt and related rocks (trap rock)...	9,841,100	9,725,562	624,380	613,520	10,465,480	10,339,082	.99
Limestone.....	33,209,910	30,749,136	3,614,430	2,549,091	36,824,340	33,298,227	.90
Sandstone.....	2,078,490	2,064,608	79,060	57,233	2,157,550	2,121,841	.98
Miscellaneous.....	5,779,660	5,314,138	177,710	141,312	5,957,370	5,455,450	.92
Average value per ton.....	55,244,470	52,471,430	5,323,450	3,995,177	60,567,920	56,466,607	\$0.93

Crushed stone sold or used by producers in the United States, 1930-34, by uses

Year	Concrete and road metal		Railroad ballast		Total	
	Short tons	Value	Short tons	Value	Short tons	Value
1930.....	74,293,090	\$77,347,379	12,817,800	\$10,206,975	87,110,890	\$87,554,354
1931.....	65,811,520	64,908,509	6,812,890	5,496,455	72,624,410	70,404,964
1932.....	48,020,560	43,651,774	3,974,540	3,239,991	51,995,100	46,891,765
1933.....	40,857,120	35,843,318	4,633,490	3,175,418	45,490,610	39,018,736
1934.....	55,244,470	52,471,430	5,323,450	3,995,177	60,567,920	56,466,607

*Crushed stone sold or used by commercial and noncommercial operators in the United States, 1930-34*¹

[Figures for "noncommercial operations" represent tonnages reported by States, counties, municipalities and other Government agencies, produced either by themselves or by contractors expressly for their consumption, often with publicly owned equipment; they do not include purchases from commercial producers. Figures for "commercial operations" represent tonnages reported by all other producers.]

Year	Commercial operations				Noncommercial operations				Total	
	Short tons	Average value per ton	Percent of change in quantity from preceding year	Percent of total quantity	Short tons	Average value per ton	Percent of change in quantity from preceding year	Percent of total quantity	Short tons	Percent of change in quantity from preceding year
1930	79,560,890	(?)	-6.8	91.3	7,550,000	(?)	+3.3	8.7	87,110,890	-6.1
1931	64,818,410	(?)	-18.5	89.3	7,806,000	(?)	+3.4	10.7	72,624,410	-16.6
1932	43,284,190	(?)	-33.2	83.2	8,710,910	(?)	+11.6	16.8	51,995,100	-28.4
1933	37,839,200	\$0.84	-12.6	83.2	7,651,410	\$0.95	-12.2	16.8	45,490,610	-12.5
1934	43,259,180	.94	+14.3	71.4	17,308,740	.91	+126.2	28.6	60,567,920	+33.1

¹ Includes stone for concrete and road metal and railroad ballast.

² Separate figures for commercial and noncommercial value not available.

³ Comprises 8,530,220 tons valued at \$0.92 per ton produced directly by construction and maintenance crews of States, counties, municipalities, and other Government agencies and 8,778,520 tons valued at \$0.91 per ton produced by contractors expressly for such agencies.

*Crushed stone aggregates (concrete and road metal) shipped by commercial and noncommercial operators in the United States, 1933-34, by methods of transport*¹

Method of transport	Commercial operations		Noncommercial operations		Total	
	Short tons	Percent of total	Short tons	Percent of total	Short tons	Percent of total
1933						
Railroad	9,883,870	29.8	105,320	1.4	9,989,190	24.4
Water	2,479,240	7.5			2,479,240	6.1
Truck	17,146,120	51.6	7,546,090	98.6	24,692,210	60.4
Unspecified	3,696,480	11.1			3,696,480	9.1
Total:						
Quantity	33,205,710	100.0	7,651,410	100.0	40,857,120	100.0
Value	\$28,570,039		\$7,273,279		\$35,843,318	
1934						
Railroad	13,456,590	35.5			13,456,590	24.4
Water	2,459,010	6.5			2,459,010	4.4
Truck	20,934,840	55.2	17,308,740	100.0	38,243,580	69.2
Unspecified	1,085,290	2.8			1,085,290	2.0
Total:						
Quantity	37,935,730	100.0	17,308,740	100.0	55,244,470	100.0
Value	\$36,649,971		\$15,821,459		\$52,471,430	

¹ Exclusive of railroad ballast, virtually all of which is shipped by rail.

Crushed stone sold or used by producers in the United States in 1934, by States and uses

State	Concrete and road metal		Railroad ballast		Total	
	Short tons	Value	Short tons	Value	Short tons	Value
Alabama.....	1 89, 350	1 \$107, 444			1 89, 350	1 \$107, 444
Alaska.....	48, 890	74, 919			48, 890	74, 919
Arizona.....	335, 580	293, 746	14, 000	\$15, 270	349, 580	309, 016
Arkansas.....	1 317, 250	1 196, 729	1 40, 520	1 38, 045	1 357, 770	1 234, 774
California.....	3, 096, 170	2, 764, 533	184, 040	72, 631	3, 280, 210	2, 837, 164
Colorado.....	1 959, 240	1 927, 840			1 959, 240	1 927, 840
Connecticut.....	1, 156, 760	1, 111, 768	83, 540	63, 987	1, 240, 300	1, 175, 755
Delaware.....	(2)	(2)			(2)	(2)
Florida.....	1 868, 490	1 724, 500	158, 490	108, 664	1, 026, 980	1 833, 164
Georgia.....	727, 770	658, 795	38, 320	27, 441	766, 090	686, 236
Hawaii.....	304, 520	551, 978	190	357	304, 710	552, 335
Idaho.....	755, 620	558, 021			755, 620	558, 021
Illinois.....	1 2, 677, 310	1 1, 970, 354	228, 520	150, 263	1 2, 905, 830	1 2, 120, 617
Indiana.....	1 1, 298, 340	1 1, 073, 052	100, 500	67, 812	1 1, 398, 840	1 1, 140, 864
Iowa.....	1 2, 000, 750	1 1, 717, 540	35, 150	16, 583	1 2, 035, 900	1 1, 734, 123
Kansas.....	849, 040	829, 832	228, 590	167, 490	1, 077, 630	997, 322
Kentucky.....	1, 584, 010	1, 443, 184	180, 920	97, 714	1, 764, 930	1, 540, 898
Louisiana.....	(2)	(2)	(2)	(2)	(2)	(2)
Maine.....	1 41, 550	1 67, 686	240	210	1 41, 790	1 67, 896
Maryland.....	1 552, 380	1 689, 068	1 111, 320	1 142, 057	1 663, 700	1 831, 125
Massachusetts.....	1 1, 621, 610	1 1, 582, 115	1 175, 810	1 143, 175	1 2, 140, 210	1 2, 172, 036
Michigan.....	638, 860	432, 057	41, 650	30, 255	680, 510	462, 312
Minnesota.....	652, 960	624, 508			652, 960	624, 508
Missouri.....	1 1, 398, 570	1 1, 491, 694	38, 930	29, 338	1 1, 437, 500	1 1, 521, 032
Montana.....	1 368, 190	1 317, 040			1 368, 190	1 317, 040
Nebraska.....	119, 250	103, 228	(2)	(2)	1 119, 250	1 103, 228
Nevada.....	1 510	1 350	(2)	(2)	1 510	1 350
New Hampshire.....	15, 270	21, 811	(2)	(2)	1 15, 270	1 21, 811
New Jersey.....	1, 261, 370	1, 448, 695	1 39, 080	1 36, 188	1 1, 300, 450	1 1, 484, 883
New Mexico.....	1 189, 440	1 1, 082, 681	16, 500	7, 928	1 205, 940	1 1, 090, 609
New York.....	1 5, 679, 670	1 5, 916, 515	1 686, 020	1 510, 101	6, 987, 980	7, 154, 375
North Carolina.....	1 972, 210	1 1, 300, 104	202, 710	175, 787	1 1, 174, 920	1 1, 475, 891
North Dakota.....	1 5, 700	1 2, 132			1 5, 700	1 2, 132
Ohio.....	3, 360, 530	2, 775, 829	499, 660	371, 656	3, 860, 190	3, 147, 485
Oklahoma.....	1 632, 180	1 418, 035	277, 100	157, 989	1 909, 280	1 576, 024
Oregon.....	816, 020	698, 653			816, 020	698, 653
Pennsylvania.....	5, 823, 160	6, 076, 873	303, 870	283, 396	6, 127, 030	6, 360, 269
Puerto Rico.....	113, 250	108, 570	310	177	113, 560	108, 747
Rhode Island.....	171, 520	201, 490			171, 520	201, 490
South Carolina.....	322, 230	443, 394	72, 960	64, 407	395, 190	507, 801
South Dakota.....	1 207, 810	1 209, 308			1 207, 810	1 209, 308
Tennessee.....	1 1, 647, 140	1 1, 381, 131	276, 690	204, 115	1 1, 923, 830	1 1, 585, 246
Texas.....	1 1, 576, 510	1 1, 418, 389	1 113, 760	1 82, 855	1 1, 690, 270	1 1, 501, 244
Utah.....	234, 160	118, 702			234, 160	118, 702
Vermont.....	81, 160	114, 705			81, 160	114, 705
Virginia.....	1 817, 440	1 825, 940	599, 280	467, 529	2 416, 720	2 293, 469
Washington.....	2, 022, 970	1 851, 898	12, 290	6, 143	2 035, 260	1 858, 041
West Virginia.....	898, 920	972, 901	182, 320	108, 564	1 081, 240	1 081, 465
Wisconsin.....	1 1, 922, 930	1 1, 575, 261	20, 500	11, 966	1 1, 943, 430	1 1, 587, 227
Wyoming.....	512, 450	478, 702	17, 170	13, 819	529, 620	492, 521
Undistributed.....	1, 497, 460	1, 717, 730	342, 500	321, 265	874, 880	864, 490
	55, 244, 470	52, 471, 430	5, 323, 450	3, 995, 177	60, 567, 920	56, 466, 607

¹ To avoid disclosing confidential information certain totals are somewhat incomplete, the figures not included being combined under "Undistributed."

² Included under "Undistributed."

FOREIGN TRADE

[Figures on imports and exports compiled by Claude Galiher, of the Bureau of Mines, from records of the Bureau of Foreign and Domestic Commerce]

Value of stone imported for consumption in the United States, 1930-34

1930.....	\$3, 145, 861	1933.....	\$536, 643
1931.....	1, 497, 696	1934.....	413, 301
1932.....	766, 706		

Stone imported for consumption in the United States in 1934, by classes

Class	Quantity	Value	Class	Quantity	Value
Marble, breccia, and onyx: In blocks, rough, etc. cubic feet.....	18, 876	\$125, 599	Quartzite.....short tons.....	52, 646	\$94, 123
Sawed.....do.....	170	721	Travertine stone unmanufactured).....cubic feet.....	5, 056	6, 849
Slabs or paving tiles superficial feet.....	76, 184	27, 961	Stone (other): Dressed.....		6, 715
All manufactures.....		32, 222	Rough (monumental or building stone) cubic feet.....	4, 788	3, 900
Mosaic cubes of marble or onyx: Attached to paper superficial feet.....	12	239	Rough (other).....		11, 798
		186, 742			22, 413
Granite: Dressed.....cubic feet.....	9, 609	46, 179	Grand total.....		413, 301
Rough.....do.....	45, 887	56, 995			
	55, 496	103, 174			

Stone¹ imported into the United States in 1933, by classes and countries

[General imports]

Country	Marble, breccia, and onyx			Granite		Other building or monumental stone (value)	Other stone, n. e. s. (value)	Total value
	Rough		Manufactures (value)	Cubic feet	Value			
	Cubic feet	Value						
North America:								
Canada.....	767	\$2, 437	\$2, 664	10, 463	\$12, 426	\$12, 537	\$80, 771	\$110, 835
Cuba.....			48					48
Mexico.....			30					30
West Indies ("Other British").....							250	250
Total North America.....	767	2, 437	2, 742	10, 463	12, 426	12, 537	81, 021	111, 163
South America:								
Argentina.....	2, 935	54, 306						54, 306
Brazil.....							1, 000	1, 000
Total South America.....	2, 935	54, 306					1, 000	55, 306
Europe:								
Austria.....			80			4	103	187
Belgium.....	4, 242	18, 362	12, 365			119		30, 846
Czechoslovakia.....			133	1, 098	4, 894	5, 718		10, 745
Finland.....				22, 664	55, 297			55, 297
France.....	7, 877	12, 675	8, 290			3, 768		24, 733
Germany.....	86	1, 912	5, 168	2, 018	9, 772	9, 303	9	26, 164
Greece.....			105					105
Italy.....	19, 382	50, 920	81, 291	3	13	146, 438		278, 662
Portugal.....	7, 806	17, 945						17, 945
Rumania.....						9, 953		9, 953
Spain.....	14, 062	21, 975	72					22, 047
Sweden.....	436	1, 963		13, 190	23, 562			25, 525
U. S. S. R.....						186		186
United Kingdom.....	1, 021	2, 328	4, 144	450	2, 091	4, 706	1, 124	14, 393
Other Europe ²	10	37	8	28	55	986		1, 086
Total Europe.....	54, 922	128, 117	111, 656	39, 451	95, 684	181, 181	1, 236	517, 874
Algeria and Tunisia.....	772	3, 463						3, 463
China.....			704			39, 417		40, 121
Japan.....			360			8, 072		8, 432
Other countries ³			204			656		860
Grand total.....	59, 396	188, 323	115, 666	49, 914	108, 110	241, 863	83, 257	737, 219

¹ Imports of quartzite and travertine, by countries, not shown separately for 1933 by Bureau of Foreign and Domestic Commerce.² Includes Denmark, Irish Free State, Netherlands, Norway, Poland and Danzig, and Switzerland.³ Includes Australia, Egypt, Hong Kong, British India, Iran, and Syria.

Stone imported for consumption in the United States in 1934, by classes and countries

Country	Marble, breccia, and onyx			Granite		Other building or monumental stone (value)	Other stone, n. e. s. (value)	Quartzite		Travertine		Total value
	Rough		Manu- fac- tures (value)	Cubic feet	Value			Short tons	Value	Cubic feet	Value	
	Cubic feet	Value										
North America:												
Canada.....	666	\$2, 198	\$220	12, 374	\$8, 739	\$73	\$7, 848	52, 640	\$94, 000	-----	-----	\$113,078
Cuba.....	-----	-----	545	-----	-----	-----	-----	-----	-----	-----	-----	545
Mexico.....	1, 436	5, 747	115	-----	-----	-----	-----	-----	-----	-----	-----	5, 862
West Indies ("Other British").	-----	-----	-----	-----	-----	-----	250	-----	-----	-----	-----	250
Total North America...	2, 102	7, 945	880	12, 374	8, 739	73	8, 098	52, 640	94, 000	-----	-----	119, 735
South America:												
Argentina.....	2, 411	58, 990	-----	-----	-----	-----	-----	-----	-----	-----	-----	58, 990
Ecuador.....	-----	-----	-----	-----	-----	-----	11	-----	-----	-----	-----	11
Total South America...	2, 411	58, 990	-----	-----	-----	-----	11	-----	-----	-----	-----	59, 001
Europe:												
Austria.....	-----	-----	208	-----	-----	-----	-----	-----	-----	-----	-----	208
Belgium.....	4, 889	19, 467	580	-----	-----	-----	-----	-----	-----	-----	-----	20, 047
Czechoslovakia.....	-----	-----	58	49	347	-----	-----	-----	-----	-----	-----	405
Finland.....	-----	-----	-----	25, 302	52, 776	-----	-----	-----	-----	-----	-----	52, 776
France.....	2, 380	7, 115	7, 829	-----	-----	2, 870	-----	-----	-----	-----	-----	17, 814
Germany.....	-----	-----	1, 573	717	4, 476	310	92	6	123	-----	-----	8, 574
Italy.....	5, 047	27, 018	43, 734	738	1, 033	2, 123	-----	-----	-----	5, 056	\$6, 849	80, 757
Norway.....	-----	-----	-----	2, 539	5, 621	-----	-----	-----	-----	-----	-----	5, 621
Rumania.....	-----	-----	1, 056	-----	-----	2, 773	-----	-----	-----	-----	-----	3, 829
Spain.....	1, 849	3, 700	168	-----	-----	64	-----	-----	-----	-----	-----	4, 069
Sweden.....	163	899	103	12, 908	26, 509	-----	137	-----	-----	-----	-----	28, 222
U. S. S. R.....	-----	-----	210	484	1, 160	244	711	-----	-----	-----	-----	1, 614
United Kingdom.....	-----	-----	2, 410	381	2, 491	1, 165	2, 760	-----	-----	-----	-----	8, 826
Other Europe ¹	-----	-----	177	-----	-----	-----	-----	-----	-----	-----	-----	177
Total Europe.....	14, 328	58, 199	58, 106	43, 118	94, 413	9, 549	3, 700	6	123	5, 056	6, 849	230, 939
Algeria and Tunisia.....	35	465	-----	-----	-----	-----	-----	-----	-----	-----	-----	465
China.....	-----	-----	270	-----	-----	212	-----	-----	-----	-----	-----	482
Japan.....	-----	-----	497	4	22	469	-----	-----	-----	-----	-----	988
Other countries ²	-----	-----	1, 390	-----	-----	301	-----	-----	-----	-----	-----	1, 691
Grand total.....	18, 876	125, 599	61, 143	55, 496	103, 174	10, 615	11, 798	52, 646	94, 123	5, 056	6, 849	413, 301

¹ Includes Hungary and Netherlands.

² Includes British India, Netherland India, Palestine, South Africa (Union of), and Syria.

Stone¹ exported from the United States, 1930-34, by classes

Year	Marble in blocks, rough or dressed		Other building or monumental stone (including cement building blocks)		Value of other manufactures of stone (including other cement manufactures)	Total value
	Cubic feet	Value	Cubic feet	Value		
1930.....	84, 550	\$375, 964	731, 359	\$594, 177	\$1, 066, 584	\$2, 036, 725
1931.....	32, 443	141, 216	284, 050	209, 353	627, 771	978, 340
1932.....	30, 691	99, 943	73, 098	75, 558	273, 755	449, 256
1933.....	11, 585	46, 031	29, 933	35, 588	244, 875	326, 494
1934.....	11, 475	44, 979	43, 176	40, 311	354, 509	439, 799

¹ Figures not separately recorded for stone and for cement building blocks and for stone and for cement manufactures.

Stone¹ exported from the United States in 1934, by classes and countries

Country	Marble in blocks, rough or dressed		Other building or monumental stone (including cement building blocks)		Value of other manu- factures of stone (includ- ing other cement manu- factures)	Total value
	Cubic feet	Value	Cubic feet	Value		
North America:						
Bermuda.....	7	\$71	17	\$83	\$112	\$266
Canada.....	7,065	27,603	41,944	33,518	232,993	299,114
Central America:						
British Honduras.....	11	130			279	409
Costa Rica.....					256	256
Guatemala.....					106	106
Honduras.....					894	894
Nicaragua.....					237	237
Panama.....	73	1,060	252	320	5,430	6,810
Salvador.....					167	167
Mexico.....	5	35			12,131	12,166
Newfoundland and Labrador.....	897	4,881			1,176	6,057
West Indies:						
British:						
Jamaica.....					6,099	6,099
Other West Indies.....	71	496			49	545
Cuba.....					7,512	7,512
Dominican Republic.....					1,262	1,262
Haiti.....	1	23			308	331
Netherlands.....	4	48	40	180	1,929	2,157
Virgin Islands of the United States.....	7	150			647	797
South America:						
Argentina.....					1,000	1,000
Bolivia.....					82	82
Brazil.....					743	743
Chile.....					138	138
Colombia.....					4,384	4,384
Ecuador.....					345	345
Guiana (British).....					64	64
Peru.....					179	179
Uruguay.....					14	14
Venezuela.....					493	493
Europe:						
Belgium.....			144	562	153	715
Finland.....					25	25
France.....					7,501	7,501
Germany.....					5,231	5,231
Irish Free State.....					176	176
Italy.....					1,264	1,264
Malta, Gozo, and Cyprus Islands.....					30	30
Netherlands.....	3	25			2,810	2,835
Norway.....					158	158
Spain.....					93	93
Sweden.....					4,003	4,003
Switzerland.....					32	32
Turkey.....					(¹)	(²)
United Kingdom.....	3,084	9,374	779	648	16,894	26,916
Asia:						
British Malaya.....					424	424
China.....	51	429			1,016	1,445
India (British).....					4,510	4,510
Hong Kong.....					276	276
Japan.....	159	339			11,820	12,159
Netherlands India.....					11,337	11,337
Palestine.....					116	116
Philippine Islands.....					1,859	1,859
Siam.....	15	125			33	158
Turkey in Asia and Europe.....					132	132
Africa:						
British East Africa.....					12	12
Gold Coast.....					27	27
Morocco.....					11	11
Portuguese Africa ("Other").....					10	10
Union of South Africa.....					2,778	2,778
Oceania:						
Australia.....	12	150			1,531	1,681
French Oceania.....	10	40			80	120
New Zealand.....					1,138	1,138
	11,475	44,979	43,176	40,311	354,509	439,799

¹ Figures not separately recorded for stone and for cement building blocks and for stone and for cement manufactures.

² Exports to Turkey in Europe included under Turkey in Asia.

DETAILED PRODUCTION, BY KINDS, USES, AND STATES

GRANITE

Granite sold or used by producers in the United States in 1934, by uses

Use	Quantity	Value
Building stone (rough and dressed)..... cubic feet.....	2,514,000	\$2,642,618
Approximate equivalent in short tons.....	215,250	
Monumental stone..... cubic feet.....	1,826,980	4,751,560
Approximate equivalent in short tons.....	147,450	
Paving..... number of blocks.....	5,838,120	613,879
Approximate equivalent in short tons.....	63,070	
Curbing..... linear feet.....	868,310	603,397
Approximate equivalent in short tons.....	51,300	
Rubble..... short tons.....	66,310	74,047
Riprap..... do.....	1,062,240	895,096
Crushed stone..... do.....	5,163,180	5,252,007
Other uses..... do.....	23,070	56,551
Total (quantity approximate, in short tons).....	6,791,850	14,889,155

Granite sold or used by producers in the United States in 1934, by States

[Quantities approximate]

State	Short tons	Value	State	Short tons	Value
Arizona.....	73,000	\$30,436	North Carolina.....	973,710	\$1,344,725
California.....	1,638,370	1,532,122	Oklahoma.....	49,450	142,223
Colorado.....	142,540	176,985	Oregon.....	7,890	23,536
Connecticut.....	41,980	100,591	Pennsylvania.....	145,590	347,343
Georgia.....	602,210	1,194,493	Rhode Island.....	69,470	246,205
Maine.....	94,400	863,566	South Carolina.....	428,620	843,035
Maryland.....	110,700	151,482	South Dakota.....	7,590	243,568
Massachusetts.....	540,110	1,874,294	Texas.....	111,960	147,577
Michigan.....	4,000	5,000	Vermont.....	102,760	1,987,974
Minnesota.....	60,540	869,114	Virginia.....	367,050	372,711
Missouri.....	5,730	33,905	Washington.....	109,290	31,923
Montana.....	320	22,474	Wisconsin.....	78,900	707,861
New Hampshire.....	42,630	513,597	Undistributed ¹	123,420	157,036
New Jersey.....	119,320	159,041			
New York.....	740,300	705,538		6,791,850	14,889,155

¹Includes Delaware, North Dakota, and Tennessee.

Granite sold or used by producers in the United States in 1934, by States and uses

92135-36-12

State	Number of active plants	Building						Monumental				Paving blocks		
		Rough				Dressed		Rough		Dressed				
		Construction		Architectural		Cubic feet	Value	Cubic feet	Value	Cubic feet	Value	Cubic feet	Value	
		Short tons	Value	Cubic feet	Value									
Arizona.....	3													
California.....	47	13,770	\$14,901	(1)	(1)	1 60,440	1 \$188,140	15,260	\$29,236	5,410	\$27,800	500	\$50	
Colorado.....	13			20	\$30			2 5,980	2 34,823	(2)	(2)			
Connecticut.....	11	5,590	17,831	(1)	(1)	1 3,840	1 15,007	2 9,360	2 30,577	(2)	(2)	(2)	(2)	
Delaware.....	2			(2)	(2)									
Georgia.....	25	25,810	29,074			36,220	105,732	310,090	386,779	24,500	117,609	14,380	638	
Maine.....	30	6,840	10,971	105,210	65,526	99,260	318,067	26,790	20,592	11,220	13,765	2,921,860	371,037	
Maryland.....	10	16,360	36,302											
Massachusetts.....	29	16,400	45,916	56,610	44,110	265,510	487,892	61,080	114,005	14,110	98,969	1,277,410	111,967	
Michigan.....	1													
Minnesota.....	22			2 280,030	2 510,938	(2)	(2)	100,270	208,281	16,800	112,359			
Missouri.....	4	(2)	(2)	(2)	(2)			(2)	(2)			(2)	(2)	
Montana.....	8			70	577			2,530	3,914	1,430	17,983			
New Hampshire.....	20	7,090	17,781	90,620	66,538	75,790	343,523	5,740	10,056	5,090	17,771	423,400	26,112	
New Jersey.....	3			(2)	(2)									
New York.....	21	(2)	(2)	(2)	(2)									
North Carolina.....	27	1,270	1,936	(1)	(1)	1 21,300	1 70,572	9,120	17,958	8,710	49,427	(2)	(2)	
North Dakota.....	1													
Oklahoma.....	6	(2)	(2)											
Oregon.....	3							220	500	1 19,520	1 108,268			
Pennsylvania.....	15	12,480	22,095	(1)	(1)	1 11,240	1 33,777	(1) 220	(1) 500	2 2,250	10,194			
Rhode Island.....	7	100	500					2 43,170	2 184,699	(2)	(2)			
South Carolina.....	10	160	600	690	1,041			(2)	(2)					
South Dakota.....	12							5,100	8,754	37,130	227,299			
Tennessee.....	1													
Texas.....	6			(1)	(1)	1 2,000	1 12,592	2 13,740	2 22,029	(2)	(2)			
Vermont.....	13	(2)	(2)	(2)	(2)			740,700	1,932,954					
Virginia.....	10													
Washington.....	8					160	1,400	(2)	(2)	(2)	(2)			
Wisconsin.....	23			(2)	(2)	10,980	72,855	27,000	57,912	42,100	416,607	926,420	83,873	
Undistributed.....		15,870	33,598	18,880	23,967	11,760	48,829	212,380	323,291	1,700	19,181	266,450	19,817	
	391	121,740	231,505	433,910	220,453	696,740	2,090,660	1,623,970	3,397,822	200,010	1,353,738	5,838,120	613,879	

1 Rough stone included under dressed stone.

2 Dressed stone included under rough stone.

3 Included under "Undistributed."

STONE

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Granite sold or used by producers in the United States in 1934, by States and uses—Continued

State	Curbing		Rubble		Riprap		Crushed stone				Other uses		Total	
	Linear feet	Value	Short tons	Value	Short tons	Value	Concrete and road metal		Railroad ballast		Short tons	Value	Short tons (approximate)	Value
							Short tons	Value	Short tons	Value				
Arizona.....					27,750	\$11,436	45,250	\$19,000					73,000	\$30,436
California.....	13,100	\$7,054	130	\$359	660,560	511,846	786,150	678,995	168,730	\$61,466	1,580	\$12,275	1,638,370	1,532,122
Colorado.....							142,040	142,127					142,540	176,985
Connecticut.....	11,510	8,927	1,400	923	12,810	11,877	(²)	(²)			1,030	1,405	41,980	106,591
Delaware.....			(²)	(³)	(²)	(²)	(²)	(²)					(³)	(²)
Georgia.....	115,490	51,797	14,040	14,605	28,220	33,540	451,030	404,509	38,320	27,441	9,440	22,769	602,210	1,194,493
Maine.....	44,440	26,940	1,800	3,139	1,850	1,923	22,740	36,286	240	210	110	110	94,400	868,566
Maryland.....			5,110	6,525	62,790	73,387	26,440	35,268					110,700	151,482
Massachusetts.....	554,980	409,275	11,430	15,796	21,130	18,629	402,300	517,726	11,490	9,422	600	587	540,110	1,874,294
Michigan.....							4,000	5,000					4,000	5,000
Minnesota.....	(²)	(²)			(²)	(²)	17,770	24,638			7,850	9,806	60,540	869,114
Missouri.....					(²)	(²)							5,730	33,905
Montana.....													320	22,474
New Hampshire.....	19,290	11,559	1,870	3,815	(²)	(²)	10,380	12,306	(²)	(²)	(²)	(²)	42,630	513,597
New Jersey.....			(²)	(²)			(²)	(²)	(²)	(²)	(²)	(²)	119,320	159,041
New York.....	(²)	(²)	(²)	(²)			541,420	461,139	190,990	169,386			740,300	705,538
North Carolina.....	89,950	81,119	170	511	3,160	2,489	757,870	942,854	202,710	175,787	390	2,072	973,710	1,344,725
North Dakota.....							(²)	(²)					(²)	(²)
Oklahoma.....			(²)	(²)			(²)	(²)					49,450	142,223
Oregon.....							7,680	12,642					7,890	23,336
Pennsylvania.....			6,750	9,751	6,640	8,676	91,800	116,244	22,610	26,805	260	1,647	145,590	347,343
Rhode Island.....	1,000	1,000	(²)	(²)	(²)	(²)	57,750	52,254					69,470	246,205
South Carolina.....	(²)	(²)			19,230	23,568	319,420	439,019	72,960	64,407			428,620	843,035
South Dakota.....					2,000	1,000	2,170	6,515					7,590	243,568
Tennessee.....							(²)	(²)					(²)	(²)
Texas.....					110,660	112,956							111,960	147,577
Vermont.....							32,850	44,898					102,760	1,987,974
Virginia.....					1,040	1,134	267,170	293,461	98,840	78,116			367,050	372,711
Washington.....			13,650	5,896	81,730	48,323	13,750	7,800					109,290	81,923
Wisconsin.....					6,840	20,741	54,380	31,739			(²)	(²)	78,900	707,861
Undistributed.....	18,550	5,726	9,960	12,727	15,830	13,571	280,950	333,566	20,980	20,981	1,810	5,880	123,420	157,036
	868,310	603,397	66,310	74,047	1,062,240	895,096	4,335,310	4,617,986	827,870	634,021	423,070	456,551	6,791,850	14,889,155

² Included under "Undistributed."

⁴ Includes 370 tons of Durax paving blocks, valued at \$2,914, made in Connecticut, Georgia, and North Carolina.

*Monumental granite sold by the quarrymen in the Barre district, Vermont, 1930-34*¹

Year	Cubic feet	Value	Year	Cubic feet	Value
1930.....	1,024,600	\$2,996,032	1933.....	563,570	\$1,405,270
1931.....	823,160	2,295,179	1934.....	709,820	1,878,644
1932.....	618,890	1,549,113			

¹ Barre granite is sold also for construction, paving blocks, and crushed stone.

*Estimated output of monumental granite in Barre district, Vermont, 1932-34*¹

	1932	1933	1934
Total quarry output, rough stock..... cubic feet.....	651,401	575,046	643,050
Shipped out of Barre district in rough..... do.....	130,280	115,009	128,610
Manufactured in Barre district..... do.....	521,121	460,037	514,440
Light stock consumed in district..... do.....	325,701	287,523	273,296
Dark stock consumed in district..... do.....	195,420	172,514	241,144
Number of cutters in district.....	900	900	900
Average daily wage.....	\$8.00	\$8.00	\$8.00
Average number of days worked.....	200	200	200
Total pay roll for year.....	\$1,440,000	\$1,440,000	\$1,440,000
Estimated overhead.....	720,000	720,000	720,000
Estimated value of light stock.....	1,172,523	898,509	1,306,195
Estimated value of dark stock.....	840,306	862,568	964,575
Estimated polishing cost.....	412,140	363,832	406,858
Output from saws.....	137,380	121,277	135,619
Total value of granite.....	4,722,349	4,406,186	4,973,247

¹ Through the kindness of the Granite Manufacturers' Association, Barre, figures covering the entire granite industry of the Barre district are given in this table to supplement figures of sales reported by quarrymen.

BASALT AND RELATED ROCKS (TRAP ROCK)*Basalt and related rocks (trap rock) sold or used by producers in the United States in 1934, by uses*

Use	Quantity	Value
Building stone..... cubic feet.....	91,720	\$10,388
Approximate equivalent in short tons.....	7,760	
Rubble..... short tons.....	3,530	2,544
Riprap..... do.....	1,129,570	908,642
Crushed stone..... do.....	10,465,480	10,339,082
Other uses..... do.....	36,490	9,197
Total (quantity approximate, in short tons).....	11,642,830	11,269,853

Basalt and related rocks (trap rock) sold or used by producers in the United States in 1934, by States

[Quantities approximate]

State	Short tons	Value	State	Short tons	Value
California.....	925,100	\$832,172	North Carolina.....	25,680	\$46,854
Connecticut.....	1,227,040	1,162,005	Oregon.....	974,920	808,526
Hawaii.....	304,950	552,856	Pennsylvania.....	729,420	740,486
Idaho.....	649,140	472,064	Virginia.....	40,930	53,160
Maryland.....	242,620	324,270	Washington.....	2,638,060	2,321,852
Massachusetts.....	1,415,130	1,216,017	Wisconsin.....	144,950	174,645
Michigan.....	38,660	34,407	Wyoming.....	165,140	190,409
Montana.....	217,730	205,280	Undistributed ¹	126,880	111,778
New Jersey.....	1,154,190	1,295,313			
New York.....	622,290	727,759			
				11,642,830	11,269,853

¹ Includes Arizona, Maine, Minnesota, Nevada, South Dakota, and Texas.

Basalt and related rocks (trap rock) sold or used by producers in the United States in 1934, by States and uses

State	Number of active plants	Building, rough construction		Rubble and riprap		Crushed stone				Other uses		Total	
		Short tons	Value	Short tons	Value	Concrete and road metal		Railroad ballast		Short tons	Value	Short tons	Value
						Short tons	Value	Short tons	Value				
Arizona.....	2					(1)	(1)					(1)	(1)
California.....	20			126,890	\$118,499	783,910	\$710,598			14,300	\$3,075	925,100	\$832,172
Connecticut.....	20	3,280	\$2,648	2,020	1,012	1,137,070	1,093,378	83,540	\$63,987	1,130	980	1,227,040	1,162,005
Hawaii.....	12	70	268	140	154	304,520	551,978	190	357	30	99	304,950	552,856
Idaho.....	35					649,140	472,064					649,140	472,064
Maine.....	2					(1)	(1)					(1)	(1)
Maryland.....	5			5,290	6,614	140,330	188,056	97,000	129,600			242,620	324,270
Massachusetts.....	14			31,500	17,875	1,219,310	1,064,389	164,320	133,753			1,415,130	1,216,017
Michigan.....	8					38,660	34,407					38,660	34,407
Minnesota.....	1			(1)	(1)	(1)	(1)					(1)	(1)
Montana.....	9			(1)	150	217,580	205,254					217,730	205,280
Nevada.....	1			(1)	(1)	(1)	(1)					(1)	(1)
New Jersey.....	28	(1)	(1)	(1)	(1)	1,113,420	1,256,922	39,080	36,188			1,154,190	1,295,313
New York.....	3					25,680	46,854	(1)	(1)			622,290	727,759
North Carolina.....	6					25,680	46,854					25,680	46,854
Oregon.....	64	990	1,034	189,770	130,583	784,160	676,909					974,920	808,526
Pennsylvania.....	16	2,520	4,614	1,500	1,488	629,690	637,911	92,710	92,873	3,000	3,600	729,420	740,486
South Dakota.....	3					(1)	(1)					(1)	(1)
Texas.....	1			(1)	(1)	(1)	(1)	(1)	(1)			(1)	(1)
Virginia.....	3	(1)	(1)	(1)	(1)	40,010	51,129					40,930	53,160
Washington.....	110			760,540	622,303	1,847,200	1,691,963	12,290	6,143	18,030	1,443	2,638,060	2,321,852
Wisconsin.....	3			(1)	(1)	(1)	(1)					144,950	174,645
Wyoming.....	4					165,140	190,409					165,140	190,409
Undistributed.....		900	1,824	15,300	12,632	745,280	853,341	135,250	150,619			126,880	111,778
	370	7,760	10,388	1,133,100	911,186	9,841,100	9,725,562	624,380	613,520	36,490	9,197	11,642,830	11,269,853

¹ Included under "Undistributed."

MARBLE

Marble sold by producers in the United States in 1934, by uses

Use	Quantity	Value
Building stone:		
Rough:		
Exterior.....cubic feet ..	15,090	\$18,067
Interior.....do ..	85,380	193,270
Finished:		
Exterior.....do ..	174,970	504,966
Interior.....do ..	224,570	1,003,153
Total exterior.....do ..	190,060	523,033
Total interior.....do ..	309,950	1,196,423
Total building stone.....do ..	500,010	1,719,456
Monumental stone:		
Rough.....do ..	81,960	65,156
Finished.....do ..	382,950	1,410,270
Total monumental stone.....do ..	464,910	1,475,426
Total building and monumental.....do ..	964,920	3,194,882
Marble for other uses (byproducts).....do ..	81,720	176,035
Total marble, approximate short tons.....do ..	177,280	3,370,917

Marble sold by producers in the United States in 1934, by States and uses

State	Building and monumental (rough and finished)		Other uses		Total	
	Cubic feet	Value	Short tons	Value	Short tons (approximate)	Value
Alabama.....	26,480	\$95,441	46,070	\$45,451	48,320	\$140,822
Arkansas.....	(1)	(1)	(1)	(1)	510	7,356
California.....	(1)	(1)	(1)	(1)	990	12,134
Georgia.....	236,720	969,140	19,660	20,114	39,740	989,254
Massachusetts.....	5,470	17,566	360	576	830	18,142
Missouri.....	70,220	169,519	120	900	5,930	170,419
New York.....	8,690	26,420	9,410	47,032	10,140	73,452
Tennessee.....	141,990	518,659	3,090	12,416	15,070	531,075
Vermont.....	432,170	1,190,249	13,330	17,063	50,060	1,207,312
Other States ¹	² 43,180	³ 207,888	³ 3,520	³ 32,483	5,690	220,881
	964,920	3,194,882	95,560	176,035	177,280	3,370,917

¹ Included under "Other States."

² Arizona, Colorado, Maryland, New Jersey, North Carolina, Utah, Virginia, and Washington.

³ Includes also States entered as "(1)" above.

SERPENTINE

*Serpentine*¹ (*verde antique*) sold by producers in the United States in 1934, by uses

Use	Quantity	Value
Building and ornamental stone.....cubic feet..	9,840	\$71,400
Rough construction, crushed, etc.....short tons..	139,090	174,838
		246,238

¹ Serpentine sold from dimension-stone quarries is included in the figures for marble; serpentine sold for road work and other low-grade material is included in the figures for "miscellaneous" stone.

LIMESTONE

Limestone sold or used by producers in the United States in 1934, by uses

Use	Quantity	Value
Building stone ¹.....cubic feet..	5,176,860	\$3,391,455
Approximate equivalent in short tons.....	386,420	
Curbing, flagging, and paving.....cubic feet..	116,610	49,886
Approximate equivalent in short tons.....	9,010	
Rubble.....short tons..	190,080	179,791
Riprap.....do....	2,490,760	2,668,215
Crushed stone.....do....	36,824,340	33,298,227
Fluxing stone.....do....	9,230,880	6,297,579
Sugar factories.....do....	479,900	658,502
Glass factories.....do....	161,220	260,410
Paper mills.....do....	262,160	408,022
Agriculture.....do....	1,612,380	1,788,142
Other uses ².....do....	5,854,360	4,790,617
Total (quantity approximate, in short tons).....	57,501,510	53,790,846

¹ Figures for building stone include small amounts of monumental stone.

² See first table on p. 136 for further distribution of limestone products.

Limestone sold or used by producers in the United States in 1934, by States

[Quantities approximate]

State	Short tons	Value	State	Short tons	Value
Alabama.....	494,180	\$519,566	New Mexico.....	58,330	\$40,609
Arizona.....	70,000	113,268	New York.....	6,731,760	6,497,152
Arkansas.....	54,340	46,670	Ohio.....	5,716,930	4,681,830
California.....	265,540	477,809	Oklahoma.....	850,040	562,974
Colorado.....	234,500	294,630	Oregon.....	14,220	31,585
Connecticut.....	24,490	87,548	Pennsylvania.....	8,360,800	8,198,685
Florida.....	1,095,800	945,515	Puerto Rico.....	46,700	50,246
Georgia.....	311,100	343,039	Rhode Island.....	220	499
Idaho.....	11,910	20,145	South Carolina.....	2,860	4,450
Illinois.....	3,901,560	2,881,651	South Dakota.....	87,120	110,684
Indiana.....	2,057,440	4,140,960	Tennessee.....	2,045,160	1,795,138
Iowa.....	2,276,440	1,934,364	Texas.....	1,763,120	1,752,686
Kansas.....	1,310,280	1,269,737	Utah.....	155,230	116,389
Kentucky.....	1,966,800	1,718,325	Vermont.....	49,280	94,198
Maine.....	28,180	53,616	Virginia.....	2,146,260	2,076,623
Maryland.....	391,920	470,491	Washington.....	162,040	207,086
Massachusetts.....	48,220	188,676	West Virginia.....	1,731,330	1,548,853
Michigan.....	6,514,590	3,608,543	Wisconsin.....	2,297,130	2,046,923
Minnesota.....	675,100	902,663	Wyoming.....	457,360	434,418
Missouri.....	2,394,710	2,660,428	Undistributed ¹	169,210	262,949
Montana.....	171,860	124,352			
Nebraska.....	294,690	402,367			
Nevada.....	62,760	72,496			
				57,501,510	53,790,846

¹ Includes Hawaii, Louisiana, Mississippi, New Jersey, and North Carolina.

Limestone sold or used by producers in the United States in 1934, by States and uses

State	Number of active plants	Building						Rubble		Riprap		Crushed stone			
		Rough construction		Rough architectural		Finished (cut and sawed)		Short tons	Value	Short tons	Value	Concrete and road metal		Railroad ballast	
		Short tons	Value	Cubic feet	Value	Cubic feet	Value					Short tons	Value	Short tons	Value
Alabama.....	20			(1)	(1)	(1)	(1)			19,280	\$14,515	89,350	\$107,444		
Arizona.....	5											55,580	97,118	14,000	\$15,270
Arkansas.....	4									(1)	(1)			40,520	38,045
California.....	21							(1)	(1)	(1)	(1)	53,380	48,557	400	320
Colorado.....	12			(1)	(1)							15,000	6,000		
Connecticut.....	4											(1)	(1)		
Florida.....	31	(1)	(1)			(1)	(1)			(1)	(1)	868,490	724,500	158,490	108,664
Georgia.....	9											276,740	254,286		
Hawaii.....	1														
Idaho.....	5											3,860	3,863		
Illinois.....	98	2,440	\$6,444					68,450	\$47,690	192,360	207,751	2,667,240	1,963,403	228,520	150,263
Indiana.....	108	67,560	38,196	1,226,420	\$447,299	1,569,140	\$2,239,997			67,740	35,591	1,298,340	1,073,052	100,500	67,812
Iowa.....	144	3,120	1,524					1,870	1,752	67,220	48,285	2,000,750	1,717,540	35,150	16,583
Kansas.....	81	2,880	9,045	(1)	(1)	(1)	(1)	(1)	(1)	227,980	301,681	792,240	763,296	228,590	167,490
Kentucky.....	66	1,240	2,580	(1)	(1)	(1)	(1)	2,580	1,370	94,080	133,966	1,558,620	1,405,868	180,920	97,714
Louisiana.....	2									(1)	(1)	(1)	(1)	(1)	(1)
Maine.....	3											2,770	3,950		
Maryland.....	13	500	700									369,200	444,090	14,320	12,457
Massachusetts.....	7							(1)	(1)			(1)	(1)		
Michigan.....	20	(1)	(1)							(1)	(1)	534,520	351,192	41,650	30,255
Minnesota.....	44	840	2,656	27,410	23,112	85,900	199,872	1,570	1,381	55,660	76,333	590,370	563,545		
Mississippi.....	1														
Missouri.....	169	2,910	3,039					43,430	66,567	738,280	832,695	1,398,570	1,491,694	38,930	29,338
Montana.....	10	(1)	(1)	(1)	(1)							120,410	63,286		
Nebraska.....	16							(1)	(1)	151,260	219,356	119,250	103,228	(1)	(1)
Nevada.....	4									(1)	(1)	(1)	(1)	(1)	(1)
New Jersey.....	2											(1)	(1)		
New Mexico.....	3											41,830	32,681	16,500	7,928
New York.....	111	40,050	50,798					(1)	(1)	78,050	69,392	4,865,000	5,109,488	495,030	340,715
North Carolina.....	2									(1)	(1)	(1)	(1)		
Ohio.....	165	5,990	6,784							13,870	19,520	3,310,740	2,724,674	478,310	367,775
Oklahoma.....	27	(1)	(1)					(1)	(1)	2,000	566,180	(1)	391,635	277,100	157,989
Oregon.....	4									(1)	(1)	(1)	(1)		
Pennsylvania.....	200	10,080	8,551					(1)	(1)	(1)	(1)	4,498,870	4,672,337	164,630	140,142
Puerto Rico.....	6							(1)	(1)	(1)	(1)	43,890	46,744	310	177
Rhode Island.....	1														

¹ Included under "Undistributed."

Limestone sold or used by producers in the United States in 1934, by States and uses—Continued

State	Number of active plants	Building						Rubble		Riprap		Crushed stone			
		Rough construction		Rough architectural		Finished (cut and sawed)						Concrete and road metal		Railroad ballast	
		Short tons	Value	Cubic feet	Value	Cubic feet	Value	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value
South Carolina	1											2,500	\$4,000		
South Dakota	13								500	\$625		71,770	75,263		
Tennessee	74								(1)	(1)		1,615,550	1,351,044	276,690	\$204,115
Texas	91	430	\$561	15,030	\$6,967	101,820	\$136,528	(1)	(1)	224,880	225,264	1,170,270	1,208,670	113,760	82,855
Utah	14	(1)	(1)	(1)	(1)					(1)	(1)				
Vermont	13											40,210	62,012		
Virginia	69					(1)	(1)	(1)	(1)	(1)	(1)	1,235,930	1,209,665	450,810	359,523
Washington	8							(1)	(1)	(1)	(1)	59,410	74,257		
West Virginia	54											648,540	727,950	182,320	108,564
Wisconsin	169	12,360	37,702	55,300	37,539	(1)	(1)	50,830	\$39,967	221,940	251,367	1,819,910	1,519,152	20,500	11,966
Wyoming	11									(1)	(1)	314,980	255,745	17,170	13,819
Undistributed		5,600	10,757	21,190	18,922	56,450	101,882	21,350	21,064	335,660	229,874	89,650	97,907	39,310	19,312
	1,936	156,000	179,337	1,345,350	533,839	1,813,310	2,678,279	190,080	179,791	2,490,760	2,668,215	33,209,910	30,749,136	3,614,430	2,549,091

State	Fluxing stone		Sugar factories		Glass factories		Paper mills		Agriculture		Other uses		Total	
	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value	Short tons (approximate)	Value
Alabama	363,690	\$303,445							15,810	\$26,437	(1)	(1)	494,180	\$519,566
Arizona	350	750							70	130			70,000	113,268
Arkansas									(1)	(1)			54,340	46,670
California	14,060	25,476	87,730	\$192,400	9,260	\$28,405			3,780	4,706	94,880	\$174,857	265,540	477,809
Colorado	141,890	175,691	63,830	89,687							(1)	(1)	234,500	294,630
Connecticut					(1)	(1)							24,490	87,548
Florida									18,680	70,437	4,220	13,410	1,095,800	945,515
Georgia									10,950	26,188	54,800	50,012	311,100	343,039
Hawaii									19,310	29,561	15,050	59,192	(1)	(1)
Idaho	3,280	7,546	(1)	(1)					(1)	(1)			11,910	20,145
Illinois	257,650	149,225							(1)	(1)	(1)	(1)	3,901,560	2,881,651
									448,810	291,761	36,090	65,114		

Indiana.....	43,300	15,943	5,000	4,300	8,620	9,477			172,140	130,861	91,240	78,432	2,057,440	4,140,960
Iowa.....	5,510	4,954							143,380	96,164	19,440	47,662	2,276,440	1,934,364
Kansas.....									3,150	2,616	53,170	14,612	1,310,280	1,269,737
Kentucky.....									81,840	44,825	46,460	17,580	1,966,800	1,718,325
Louisiana.....									(1)	(1)	(1)	(1)	(1)	(1)
Maine.....	870	1,514					21,040	\$33,919	3,600	14,233			28,180	53,616
Maryland.....											7,900	13,244	391,920	470,491
Massachusetts.....	(1)	(1)					(1)	(1)	18,260	63,336	25,870	116,468	48,220	188,676
Michigan.....	2,739,350	1,482,139	77,920	40,851	(1)	(1)	51,870	83,974	35,260	29,545	2,722,990	1,376,143	6,514,590	3,608,543
Minnesota.....	(1)	(1)					(1)	(1)	11,230	11,416	6,610	23,508	675,100	902,663
Mississippi.....									(1)	(1)	(1)	(1)	(1)	(1)
Missouri.....	15,240	24,514			(1)	(1)	(1)	(1)	53,880	50,231	82,240	143,580	2,394,710	2,660,428
Montana.....	(1)	(1)	29,930	38,452					(1)	(1)			171,860	124,352
Nebraska.....			(1)	(1)					(1)	(1)	10,190	61,624	294,690	402,367
Nevada.....	(1)	(1)	(1)	(1)					(1)	(1)	(1)	(1)	62,760	72,496
New Jersey.....	(1)	(1)							(1)	(1)	(1)	(1)	(1)	(1)
New Mexico.....													58,330	40,609
New York.....	(1)	(1)					13,150	64,600	35,310	122,320	1,156,270	691,400	6,731,760	6,497,152
North Carolina.....													(1)	(1)
Ohio.....	1,487,580	958,842	11,000	12,400	85,820	128,350	62,460	74,924	138,270	156,576	122,890	231,985	5,716,930	4,681,830
Oklahoma.....					(1)	(1)	(1)	(1)	(1)	(1)			850,040	562,974
Oregon.....									5,970	17,600			14,220	31,585
Pennsylvania.....	2,959,530	2,248,564			30,540	63,908	14,140	13,568	85,090	225,068	592,690	822,455	8,360,800	8,198,685
Puerto Rico.....											(1)	(1)	46,700	50,246
Rhode Island.....	220	499											220	499
South Carolina.....									360	450			2,860	4,450
South Dakota.....			2,600	2,750							12,250	32,046	87,120	110,684
Tennessee.....	(1)	(1)			1,770	2,211			117,370	125,934	30,000	108,107	2,045,160	1,795,138
Texas.....	(1)	(1)									231,830	78,850	1,763,120	1,752,686
Utah.....	(1)	(1)	23,050	39,747							2,560	13,637	155,230	116,389
Vermont.....	(1)	(1)					(1)	(1)	(1)	(1)	1,660	12,382	94,280	94,198
Virginia.....	51,330	45,385					(1)	(1)	90,370	117,012	300,810	329,704	2,146,260	2,076,628
Washington.....	(1)	(1)			(1)	(1)	75,430	108,367	(1)	(1)	(1)	(1)	162,040	207,086
West Virginia.....	886,660	670,465			(1)	(1)	(1)	(1)	(1)	(1)	9,810	30,998	1,731,330	1,548,853
Wisconsin.....	(1)	(1)					780	775	62,400	33,958	84,190	98,289	2,297,130	2,046,928
Wyoming.....	(1)	(1)	119,030	162,171									457,360	434,418
Undistributed.....	260,370	182,627	59,810	75,744	25,210	28,059	23,290	27,895	37,190	96,777	47,260	135,312	169,210	262,949
	9,230,880	6,297,579	479,900	658,502	161,220	260,410	262,160	408,022	1,612,380	1,788,142	5,863,370	4,840,503	57,501,510	53,790,946

1 Included under "Undistributed."

STONE

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Limestone sold or used by producers in the United States for miscellaneous uses in 1934

Use	Short tons	Value	Use	Short tons	Value
Alkali works.....	3,814,060	\$2,015,506	Refractory stone (dolomite).....	300,180	\$287,030
Asphalt filler.....	172,170	361,404	Road base.....	583,410	409,357
Calcium carbide works.....	305,600	177,458	Roofing.....	6,220	31,967
Coal-mine dusting.....	43,000	138,399	Stucco, terrazzo, and artificial stone.....	14,340	60,362
Filler (not whitening substitute).....	13,850	24,097	Whiting substitute ¹	97,340	509,893
Filter beds.....	93,020	109,310	Other ²	97,290	98,494
Magnesia works (dolomite).....	83,970	101,677	Unspecified.....	98,900	140,904
Mineral food.....	35,870	179,515			
Mineral (rock) wool.....	68,820	54,087		5,854,360	4,790,617
Poultry grit.....	26,320	91,157			

¹ Includes stone for filler for calcimine, pigments (paint), polishes, pottery, putty, rubber, targets, wall board, and uses not specified.

² Includes stone for acid neutralization, bird gravel, carbolic acid, carbon dioxide, chemicals (unspecified), dust, dye works, explosives, landscaping, lime burning, mosaics, oil refining, pipe manufacturing, salt refining, spalls, studio snow, and waste rock.

Dolomite and dolomitic lime sold or used by producers in the United States for specified purposes, 1930-34

	1930	1931	1932	1933	1934
Dolomite for—					
Basic magnesium carbonate:					
Short tons.....	111,740	80,820	62,930	83,640	83,970
Value.....	\$189,219	\$122,525	\$82,822	\$99,630	\$101,677
Carbon dioxide.....	(¹)	(¹)	(¹)	(¹)	(¹)
Refractory stone or dead-burned dolomite:					
Short tons.....	453,350	268,500	72,240	196,540	300,180
Value.....	\$356,025	\$193,020	\$45,186	\$180,160	\$287,030
Dolomitic lime for—					
Refractory (dead-burned dolomite):					
Short tons.....	351,740	243,769	135,733	261,812	324,868
Value.....	\$3,045,082	\$1,866,971	\$1,055,339	\$2,064,869	\$2,698,414
Sulphite pulp:					
Short tons.....	38,400	32,000	24,000	25,000	30,000
Value.....	\$295,000	\$233,000	\$148,000	\$144,000	\$196,000
Total (calculated as raw stone)					
short tons..	1,360,000	922,000	472,000	884,000	1,133,000

¹ Bureau of Mines not at liberty to publish figures.

Limestone used for all purposes in the United States, 1933-34, in short tons

Use	1933	1934
Limestone (as given in this report).....	45,922,280	57,501,510
Portland cement (including "cement rock") ¹	16,117,000	19,730,000
Natural cement ("cement rock") ¹		
Lime ²	4,450,000	4,800,000
	66,489,280	82,031,510

¹ Value reported as cement in the chapter on Cement.

² Value reported as lime in the chapter on Lime.

INDIANA LIMESTONE FOR CONSTRUCTION

Limestone sold by producers in the Indiana oolitic limestone district, 1930-34

Year	Construction		Other		Total	
	Cubic feet	Value	Short tons	Value	Short tons (approximate)	Value
1930.....	12,308,340	\$15,276,487	538,490	\$364,365	1,430,840	\$15,640,852
1931.....	7,865,210	8,570,563	313,100	200,754	883,330	8,771,317
1932.....	5,927,350	5,491,276	136,130	85,957	565,860	5,577,233
1933.....	4,858,660	4,817,822	150,140	80,961	502,400	4,898,783
1934.....	2,795,510	2,687,182	183,510	94,611	386,510	2,781,793

Limestone sold by producers in the Indiana oolitic limestone district in 1934, by classes

Class	Quantity	Value
Construction:		
Rough blocks.....cubic feet.....	1,226,420	\$447,299
Sawed and semifinished.....do.....	445,440	342,997
Cut.....do.....	1,123,650	1,896,886
Total construction.....do.....	2,795,510	2,687,182
Other stone.....short tons.....	183,510	94,611
Grand total (quantity approximate, in short tons).....	386,510	2,781,793

Indiana limestone sold by mills not operated by quarry companies and by mills of quarry companies from stock obtained at quarries other than their own, 1930-34

Year	Cubic feet	Value	Year	Cubic feet	Value
1930.....	1,991,000	\$4,645,824	1933.....	1,198,430	\$1,900,414
1931.....	1,394,130	2,930,978	1934.....	648,750	1,131,677
1932.....	1,404,310	2,375,274			

Indiana limestone sold by mills not operated by quarry companies and by mills of quarry companies from stock obtained at quarries other than their own, 1933-34, by classes

Sales by mills—	1933 ¹		1934					
			Sawed		Cut		Total	
	Cubic feet	Value	Cubic feet	Value	Cubic feet	Value	Cubic feet	Value
Not operated by quarry companies.....	481,970	\$776,078	36,670	\$60,623	256,070	\$530,177	292,740	\$590,800
Of quarry companies from stock obtained at quarries other than their own.....	716,460	1,124,336	22,270	14,761	333,740	526,116	356,010	540,877
	1,198,430	1,900,414	58,940	75,384	589,810	1,056,293	648,750	1,131,677

¹ All cut stone; no sawed stone reported for 1933.

SANDSTONE

Sandstone sold or used by producers in the United States in 1934, by uses

Use	Quantity	Value
Building stone..... cubic feet..	640,810	\$531,377
Approximate equivalent in short tons..... number..	50,480	
Paving blocks..... cubic feet..	57,150	4,162
Approximate equivalent in short tons..... number..	670	
Curbing..... cubic feet..	363,210	281,643
Approximate equivalent in short tons..... number..	27,290	
Flagging..... cubic feet..	183,210	140,449
Approximate equivalent in short tons..... number..	14,430	
Crushed stone..... short tons..	2,157,550	2,121,841
Rubble..... do.....	14,030	21,310
Riprap..... do.....	299,000	336,777
Refractory stone (ganister)..... do.....	363,020	460,869
Other uses..... do.....	678,950	815,856
Total (quantity approximate, in short tons).....	3,605,420	4,714,284

Sandstone sold or used by producers in the United States in 1934, by States

[Quantities approximate]

State	Short tons	Value	State	Short tons	Value
California.....	605,510	\$544,431	Pennsylvania.....	1,194,300	\$1,456,777
Colorado.....	12,240	19,637	South Dakota.....	70,310	92,816
Illinois.....	3,900	5,761	Tennessee.....	34,660	70,297
Kansas.....	61,020	80,654	Texas.....	69,860	51,756
Kentucky.....	26,020	42,431	Vermont.....	3,440	3,098
Maryland.....	17,810	23,482	Virginia.....	160,100	130,710
Minnesota.....	19,910	26,948	West Virginia.....	374,800	363,913
Missouri.....	31,890	48,663	Wisconsin.....	111,880	165,590
Montana.....	14,150	6,757	Wyoming.....	32,330	32,548
New York.....	1,249,050	1,452,684	Undistributed ²	275,740	291,499
North Carolina.....	4,560	6,870			
Ohio.....	231,410	796,884			
Oklahoma.....	530	78			
				3,605,420	4,714,284

¹ Includes bluestone.

² Includes Alabama, Arizona, Arkansas, Connecticut, Idaho, Michigan, New Jersey and Washington

Sandstone sold or used by producers in the United States in 1934, by States and uses

State	Number of active plants	Building						Refractory stone (ganister)		Paving blocks		Curbing	
		Rough construction		Rough architectural		Dressed (sawed and cut)		Short tons	Value	Number	Value	Cubic feet	Value
		Short tons	Value	Cubic feet	Value	Cubic feet	Value						
Alabama.....	2							(1)	(1)				
Arizona.....	2												
Arkansas.....	2												
California.....	22	8,910	\$14,317					(1)	(1)				
Colorado.....	6	600	1,975	(1)	(1)			4,330	\$5,283	(1)	(1)		
Connecticut.....	1	(1)	(1)	(1)	(1)	(1)	(1)						
Idaho.....	2							(1)	(1)				
Illinois.....	3												
Kansas.....	10	3,840	12,200					(1)	(1)				
Kentucky.....	3	(1)	(1)					(1)	(1)				
Maryland.....	3	(1)	(1)					800	880				
Michigan.....	1												
Minnesota.....	3												
Missouri.....	3	(1)	(1)										
Montana.....	3							(1)	(1)				
New Jersey.....	1	(1)	(1)										
New York.....	49	770	4,221	1,140	\$997	11,120	\$33,382			28,610	\$1,900	62,820	\$61,473
North Carolina.....	4												
Ohio.....	12	930	2,698	73,430	41,681	194,960	280,805	8,130	23,235			287,720	213,406
Oklahoma.....	6												
Pennsylvania.....	73	2,140	4,891	(1)	(1)	730	3,689	208,220	263,908	(1)	(1)	12,670	6,764
South Dakota.....	6	70	135			1,930	4,425	1,190	1,551				
Tennessee.....	10	(1)	(1)	(1)	(1)								
Texas.....	6												
Vermont.....	4												
Virginia.....	8												
Washington.....	1							(1)	(1)				
West Virginia.....	57	4,320	3,118					(1)	(1)				
Wisconsin.....	5	300	500	(1)	(1)			104,810	112,795				
Wyoming.....	2												
Undistributed.....		1,800	6,078	11,230	12,271	45,030	103,994	35,540	53,217	28,540	2,262		
	310	23,680	50,133	85,800	54,949	253,770	426,295	363,020	460,869	57,150	4,162	363,210	281,643

1 Included under "Undistributed."

Sandstone sold or used by producers in the United States in 1934, by States and uses—Continued

State	Flagging		Rubble		Riprap		Crushed stone				Other uses		Total	
	Cubic feet	Value	Short tons	Value	Short tons	Value	Concrete and road metal		Railroad ballast		Short tons	Value	Short tons (approximate)	Value
							Short tons	Value	Short tons	Value				
Alabama.....	-----	-----	-----	-----	-----	-----	(1)	(1)	-----	-----	-----	-----	(1)	(1)
Arizona.....	-----	-----	-----	-----	(1)	(1)	(1)	(1)	-----	-----	-----	-----	(1)	(1)
Arkansas.....	-----	-----	-----	-----	-----	-----	(1)	(1)	-----	-----	-----	-----	(1)	(1)
California.....	7,560	\$3,930	(1)	(1)	75,920	\$77,710	402,970	\$355,767	5,510	\$3,767	104,140	\$71,295	605,510	\$544,431
Colorado.....	(1)	(1)	-----	-----	300	300	(1)	(1)	-----	-----	-----	-----	12,240	19,637
Connecticut.....	-----	-----	-----	-----	(1)	(1)	-----	-----	-----	-----	-----	-----	(1)	(1)
Idaho.....	-----	-----	(1)	(1)	-----	-----	-----	-----	-----	-----	-----	-----	(1)	(1)
Illinois.....	-----	-----	-----	-----	(1)	(1)	(1)	(1)	-----	-----	-----	-----	3,900	5,761
Kansas.....	2,610	1,853	-----	-----	-----	-----	56,800	66,536	-----	-----	180	65	61,020	80,654
Kentucky.....	-----	-----	-----	-----	-----	-----	25,390	37,316	-----	-----	-----	-----	26,020	42,431
Maryland.....	(1)	(1)	-----	-----	-----	-----	16,410	21,654	-----	-----	-----	-----	17,810	23,482
Michigan.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	(1)	(1)
Minnesota.....	-----	-----	-----	-----	-----	-----	(1)	(1)	-----	-----	(1)	(1)	19,910	26,948
Missouri.....	-----	-----	-----	-----	(1)	(1)	-----	-----	-----	-----	-----	-----	31,890	48,663
Montana.....	-----	-----	-----	-----	(1)	(1)	(1)	(1)	-----	-----	-----	-----	14,150	6,757
New Jersey.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	(1)	(1)
New York.....	70,870	48,502	490	\$460	540	470	227,210	291,099	-----	-----	5,520	10,180	249,050	452,684
North Carolina.....	-----	-----	-----	-----	-----	-----	4,560	6,870	-----	-----	-----	-----	4,560	6,870
Ohio.....	37,300	23,109	880	2,587	133,490	164,093	44,970	45,270	-----	-----	-----	-----	231,410	796,884
Oklahoma.....	-----	-----	530	78	-----	-----	-----	-----	-----	-----	-----	-----	530	78
Pennsylvania.....	39,080	27,995	2,600	4,213	24,840	25,604	458,870	507,275	23,920	23,576	469,030	586,635	1,194,300	1,456,777
South Dakota.....	-----	-----	940	1,075	1,180	1,482	66,780	84,148	-----	-----	-----	-----	70,310	92,516
Tennessee.....	15,130	30,170	(1)	(1)	-----	-----	31,590	30,087	-----	-----	-----	-----	34,660	70,297
Texas.....	-----	-----	-----	-----	130	236	69,730	51,520	-----	-----	-----	-----	69,660	51,756
Vermont.....	-----	-----	-----	-----	-----	-----	3,440	3,088	-----	-----	-----	-----	3,440	3,088
Virginia.....	-----	-----	-----	-----	-----	-----	110,470	100,820	49,630	29,890	-----	-----	160,100	180,710
Washington.....	(1)	(1)	(1)	(1)	(1)	(1)	-----	-----	-----	-----	-----	-----	(1)	(1)
West Virginia.....	-----	-----	(1)	(1)	-----	-----	250,380	244,951	-----	-----	93,690	87,234	374,800	363,913
Wisconsin.....	380	100	60	60	-----	-----	1,640	4,512	-----	-----	(1)	(1)	111,880	165,590
Wyoming.....	-----	-----	-----	-----	-----	-----	32,330	32,548	-----	-----	-----	-----	32,330	32,548
Undistributed.....	10,280	4,790	8,530	12,837	62,600	66,882	274,950	181,137	-----	-----	6,390	60,447	275,740	291,499
	183,210	140,449	14,030	21,310	299,000	336,777	2,078,490	2,064,608	79,060	57,233	678,950	815,856	3,605,420	4,714,284

1 Included under "Undistributed."

BLUESTONE

Bluestone sold in New York and Pennsylvania in 1934, by uses ¹

State	Building stone		Curbing		Flagging		Other		Total	
	Cubic feet	Value	Cubic feet	Value	Cubic feet	Value	Short tons	Value	Short tons (approximate)	Value
New York.....	17,080	\$35,020	58,910	\$58,483	69,490	\$47,342	57,740	\$63,305	71,780	\$204,150
Pennsylvania.....	230	489	1,530	1,000	34,720	26,386	40,700	74,896	43,790	102,771
	17,310	35,509	60,440	59,483	104,210	73,728	98,440	138,201	115,570	306,921

¹ Figures included in foregoing for sandstone.

MISCELLANEOUS STONE

Miscellaneous varieties of stone ¹ sold or used by producers in the United States in 1934, by uses

Use	Quantity	Value
Building stone.....cubic feet.....	102,870	\$243,553
Approximate equivalent in short tons.....	8,950	
Riprap and rubble.....short tons.....	1,090,880	1,125,477
Crushed stone.....do.....	5,957,370	5,455,450
Refractory stone (mica schist and soapstone).....do.....	14,210	115,179
Other uses.....do.....	² 5,273,530	² 4,005,222
Total (quantity approximate, in short tons).....	12,344,940	10,944,881

¹ Includes mica schist, conglomerate, argillite, various light-colored volcanic rocks, serpentine not used as marble, soapstone used as dimension stone, and such other stone as cannot properly be classed in any main group.

² Includes 4,619,280 tons of road-base material valued at \$3,169,356 produced by the State of Pennsylvania and used on roads.

Miscellaneous varieties of stone sold or used by producers in the United States in 1934, by States

[Quantities approximate]

State	Short tons	Value	State	Short tons	Value
Alaska.....	48,890	\$74,919	Ohio.....	26,510	\$12,086
Arizona.....	135,740	142,575	Oklahoma.....	66,000	26,400
Arkansas.....	342,300	214,641	Pennsylvania.....	¹ 4,821,220	¹ 3,757,955
California.....	2,161,530	2,121,643	Puerto Rico.....	69,360	61,826
Colorado.....	802,200	779,713	Rhode Island.....	115,590	150,836
Idaho.....	103,680	82,894	South Carolina.....	310	375
Illinois.....	10,420	7,126	South Dakota.....	72,490	50,132
Maine.....	16,040	27,450	Texas.....	804,330	231,416
Maryland.....	134,780	158,073	Utah.....	234,590	120,325
Massachusetts.....	342,790	446,746	Vermont.....	32,600	29,219
Michigan.....	60,520	70,448	Virginia.....	168,800	470,194
Montana.....	30,200	48,500	Washington.....	137,590	110,505
Nevada.....	2,120	1,723	Wisconsin.....	47,000	19,858
New Hampshire.....	8,040	34,400	Wyoming.....	200	1,000
New Mexico.....	1,157,610	1,054,000	Undistributed ²	154,540	272,076
New York.....	47,150	60,169			
North Carolina.....	184,100	303,526		12,344,940	10,944,881
North Dakota.....	5,700	2,132			

¹ Includes 4,619,280 tons of road-base material valued at \$3,169,356 produced by the State of Pennsylvania and used on roads.

² Includes Florida, Indiana, Iowa, Kansas, Minnesota, Missouri, New Jersey, and Oregon.

Miscellaneous varieties of lime sold or used by producers in the United States in 1934, by States and uses

State	Number of active plants	Building		Riprap and rubble		Crushed stone				Other uses		Total	
		Short tons	Value	Short tons	Value	Concrete and road metal		Railroad ballast		Short tons	Value	Short tons (approximate)	Value
						Short tons	Value	Short tons	Value				
Alaska	3					48,890	\$74,919					48,890	\$74,919
Arizona	8			5,530	\$18,530	130,210	124,045					135,740	142,575
Arkansas	6			(1)	(1)	317,250	196,729	(1)	(1)			342,300	214,641
California	85	240	\$581	980,810	981,161	1,069,780	970,616	9,400	\$7,078	101,320	\$162,207	2,161,539	2,121,643
Colorado	4					802,200	779,713					802,200	779,713
Florida	1					(1)	(1)					(1)	(1)
Idaho	3	100	100			102,620	82,094			960	700	103,680	82,894
Illinois	3					10,070	6,951			350	175	10,420	7,126
Indiana	1					(1)	(1)					(1)	(1)
Iowa	1					(1)	(1)					(1)	(1)
Kansas	2			3,730	298					(1)	(1)	(1)	(1)
Maine	6					16,040	27,450					(1)	(1)
Maryland	3	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	16,040	27,450
Massachusetts	3					(1)	(1)	(1)	(1)	(1)	(1)	134,780	158,073
Michigan	5					(1)	(1)	(1)	(1)			342,790	446,746
Minnesota	2					(1)	(1)			(1)	(1)	60,520	70,448
Missouri	2					(1)	(1)			(1)	(1)	(1)	(1)
Montana	2					(1)	(1)					(1)	(1)
Nevada	3			1,610	1,373	30,200	48,500					30,200	48,500
New Hampshire	2					510	350					2,120	1,723
New Jersey	2					4,890	9,505					3,150	24,895
New Mexico	3	(1)	(1)	(1)	(1)	(1)	(1)			3,150	24,895	8,040	34,400
New York	6	(1)	(1)	(1)	(1)	1,147,610	1,050,000					1,157,610	1,054,000
North Carolina	32	(1)	(1)	(1)	(1)	46,040	54,789			10,000	4,000	1,157,610	1,054,000
North Dakota	2					184,100	308,526					184,100	308,526
Ohio	4	(1)	(1)			5,700	2,132					5,700	2,132
Oklahoma	1					4,820	5,885	21,350	3,881	(1)	(1)	26,510	12,086
Oregon	2			(1)	(1)	66,000	26,400					66,000	26,400
Pennsylvania	72					(1)	(1)					(1)	(1)
Puerto Rico	7					143,930	143,106			4,677,290	3,614,849	4,821,220	3,757,955
Rhode Island	4					69,360	61,826					69,360	61,826
South Carolina	1					113,770	149,236			1,820	1,600	115,590	150,836
South Dakota	11					310	375					310	375
Texas	19			5,400	6,750	67,090	43,382					72,490	50,132
Utah	11			(1)	(1)	336,510	158,199	(1)	(1)	444,450	56,701	804,350	231,416
Vermont	11			6,250	5,000	234,160	118,702			430	1,623	234,590	120,325
Virginia	9	(1)	(1)			4,660	4,697			21,690	19,522	32,600	29,219
Washington	13			34,980	32,627	163,860	170,865			(1)	(1)	168,800	470,194
Wisconsin	2					102,610	77,878					137,590	110,505
Wyoming	1					47,000	19,858					47,000	19,858
Undistributed		8,610	242,872	52,570	79,738	509,490	602,410	146,960	130,353	200	1,000	154,540	272,076
	363	8,950	243,553	1,090,880	1,125,477	5,779,660	5,314,138	177,710	141,312	5,287,740	4,120,401	12,344,940	10,944,881

¹ Included under "Undistributed."² Includes 4,619,280 tons of road-base material valued at \$3,169,356 produced by the State of Pennsylvania and used on roads.

GOLD, SILVER, COPPER, LEAD, AND ZINC IN MONTANA

(DETAILED STATISTICS—MINE REPORT)

By T. H. MILLER¹

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The output of gold, silver, copper, lead, and zinc from mines in Montana in 1934, in terms of recovered metals, was 97,445.95 fine ounces of gold, 4,006,468 fine ounces of silver, 63,265,000 pounds of copper, 20,010,000 pounds of lead, and 61,442,256 pounds of zinc. This output compares with a production in 1933 of 57,822.20 ounces of gold, 2,660,700 ounces of silver, 65,476,375 pounds of copper, 13,163,432 pounds of lead, and 41,448,905 pounds of zinc. There were 583 lode mines and 654 placers producing in 1934 compared with 426 lode mines and 276 placers in 1933.

From 1904 to 1934, inclusive, the total output from Montana mines was as follows: Ore, old tailings, etc., 138,943,473 short tons; gold, 3,951,609.65 fine ounces; silver, 344,346,692 fine ounces; copper, 7,198,458,328 pounds; lead, 594,824,248 pounds; and zinc, 2,798,121,557 pounds. The total value of the output from 1904 to 1934, inclusive, is \$1,725,278,755, and the total value of the output from 1862 to 1934, inclusive, is estimated at \$2,824,298,454.

Calculation of value of metal production.—The value of metal production herein reported has been calculated at the figures given in the table that follows. Gold in 1930–32 is figured at \$20.671835 per ounce, the Treasury legal coinage value for fine gold from January 18, 1835, to January 31, 1934; in 1933 at \$25.56 and in 1934 at \$34.95 per ounce, the average weighted yearly United States Government

¹ Assisted by Paul Luff and Jeannette Froiseth.

prices.² The silver price in 1930-33 is the average New York price for bar silver; in 1934 the Treasury buying price for newly mined silver, \$0.646464+ per ounce. The copper, lead, and zinc prices are weighted averages, for each year, of all grades of primary metal sold by producers.

Prices of gold, silver, copper, lead, and zinc, 1930-34

Year	Gold	Silver	Copper	Lead	Zinc
	Per fine ounce	Per fine ounce	Per pound	Per pound	Per pound
1930.....	1 \$20.67+	\$0.385	\$0.130	\$0.050	\$0.048
1931.....	1 20.67+	.290	.091	.037	.038
1932.....	1 20.67+	.282	.063	.030	.030
1933.....	25.56	.350	.064	.037	.042
1934.....	34.95	1.646+	.080	.037	.043

1 \$20.671835.

1 \$0.64646464.

Mine production of gold, silver, copper, lead, and zinc in Montana, 1930-34, in terms of recovered metals

Year	Mines producing		Ore, old tallings, etc. (short tons)	Gold (lode and placer)		Silver (lode and placer)	
	Lode	Placer		Fine ounces	Value	Fine ounces	Value
1931.....	243	118	2,085,683	40,112.16	829,192	3,829,837	1,110,653
1932.....	390	232	765,014	40,602.01	839,318	1,686,213	475,512
1933.....	426	276	862,486	57,822.20	1,477,935	2,660,700	931,245
1934.....	583	654	1,066,952	97,445.95	3,405,736	4,006,468	2,590,040

Year	Copper		Lead		Zinc		Total value
	Pounds	Value	Pounds	Value	Pounds	Value	
1930.....	196,187,523	\$25,504,378	21,306,044	\$1,065,302	52,841,108	\$2,536,373	\$32,720,416
1931.....	184,555,735	16,794,572	8,860,186	327,827	15,494,986	512,809	19,575,053
1932.....	84,847,349	5,345,383	2,157,766	64,733	4,393,034	131,791	6,856,737
1933.....	65,476,375	4,190,488	13,163,432	487,047	41,448,905	1,740,854	18,827,569
1934.....	63,265,000	5,061,200	20,010,000	740,370	61,442,256	2,642,017	14,439,363

1 Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

Gold and silver produced at placer mines in Montana, 1930-34, in fine ounces, in terms of recovered metals

Year	Sluicing		Dry-land dredges 1		Floating dredges		Total	
	Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver
1930.....	720.74	86	-----	-----	-----	-----	720.74	86
1931.....	1,907.86	233	-----	-----	-----	-----	1,907.86	233
1932.....	3,537.42	422	-----	-----	-----	-----	3,537.42	422
1933.....	4,022.86	500	1,546.49	275	3,135.73	448	8,705.08	1,223
1934.....	5,607.71	686	4,877.79	889	15,058.39	1,562	25,543.89	3,137

1 Drag-line and power-shovel excavators with sluices or special amalgamators.

2 The Treasury from Feb. 1, 1934, through December 1934 has calculated all gold, old and new, at \$35.00 per ounce, under authority of the Gold Reserve Act of Jan. 31, 1934. Details of the U. S. Government fluctuating price of gold in 1933 to Jan. 31, 1934, may be found in Minerals Yearbook, 1934, pp. 25-28.

Gold.—The output of gold from mines in Montana in 1934 increased 39,623.75 ounces (68.53 percent) over 1933, the output from lode mines increasing 22,784.94 ounces and that from placers 16,838.81 ounces. Gold recovered from siliceous material (chiefly gold ore) increased more than 23,000 ounces; there was also an increase in gold from both lead-zinc ore and lead ore, but a decrease of nearly 3,200 ounces from copper material. Siliceous ore, old tailings, etc., yielded 66.59 percent of the total gold, placers 26.21 percent, and other material (copper ore, lead ore, lead-zinc ore, etc.) 7.20 percent. Crude ore, old tailings, etc., smelted yielded 29 percent of the gold, concentrates of all classes 24 percent, and bullion from gold and silver mills 21 percent.

Substantial increases in gold production were recorded at many lode mines, including the Gould, August (Little Ben), Sleeping Princess, Hidden Lakes, Ohio-Keating, B & H, Prospect, Spring Hill, Boss Tweed & Clipper, Scratch Gravel, Grant & Hartford, Keating, Old Dominion, Comet & Gray Eagle, and Bachelor; these gains were offset in part by decreases at the Midas, Southern Cross, Mammoth, Ermont, Holdfast, Golden Sunlight, Jardine, and Jib mines. Most of the increase in gold from placer mines came from the Pioneer and Ophir Gulch dredges in Powell County and the Winston dragline dredge in Jefferson County; these increases were offset in part by the decrease from the Story dredge in Madison County, which suspended operations late in 1933.

The leading producers of gold in Montana in 1934 were the Pioneer dredge, Ophir Gulch dredge, August (Little Ben Mining Co.), Gould (Standard Silver-Lead Mining Co.), Jardine, Winston dragline dredge, Boss Tweed & Clipper, Sleeping Princess (Thompson Gold Milling Co.), Anaconda (copper and zinc mines), Gold Coin, Hidden Lakes, Ohio-Keating, and Prospect properties.

Silver.—The output of silver in Montana in 1934 increased 1,345,768 ounces (50.58 percent) over 1933, due chiefly to the higher output of lead-zinc ore and silver ore. Copper ore and old tailings yielded 45.13 percent of the total silver; lead-zinc ore, 35.64 percent; and siliceous ore, old tailings, etc., 15.17 percent. Concentrates of all classes yielded 85.19 percent of the silver and crude ore smelted, 13.55 percent. Large increases in silver production were reported at the Anaconda (from both copper and zinc mines), Trout, Flathead, Granite Bimetallic, Comet & Gray Eagle, and Quartz Hill & Argyle Silver properties.

The Anaconda Copper Mining Co. was again by far the largest producer of silver in Montana, reporting an increase from both copper ores and lead-zinc ore. Other leading producers in 1934 were the Trout, Emma, Flathead, Granite Bimetallic, Quartz Hill & Argyle Silver, Comet & Gray Eagle, Blue Eyed Maggie, Gould, and Montana Lead mines.

Copper.—The output of copper in Montana in 1934 decreased 2,211,375 pounds (3.38 percent) from 1933, but, owing to the advance in sale price per pound from 6.4 cents in 1933 to 8 cents in 1934, the total value of the 1934 output increased \$870,712. Copper ore, old tailings, etc., yielded 97.74 percent of the total copper and lead-zinc ore nearly all the remainder. Concentrates of all classes yielded 91.53 percent of the copper and mine-water precipitates, 8.17 percent.

In 1934, as usual, the Anaconda Copper Mining Co. was the only large producer of copper in Montana; most of the company output came from copper ore treated by flotation, but there was a good increase in copper from the Orphan Girl mine, a producer of lead-zinc ore. Other producers of copper in Montana in 1934 included the Emma, Trout, Comet & Gray Eagle, and Josephine mines, all producers of lead-zinc ore.

Lead.—The output of lead in Montana was 20,010,000 pounds in 1934 compared with 13,163,432 pounds in 1933, an increase of 6,846,568 pounds (52 percent). Most of the increase came from lead-zinc ore, but increases were also recorded from zinc slag, lead ore, old tailings, etc., and siliceous material. Lead-zinc ore yielded 78.79 percent of the total lead; lead ore, old tailings, etc., 12.88 percent; and zinc slag, 6.76 percent. Concentrates of all classes yielded 80.22 percent of the lead, crude ore smelted 12.96 percent, and zinc slag 6.76 percent.

The Orphan Girl mine (Anaconda Copper Mining Co.) was the largest producer of lead in Montana in 1934, followed by the Jack Waite and Emma mines and the slag dump at East Helena. Other large producers were the Trout, Comet & Gray Eagle, Little Sampson, Josephine, Hazel T., Blue Eyed Maggie, and Hecla mines.

Zinc.—The output of zinc in Montana increased 19,993,351 pounds (48.24 percent)—from 41,448,905 pounds in 1933 to 61,442,256 pounds in 1934. Lead-zinc ore (all milled) yielded 78.09 percent of the total zinc and accounted for nearly 82 percent of the increase; the remainder (21.91 percent) of the zinc came from the slag fuming plant at East Helena.

The Orphan Girl mine at Butte was again the largest producer of zinc in Montana, and it was followed by the slag plant at East Helena and the Emma mine at Butte, all three operated by the Anaconda Copper Mining Co. Other large producers were the Trout, Jack Waite, Josephine, Comet & Gray Eagle, Silver Prince, and Curry mines.

MINE PRODUCTION BY COUNTIES

Mine production of gold, silver, copper, lead, and zinc in Montana in 1934, by counties, in terms of recovered metals

County	Mines producing			Ore, old tailings, etc.	Gold						Silver					
					Lode		Placer		Total		Lode		Placer		Total	
	Lode	Placer	Total		Short tons	Fine ounces	Value	Fine ounces	Value	Fine ounces	Value	Fine ounces	Value	Fine ounces	Value	Fine ounces	Value
Beaverhead.....	36	18	54	27,338	5,004.35	\$174,902	120.20	\$4,201	5,124.55	\$179,103	152,310	\$98,463	14	\$9	152,324	\$98,472
Broadwater.....	74	35	109	7,673	5,282.29	184,616	380.63	13,303	5,662.92	197,919	17,619	11,390	51	33	17,670	11,423
Carbon.....		2	2				8.07	282	8.07	282						
Cascade.....	8		8	665	25.35	886			25.35	886	14,720	9,516			14,720	9,516
Deer Lodge.....	15	27	42	15,521	2,923.92	102,191	75.88	2,652	2,999.80	104,843	3,117	2,015	6	4	3,123	2,019
Fergus.....	13	3	16	599	266.58	9,317	21.66	757	288.24	10,074	3,380	2,185	3	2	3,383	2,187
Flathead.....	3		3	3,796	30.53	1,067			30.53	1,067	133,220	86,122			133,220	86,122
Gallatin.....		1	1				37.34	1,305	37.34	1,305						
Granite.....	47	33	80	65,682	7,468.64	261,029	249.24	8,711	7,717.88	269,740	451,938	292,162	25	16	451,963	292,178
Broadwater.....	74	35	109	7,673	5,282.29	184,616	380.63	13,303	5,662.92	197,919	17,619	11,390	51	33	17,670	11,423
Jefferson.....	77	44	121	34,272	5,093.19	178,007	4,052.33	141,629	9,145.52	319,636	128,044	82,776	871	563	128,615	83,339
Lewis and Clark.....	65	80	145	115,826	12,815.05	447,886	656.48	22,944	13,471.53	470,830	110,546	71,464	88	57	110,634	71,521
Lincoln.....	7	18	25	3,964	1,015.05	35,476	49.67	1,736	1,064.72	37,212	14,202	9,181	6	4	14,208	9,185
Madison.....	165	75	240	58,080	14,795.48	517,102	455.91	15,934	15,251.39	533,036	36,404	23,534	76	49	36,480	23,583
Meagher.....	1	5	6	110	69.80	2,090	37.08	1,296	96.88	3,386	17	11	3	2	20	13
Mineral.....	1	29	30	20	3.52	123	573.65	20,049	577.17	20,172			11	7	11	7
Missoula.....	9	23	32	837	985.49	34,443	948.90	33,164	1,934.39	67,607	1,932	1,249	14	9	1,946	1,258
Park.....	6	33	39	35,349	5,060.00	176,847	839.17	29,329	5,899.17	206,176	10,576	6,837	133	86	10,709	6,923
Phillips.....	5	7	12	21,756	6,216.28	217,259	29.93	1,046	6,246.21	218,305	6,469	4,182	3	2	6,472	4,184
Powell.....	21	57	78	1,933	1,205.98	42,149	16,430.30	574,239	17,636.28	616,388	64,384	41,622	1,700	1,099	66,084	42,721
Ravalli.....	4	6	10	244	93.82	3,279	55.25	1,931	149.07	5,210	1,089	704	3	2	1,092	706
Sanders.....	3	4	7	28,800	107.84	3,769	107.81	3,768	215.65	7,537	27,225	17,600	17	11	27,242	17,611
Silver Bow.....	23	152	175	644,487	3,448.90	120,539	412.13	14,404	3,861.03	134,943	2,826,139	1,826,999	113	73	2,826,252	1,827,072
Toole.....		1	1				1.23	43	1.23	43						
Yellowstone.....		1	1				1.03	36	1.03	36						
Total, 1933.....	583	654	1,237	1,066,952	71,902.06	2,512,977	25,543.89	892,759	97,445.95	3,405,736	4,003,331	2,588,012	3,137	2,028	4,006,468	2,590,040
	426	276	702	862,486	49,117.12	1,255,433	8,705.08	222,502	57,822.20	1,477,935	2,659,477	930,817	1,223	428	2,660,700	931,245

¹ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

Mine production of gold, silver, copper, lead, and zinc in Montana in 1934, by counties, in terms of recovered metals—Continued

County	Copper		Lead		Zinc		Total value		
	Pounds	Value	Pounds	Value	Pounds	Value	Lode	Placer	Lode and placer
Beaverhead.....	36, 075	\$2, 886	196, 027	\$7, 253			\$283, 504	\$4, 210	\$287, 714
Broadwater.....	11, 075	886	151, 054	5, 589			202, 481	13, 336	215, 817
Carbon.....								282	282
Cascade.....	450	36	40, 919	1, 514			11, 952		11, 952
Deer Lodge.....	5, 725	458					104, 664	2, 656	107, 320
Fergus.....	150	12	1, 378	51			11, 565	759	12, 324
Flathead.....	25	2	1, 649	61			87, 252		87, 252
Gallatin.....								1, 305	1, 305
Granite.....	183, 600	14, 688	835, 000	30, 895	4, 432, 535	\$190, 599	789, 373	8, 727	798, 100
Jefferson.....	63, 775	5, 102	576, 027	21, 313	435, 907	18, 744	305, 942	142, 192	448, 134
Lewis and Clark.....	18, 075	1, 446	1, 833, 892	67, 854	13, 481, 279		579, 695	23, 001	1, 191, 346
Lincoln.....	2, 425	194	172, 108	6, 398			51, 219	1, 740	52, 959
Madison.....	43, 925	3, 514	141, 865	5, 249			549, 399	15, 983	565, 382
Meagher.....	200	16					2, 117	1, 298	3, 415
Mineral.....							123	20, 056	20, 179
Missoula.....	9, 475	758					36, 450	53, 173	69, 623
Park.....	1, 500	120	38, 162	1, 412			185, 216	29, 415	214, 631
Phillips.....							221, 441	1, 048	222, 489
Powell.....	4, 025	322	115, 216	4, 263			88, 356	575, 338	663, 694
Ravalli.....	3, 125	250	5, 000	185			4, 418	1, 933	6, 351
Sanders.....	25, 225	2, 018	5, 119, 946	189, 438	763, 163	32, 816	245, 641	3, 779	249, 420
Silver Bow.....	62, 856, 150	5, 028, 492	10, 781, 757	398, 925	42, 329, 372	1, 820, 163	9, 195, 118	14, 477	9, 209, 595
Toole.....								43	43
Yellowstone.....								36	36
Total, 1933.....	63, 265, 000	5, 061, 200	20, 010, 000	740, 370	61, 442, 256	2, 642, 017	13, 544, 576	894, 787	14, 439, 363
	65, 476, 375	4, 190, 488	13, 163, 432	487, 047	41, 448, 905	1, 740, 854	18, 604, 639	1, 222, 930	18, 827, 569

¹ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

Gold and silver produced at placer mines in Montana in 1934, by counties, in fine ounces, in terms of recovered metals

County	Sluicing		Dry-land dredges ¹		Floating dredges		Total	
	Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver
Beaverhead.....	120.20	14					120.20	14
Broadwater.....	212.38	33	168.25	18			380.63	51
Carbon.....	8.07						8.07	
Deer Lodge.....	75.88	6					75.88	6
Fergus.....	21.66	3					21.66	3
Gallatin.....			37.34				37.34	
Granite.....	249.24	25					249.24	25
Jefferson.....	206.38	79	3,845.95	792			4,052.33	871
Lewis and Clark.....	656.48	88					656.48	88
Lincoln.....	49.67	6					49.67	6
Madison.....	455.91	76					455.91	76
Meagher.....	37.08	3					37.08	3
Mineral.....	573.65	11					573.65	11
Missoula.....	948.90	14					948.90	14
Park.....	839.17	133					839.17	133
Phillips.....	29.93	3					29.93	3
Powell.....	545.66	59	826.25	79	15,058.39	1,562	16,430.30	1,700
Ravalli.....	55.25	3					55.25	3
Sanders.....	107.81	17					107.81	17
Silver Bow.....	412.13	113					412.13	113
Toole.....	1.23						1.23	
Yellowstone.....	1.03						1.03	
Total, 1933.....	5,607.71 4,022.86	686 500	4,877.79 1,546.49	889 275	15,058.39 3,135.73	1,562 448	25,543.89 8,705.08	3,137 1,223

¹ Dragline and power-shovel excavators with sluices or special amalgamators.

MINING INDUSTRY

The general increase in the interest in gold mining in Montana continued at a greater rate in 1934. Several new operations reached an important position in gold production, including the new flotation plant of the Montana Consolidated Mines Corporation at the Spring Hill mine, the new cyanidation plant of the United Gold Corporation at the Golden Messenger mine, the new flotation plant of the Inspiration Gold Mining Co. at the B & H and Pete & Joe properties, and the operations of the new tailings mill of the Atlas Mines Corporation at the Bald Butte property. Important increases in gold output were reported at many lode properties, including the Standard Silver-Lead Mining Co. (Gould mine), the Little Ben Mining Co. (August mine), the Virginia City Gold Mining Co. (Prospect group), the Pacific Gold Mining Co., the Thompson Gold Milling Co., the Lakes Mining & Milling Syndicate, and the McLaren Gold Mining Co. The increase in gold from placer operations was noteworthy, particularly at the Pioneer and Ophir Gulch dredges.

The output of lead-zinc ore continued to increase, and most of it came from properties at Butte and Philipsburg; the operation of the new flotation plant of the Basin Montana Tunnel Co. at Basin was also important. Operations at the Granite Bimetallic property near Philipsburg resulted in a large increase in silver from silver ore. There was a substantial increase in output from the slag fuming plant at East Helena.

Labor difficulties at Butte, Anaconda, and Great Falls during the summer undoubtedly retarded mining development, but in general the mining industry in Montana improved materially in 1934.

ORE CLASSIFICATION

Ore, old tailings, etc., sold or treated in Montana in 1934, with content in terms of recovered metals

Source	Mines producing	Ore, old tailings, etc.	Gold	Silver	Copper	Lead	Zinc
		<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Dry gold ore.....	428	1 243,405	63,228.42	159,225	117,184	233,184	-----
Dry gold and silver ore.....	22	4 4,374	907.18	43,908	12,844	2,200	-----
Dry silver ore.....	42	40,049	749.64	399,730	29,437	77,701	-----
	492	287,828	64,885.24	607,863	159,465	313,085	-----
Copper ore.....	7	458,587	1,396.18	1,808,104	461,837,368	-----	-----
Lead ore.....	73	10,321	2,544.41	152,723	23,975	2,578,153	-----
Zinc ore.....	1	65,913	-----	6,944	-----	1,352,189	13,464,977
Lead-zinc ore.....	14	244,303	3,076.23	1,427,697	1,244,192	15,766,573	47,977,279
Total, lode mines.....	7 583	1,066,952	71,902.06	4,003,331	463,265,000	20,010,000	61,442,256
Total, placers.....	654	-----	25,543.89	3,137	-----	-----	-----
	1,237	1,066,952	97,445.95	4,006,468	463,265,000	20,010,000	61,442,256
Total, 1933.....	702	862,486	57,822.20	2,660,700	465,476,375	13,163,432	41,448,905

¹ Includes 20 tons of old tailings and 10 tons of old slag amalgamated; 785 tons of old tailings cyanided; 4,079 tons of old tailings amalgamated and concentrated; 4,713 tons of old tailings concentrated; and 1,041 tons of old tailings, 115 tons of old slag, and 8 tons of old mill clean-up sold to a smelter.

² Includes 135 tons of old tailings cyanided and 79 tons of old tailings sold to a smelter.

³ Includes 400 tons of old tailings concentrated.

⁴ Includes 5,167,305 pounds of copper recovered from precipitates.

⁵ Includes 350 tons of old tailings concentrated and 76 tons of old mill clean-up sold to a smelter.

⁶ Current slag fumed.

⁷ A mine producing more than one class of ore is counted but once in arriving at total for all classes.

⁸ Includes 9,167,018 pounds of copper recovered from precipitates.

Value of metals from ore, old tailings, etc., sold or treated in Montana in 1934, by classes of ore

Class	Ore, old tailings, etc. (short tons)	Gold	Silver	Copper	Lead	Zinc	Total value
Dry gold ore.....	243,405	\$2,209,833	\$102,934	\$9,375	\$8,628	-----	\$2,330,770
Dry gold and silver ore.....	4,374	31,706	31,617	1,027	81	-----	64,431
Dry silver ore.....	40,049	26,200	258,411	2,355	2,875	-----	289,841
	287,828	2,267,739	392,962	12,757	11,584	-----	2,685,042
Copper ore.....	458,587	48,797	1,168,875	14,946,990	-----	-----	6,164,662
Lead ore.....	10,321	88,927	98,730	1,918	95,392	-----	284,967
Zinc ore.....	65,913	-----	4,489	-----	50,031	\$578,994	633,514
Lead-zinc ore.....	244,303	107,514	922,956	99,535	583,363	2,063,023	3,776,391
Total, lode mines.....	1,066,952	2,512,977	2,588,012	15,061,200	740,370	2,642,017	13,544,576
Total, placers.....	-----	892,759	2,028	-----	-----	-----	894,787
	1,066,952	3,405,736	2,590,040	15,061,200	740,370	2,642,017	14,439,363
Total, 1933.....	862,486	21,477,935	931,245	4,190,488	487,047	1,740,854	8,827,569

¹ Includes value of 5,167,305 pounds of copper recovered from precipitates.

² Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

³ Includes value of 9,167,018 pounds of copper recovered from precipitates.

Gold ore.—The output of gold ore, old tailings, etc., was 243,405 tons from 428 properties in 1934 compared with 163,832 tons from 342 properties in 1933; it represented nearly 23 percent of the total ore, etc., produced in the State in 1934 and had an average value of \$9.58 a ton in terms of recovered metals. There was a large decrease in old tailings treated due to the closing of the Jib tailings mill at Basin, but this loss was more than offset by substantial increases from a large number of gold mines, including the August, Spring Hill,

Boss Tweed & Clipper, Gould, Hidden Lakes, B & H, Jardine, and Fleming. Of the total gold material produced, 76,922 tons were concentrated, 62,765 tons cyanided, 20,771 tons amalgamated, 51,853 tons treated at plants employing amalgamation (or cyanidation) and concentration, and 29,930 tons smelted; the remainder (1,164 tons) was miscellaneous material smelted. The largest producers of gold ore, old tailings, etc., in Montana in 1934 were the Jardine, Boss Tweed & Clipper, August, Sleeping Princess, Spring Hill, Gould, Gold Coin, Hidden Lakes, Prospect, and B & H properties.

Gold and silver ore.—The output of gold and silver ore, etc., was 4,374 tons from 22 properties in 1934 compared with 1,600 tons from 9 properties in 1933. Except for 135 tons of old tailings treated by cyanidation, all the material produced was shipped for smelting. Most of it came from the Hope & Katie (Jib) mine at Basin; other producers included the Blue Eyed Maggie, Little Klondyke, Smith (old tailings), and Emery properties.

Silver ore.—The output of silver material increased from 1,805 tons of ore and old tailings from 16 properties in 1933 to 40,049 tons of ore from 42 properties in 1934; most of the increase came from the Granite Bimetallic property near Philipsburg where 30,000 tons of silver ore were treated by flotation. The remainder of the silver material in 1934 was ore of smelting grade, chiefly from the Flathead, Lone Pine & Argyle Silver, Morning Glory, Nevada, Ingersoll, Magna Charta, and Lavena mines.

Copper ore.—The Anaconda Copper Mining Co. was the only large producer of copper ore in Montana in 1934; the output from the Anaconda group decreased nearly 19,000 tons compared with 1933. There was also a decrease in copper ore from the Mammoth mine at Jefferson Island. Copper ore and old tailings from the Black Pine property in the Henderson district near Philipsburg were concentrated. Copper ore of smelting grade was shipped from five properties. Copper ore and old tailings represented 43 percent of the State output of ore, etc., and nearly all of it was concentrated.

Lead ore.—Seventy-eight properties produced 10,321 tons of lead material in 1934 compared with 54 properties producing 7,425 tons in 1933. The output in 1934 comprised 7,075 tons of ore and 76 tons of mill clean-up material smelted and 2,820 tons of ore and 350 tons of old tailings concentrated. Most of the lead ore of smelting grade came from the Little Sampson, Jack Waite, Blue Eyed Maggie, and Hecla mines, and most of the milling ore came from Hazel T. Hartley, and Goldfinch mines.

Zinc ore.—No zinc ore was produced in Montana in 1934, but 65,913 tons of zinc slag from the lead smelter at East Helena were treated by the Anaconda Copper Mining Co. in its fuming plant; the slag output in 1933 was 42,510 tons.

Lead-zinc ore.—Fourteen mines produced 244,303 tons of lead-zinc ore in 1934 compared with 9 mines producing 152,582 tons in 1933; the output in 1934 represented nearly 23 percent of the State total ore, etc. All the lead-zinc ore was treated by flotation, and most of it came from the Orphan Girl and Emma mines at Butte; other producers included the Jack Waite, Trout, Comet & Gray Eagle, Josephine, and Silver Princess mines.

152 MINERALS YEARBOOK, 1935—STATISTICAL APPENDIX

Ore, old tailings, etc., sold or treated in Montana in 1934, by counties, with content in terms of recovered metals

DRY GOLD ORE

County	Ore, old tailings, etc.	Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Beaverhead.....	21,741	4,287.99	22,661	8,668	25,991	
Broadwater.....	6,822	4,955.39	8,044	9,932	38,762	
Cascade.....	45	21.23	17			
Deer Lodge.....	1 15,359	2,920.97	518	5,616		
Fergus.....	472	245.62	302	87		
Granite.....	2 13,918	6,613.10	5,273	12,749	2,649	
Jefferson.....	3 19,922	3,683.15	13,623	18,490	23,735	
Lewis and Clark.....	4 46,824	12,469.62	62,667	9,589	38,797	
Lincoln.....	5 1,846	633.45	5,256	2,025	54,973	
Madison.....	6 57,677	14,687.77	30,415	42,913	42,097	
Meagher.....	110	59.80	17	200		
Mineral.....	20	3.52				
Missoula.....	694	975.42	628	1,700		
Park.....	7 35,277	5,058.70	1,264	1,500	41	
Phillips.....	21,568	6,216.28	6,469			
Powell.....	8 487	231.69	598	260	1,139	
Ravalli.....	244	93.82	1,089	3,125	5,000	
Sanders.....	15	4.12				
Silver Bow.....	176	66.78	384	390		
Total, 1933.....	243,405	63,228.42	159,225	117,184	233,184	
	163,832	41,270.73	114,958	117,250	105,338	

DRY GOLD AND SILVER ORE

Beaverhead.....	16	7.64	247			
Fergus.....	35	8.40	452	14		
Granite.....	231	63.69	4,398	150	2,162	
Jefferson.....	3,346	451.60	19,418	9,893		
Lewis and Clark.....	9 8	7.10	316	24		
Madison.....	10 206	32.96	1,321	240	38	
Powell.....	11 493	322.79	21,481	2,411		
Silver Bow.....	39	13.00	1,365	112		
Total, 1933.....	4,374	907.18	48,908	12,844	2,200	
	1,600	494.08	35,277	5,082		

DRY SILVER ORE

Beaverhead.....	4,321	70.46	111,202	18,457	9,866	
Broadwater.....	86	5.30	2,248	102	510	
Cascade.....	79	2.10	4,785	308	4,436	
Deer Lodge.....	162	2.95	2,599	109		
Fergus.....	83	6.08	2,618	25	324	
Flathead.....	3,796	30.53	133,220	25	1,649	
Granite.....	30,027	415.35	107,873	7,458	56,284	
Jefferson.....	596	152.29	22,610	502	3,708	
Lewis and Clark.....	18	.70	545	162	924	
Madison.....	40		1,053	22		
Silver Bow.....	841	63.88	10,977	2,267		
Total, 1933.....	40,049	749.64	399,730	29,437	77,701	
	1,805	116.67	52,416	7,191		

¹ Includes 225 tons of old tailings cyanided and 25 tons of old tailings and 2 tons of old mill clean-up sold to a smelter.

² Includes 322 tons of old tailings sold to a smelter.

³ Includes 1 ton of old mill clean-up sold to a smelter.

⁴ Includes 20 tons of old tailings amalgamated, 560 tons of old tailings cyanided, 4,713 tons of old tailings concentrated, and 100 tons of old tailings and 1 ton of old mill clean-up sold to a smelter.

⁵ Includes 1 ton of old mill clean-up sold to a smelter.

⁶ Includes 10 tons of old slag amalgamated and 594 tons of old tailings, 115 tons of old slag, and 1 ton of old mill clean-up sold to a smelter.

⁷ Includes 4,079 tons of old tailings amalgamated and concentrated.

⁸ Includes 2 tons of old mill clean-up sold to a smelter.

⁹ Includes 1 ton of old tailings sold to a smelter.

¹⁰ Includes 135 tons of old tailings cyanided.

¹¹ Includes 78 tons of old tailings sold to a smelter.

GOLD, SILVER, COPPER, LEAD, AND ZINC IN MONTANA 153

Ore, old tailings, etc., sold or treated in Montana in 1934, by counties, with content in terms of recovered metals—Continued

COPPER ORE

County	Ore, old tailings, etc.	Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Granite.....	¹² 1,201	16.60	11,998	19,826	-----	-----
Madison.....	3	10.00	75	362	-----	-----
Missoula.....	143	10.07	1,304	7,775	-----	-----
Sanders.....	23	-----	1,519	6,825	-----	-----
Silver Bow.....	457,217	1,359.51	1,793,208	¹³ 61,802,580	-----	-----
Total, 1933.....	458,587 491,893	1,396.18 4,578.93	1,808,104 1,613,340	¹³ 61,837,368 ¹⁴ 64,987,580	-----	-----

LEAD ORE

Beaverhead.....	1,260	638.26	18,200	8,950	160,170	-----
Broadwater.....	¹⁵ 765	321.60	7,327	1,041	111,782	-----
Cascade.....	541	2.02	9,918	142	36,483	-----
Fergus.....	9	6.48	8	24	1,054	-----
Granite.....	49	.80	580	25	29,216	-----
Jefferson.....	¹⁶ 495	128.53	7,708	2,636	83,971	-----
Lewis and Clark.....	2,943	328.21	38,503	7,723	425,041	-----
Lincoln.....	2,118	381.60	8,946	400	117,135	-----
Madison.....	154	64.75	3,540	388	99,730	-----
Park.....	72	1.30	9,312	-----	38,121	-----
Powell.....	953	651.50	42,305	1,354	114,077	-----
Sanders.....	962	19.36	6,376	1,292	1,361,373	-----
Total, 1933.....	10,321 7,425	2,544.41 1,175.80	152,723 42,742	23,975 8,493	2,578,153 2,046,666	-----

ZINC ORE

Lewis and Clark.....	¹⁷ 65,913	-----	6,944	-----	1,352,189	13,464,977
Total, 1933.....	¹⁷ 65,913 ¹⁸ 43,289	----- 3.25	6,944 9,376	----- 2,919	1,352,189 864,804	13,464,977 9,834,082

LEAD-ZINC ORE

Granite.....	20,256	359.10	321,906	143,392	744,689	4,432,535
Jefferson.....	9,913	677.62	64,685	32,314	464,613	435,907
Lewis and Clark.....	120	9.42	1,571	577	16,941	16,302
Sanders.....	27,800	84.36	19,330	17,108	3,758,573	763,163
Silver Bow.....	186,214	1,945.73	1,020,205	1,050,801	10,781,757	42,329,372
Total, 1933.....	244,303 152,582	3,076.23 1,476.16	1,427,697 790,501	1,244,192 341,610	15,766,573 10,135,271	47,977,279 31,614,823

¹² Includes 400 tons of old tailings concentrated.

¹³ Includes 5,167,305 pounds of copper recovered from precipitates.

¹⁴ Includes 9,167,018 pounds of copper recovered from precipitates.

¹⁵ Includes 350 tons of old tailings concentrated.

¹⁶ Includes 76 tons of old mill clean-up sold to a smelter.

¹⁷ Current slag fumed.

¹⁸ Includes 42,510 tons of current slag fumed.

Zinc products ¹ (as marketed from Montana mines and mills) sold to smelters and electrolytic plants in 1934

Classification	County	Quantity (dry weight)		Average assay of concentrates		Recovered zinc ¹	
		Short tons	Pounds	Percent	Pounds		
Zinc concentrates....	Granite, Jefferson, Lewis and Clark, Sanders, and Silver Bow.	49,907	53,375,271	53.47	47,977,279		
Total, 1933.....		49,907 33,353	53,375,271 35,338,130	53.47 52.98	47,977,279 31,806,310		

¹ Exclusive of zinc recovered from the treatment of current slag at East Helena.

METALLURGIC INDUSTRY

Of the 1,066,952 tons of ore, old tailings, etc., produced in 1934 in Montana, 135,524 tons (12.70 percent) were treated at gold and silver mills and 812,508 tons (76.15 percent) at concentration plants; the remainder consisted of 51,688 tons of crude ore and 1,319 tons of miscellaneous material (old tailings, slag, etc.) shipped to smelters and 65,913 tons of slag treated at a zinc fuming plant.

METALLURGICAL PLANTS

There were 71 gold and silver mills, 22 concentration plants, and 3 miscellaneous plants (1 mine-water precipitation plant, 1 slag fuming plant, and 1 electrolytic zinc plant) in operation in Montana in 1934—a total of 96 plants (exclusive of the copper smelter at Anaconda and the lead smelter at East Helena) compared with a total of 87 plants in 1933.

Gold and silver mills.—The 71 gold and silver mills comprised 39 straight amalgamation plants, 14 straight cyanidation plants, 10 amalgamation and gravity concentration plants, 4 amalgamation and flotation concentration plants, 2 amalgamation, gravity, and flotation concentration plants, 1 amalgamation, cyanidation, and gravity concentration plant, and 1 cyanidation and flotation concentration plant.

Of the total material treated at gold and silver mills, 20,741 tons of ore, 20 tons of old tailings, and 10 tons of old slag (15.33 percent) were treated at straight amalgamation plants in 1934 compared with a total of 10,239 tons of material in 1933; 47,774 tons of ore and 4,079 tons of old tailings (38.26 percent) were treated at combined amalgamation (or cyanidation) and concentration plants compared with 34,395 tons in 1933; and 61,980 tons of ore and 920 tons of old tailings (46.41 percent) were treated at straight cyanidation plants compared with 25,339 tons in 1933.

Most of the increase in ore amalgamated came from the Gold Coin and Golden Curry mines, and nearly all the increase in ore cyanided came from the August, Hidden Lakes, Sleeping Princess, Carmody & Papesh, and Golden Messenger properties. The substantial increases in material treated at combined amalgamation (or cyanidation) and concentration plants reported at the Gould, Jardine, Prospect, and New Year's Gift properties were partly offset by a decrease at the Midas mine.

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The following table summarizes data for operations at gold and silver mills in 1934, by counties.

Mine production of metals from gold and silver mills in Montana in 1934, by counties, in terms of recovered metals

County	Ore. old tailings, etc., treated (dry weight)		Recovered in bullion			
			Amalgamation		Cyanidation	
	Ore	Old tailings, etc.	Gold	Silver	Gold	Silver
	<i>Short tons</i>	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>
Beaverhead.....	20, 185		81. 14	17	3, 062. 73	18, 734
Broadwater.....	2		11. 43	4		
Cascade.....	28		1, 886. 20	43	4. 97	1
Deer Lodge.....	13, 514	1 225			121. 66	82
Fergus.....	384		232. 61	44	1, 855. 88	45
Granite.....	9, 606		217. 20	42	202. 73	37
Jefferson.....	8, 481		594. 31	2, 553	1, 180. 83	6, 226
Lewis and Clark.....	10, 761	2 580	416. 14	107		
Lincoln.....	1, 845		1, 718. 77	649	338. 21	2, 036
Madison.....	12, 565	3 145	27. 60	5		
Meagher.....	62		1. 32			
Mineral.....	20		2, 482. 31	439		
Park.....	31, 063	4 4, 079	4. 50	8	5, 910. 18	5, 618
Phillips.....	21, 649		39. 33	9		
Powell.....	223		27. 41	3		
Ravalli.....	60		4. 12			
Sanders.....	15		9. 70	2		
Silver Bow.....	22					
Total, 1933.....	130, 495	5, 029	7, 754. 09	3, 925	12, 677. 19	32, 779
	64, 855	5, 118	7, 796. 92	1, 401	4, 811. 30	17, 963

County	Concentrates and recovered metal				
	Concentrates produced	Gold	Silver	Copper	Lead
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>
Granite.....	10	447. 10	86	150	
Lewis and Clark.....	87	1, 352. 06	6, 025	618	30, 278
Lincoln.....	96	190. 31	5, 112	2, 025	54, 973
Madison.....	111	933. 60	6, 345	2, 101	8, 502
Mineral.....	1	2. 20			
Park.....	1, 456	2, 443. 97	697	1, 435	41
Total, 1933.....	1, 761	5, 374. 24	18, 265	6, 329	93, 794
	1, 158	3, 253. 61	6, 948	2, 351	26, 442

¹ Old tailings cyanided.

² Comprises 20 tons of old tailings amalgamated and 560 tons of old tailings cyanided.

³ Comprises 10 tons of old slag amalgamated and 135 tons of old tailings cyanided.

⁴ Old tailings amalgamated and concentrated.

Concentration mills.—The 22 concentrating mills comprised 14 straight flotation plants (7 treating gold ore and old tailings, 3 copper ore and old tailings, 2 lead-zinc ore, 1 lead ore, and 1 silver ore), 1 combined gravity and flotation plant (treating gold ore), and 7 straight gravity concentration plants (4 treating lead ore and old tailings and 3 gold ore). In addition, lead-zinc ore from Montana was shipped to 1 plant in Idaho and 1 in Utah in 1934 for milling.

Ore and old tailings treated at concentration plants increased from 708,313 tons in 1933 to 812,508 tons in 1934. More than 56 percent of the total material treated in 1934 was copper ore and old tailings; the quantity of copper material, however, decreased 21,349 tons from

1933. Most (nearly 92,000 tons) of the increase in ore milled was in lead-zinc ore, chiefly from the Orphan Girl and Emma mines at Butte, the Trout mine at Philipsburg, and the Jack Waite mine in Sanders County. The total siliceous gold ore and old tailings milled in 1934 was substantially the same as in 1933; there was a sharp decrease in old tailings, due to the closing of the plant at the Jib dumps at Basin, but this loss was offset by large increases in gold ore and old tailings at the Spring Hill, Boss Tweed & Clipper, B & H, Fleming, Mammoth, and Larson properties. The increase in silver ore was due to renewed activity at the Granite Bimetallic mine at Philipsburg.

The following tables present detailed ore-concentration data for 1934.

Montana ore and old tailings concentrated in 1934, by classes of ore, etc., methods of concentration, and classes of concentrates

Class of material concentrated	Method of concentration	Ore and old tailings concentrated	Gross content of mill feed				
			Gold	Silver	Copper	Lead	Zinc
			<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	Pounds
Siliceous gold ore.....	Flotation.....	64, 787	13, 787. 40	51, 812	33, 200	10, 800	-----
Siliceous gold old tailings.....	do.....	4, 713	240. 00	1, 300	2, 100	3, 600	-----
Siliceous silver ore.....	do.....	30, 000	520. 00	133, 000	11, 200	71, 600	-----
Copper sulphide and oxidized ore and old tailings.....	do.....	¹ 458, 113	2, 084. 70	1, 842, 186	60, 956, 474	-----	-----
Lead sulphide ore.....	do.....	2, 100	438. 00	10, 000	360	118, 900	-----
Lead-zinc sulphide ore.....	do.....	244, 303	4, 856. 78	1, 603, 694	1, 842, 314	18, 162, 898	57, 898, 554
Siliceous gold ore.....	Gravity and flotation.....	² 803, 996	21, 916. 88	3, 641, 992	62, 845, 648	18, 367, 798	57, 898, 554
Do.....	do.....	6, 988	808. 40	3, 700	1, 000	20, 000	-----
Lead sulphide ore and old tailings.....	do.....	454	80. 00	205	25	80	-----
Do.....	do.....	³ 1, 070	78. 00	3, 420	345	15, 300	-----
Do.....	do.....	⁴ 1, 524	108. 00	3, 625	370	15, 380	-----
Do.....	do.....	⁵ 812, 508	22, 833. 28	3, 649, 317	62, 847, 018	18, 403, 178	57, 898, 554

Class of material concentrated	Method of concentration	Concentrates produced		Gross content of concentrates				
		Class	Quantity	Gold	Silver	Copper	Lead	Zinc
			<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Siliceous gold ore.....	Flotation.....	Siliceous gold.....	2, 887	11, 436. 31	41, 323	28, 911	8, 546	-----
Siliceous gold old tailings.....	do.....	do.....	94	180. 90	997	1, 611	2, 758	-----
Siliceous silver ore.....	do.....	Siliceous silver.....	1, 220	414. 10	107, 089	8, 943	57, 263	-----
Copper sulphide and oxidized ore and old tailings.....	do.....	Copper sulphide.....	¹ 113, 963	1, 374. 11	1, 804, 274	58, 491, 187	-----	-----
Lead sulphide ore.....	do.....	Lead sulphide.....	225	381. 20	8, 765	237	104, 593	-----
Lead-zinc sulphide ore.....	do.....	do.....	10, 604	775. 86	344, 733	733, 394	12, 939, 173	-----
Do.....	do.....	Zinc sulphide.....	49, 907	2, 088. 37	1, 076, 163	690, 170	3, 543, 094	53, 375, 271
Do.....	do.....	Siliceous gold and silver.....	606	212. 00	6, 801	3, 563	25, 612	-----
Do.....	do.....	do.....	61, 117	3, 076. 23	1, 427, 697	1, 427, 127	16, 507, 879	53, 375, 271
Siliceous gold ore.....	Gravity and flotation.....	do.....	179, 506	16, 862. 85	3, 390, 145	59, 958, 017	16, 681, 039	53, 375, 271
Do.....	do.....	Siliceous gold.....	310	516. 88	1, 729	606	15, 943	-----
Do.....	do.....	do.....	19	23. 44	165	17	61	-----
Lead sulphide ore and old tailings.....	Gravity.....	do.....	² 89	52. 23	2, 722	206	11, 771	-----
Do.....	do.....	Lead sulphide.....	³ 108	75. 67	2, 887	223	11, 832	-----
Do.....	do.....	do.....	⁴ 179, 924	17, 455. 40	3, 394, 761	59, 958, 846	16, 708, 814	53, 375, 271

¹ Includes 400 tons of oxidized old tailings and 800 tons of oxidized ore treated by flotation and 4 tons of ore treated by gravity concentration.

² 4 tons of copper sulphide ore treated by gravity concentration included under flotation.

³ Includes 350 tons of old tailings.

⁴ Figures do not include ore treated at gold and silver mills.

⁵ Includes concentrates from oxidized ore and old tailings treated by flotation and from ore treated by gravity concentration.

⁶ Includes concentrates from old tailings.

⁷ Concentrates from 4 tons of copper sulphide ore treated by gravity concentration included under flotation.

⁸ Figures do not include concentrates from ore treated at gold and silver mills.

Mine production of metals from concentrating mills in Montana in 1934, by counties, in terms of recovered metals

County	Ore and old tailings treated (dry weight)		Concentrates and recovered metal					
	Ore	Old tailings	Concentrates produced	Gold	Silver	Copper	Lead	Zinc
	Short tons	Short tons	Short tons	Fine ounces	Fine ounces	Pounds	Pounds	Pounds
Beaverhead.....	320		15	32.23	142	41	1,652	
Broadwater.....		350	23	19.30	550	104	4,211	
Cascade.....	400		51	70	2,030	11	5,388	
Granite.....	51,056	400	6,394	789.80	440,961	170,563	799,375	4,432,535
Jefferson.....	16,901		1,880	1,194.50	66,414	32,799	479,818	435,907
Lewis and Clark.....	26,391	4,713	741	5,281.01	33,674	2,344	19,595	16,302
Lincoln.....	2,100		225	381.20	8,765	200	99,892	
Madison.....	38,840		2,308	6,360.72	10,318	25,378	8,161	
Powell.....	110		2	8.34	64		54	
Sanders.....	27,800		3,590	84.36	19,330	17,108	3,758,573	763,163
Silver Bow.....	643,127		164,695	3,303.24	2,812,513	57,651,002	10,781,757	42,329,372
Total, 1933.....	807,045 659,393	5,463 48,920	179,924 148,833	17,455.40 12,337.92	3,394,761 2,416,530	57,899,550 54,532,437	15,958,476 10,295,466	47,977,279 31,806,310

Gross metal content of Montana concentrates produced in 1934, by classes of concentrates

Class of concentrates	Concentrates produced (dry weight)	Gross metal content				
		Gold	Silver	Copper	Lead	Zinc
	Short tons	Fine ounces	Fine ounces	Pounds	Pounds	Pounds
Dry and siliceous.....	6,764	17,867.66	170,942	48,154	119,698	
Copper.....	113,963	1,374.11	1,804,274	58,491,188		
Lead.....	11,051	1,499.50	361,647	737,084	13,144,314	
Zinc.....	49,907	2,088.37	1,076,163	690,170	3,543,094	53,375,271
Total, 1933.....	181,685 149,991	22,829.64 15,591.53	3,413,026 2,423,478	59,966,596 55,880,313	16,807,106 10,827,007	53,375,271 35,338,130

Mine production of metals from Montana concentrates in 1934, in terms of recovered metals

BY COUNTIES

	Concentrates	Gold	Silver	Copper	Lead	Zinc
		Short tons	Fine ounces	Fine ounces	Pounds	Pounds
Beaverhead.....	15	32.23	142	41	1,652	
Broadwater.....	23	19.30	550	104	4,211	
Cascade.....	51	70	2,030	11	5,388	
Granite.....	6,404	1,236.90	441,047	170,713	799,375	4,432,535
Jefferson.....	1,880	1,194.50	66,414	32,799	479,818	435,907
Lewis and Clark.....	828	6,633.07	39,699	2,962	49,873	16,302
Lincoln.....	321	571.51	13,877	2,225	154,865	
Madison.....	2,419	7,294.32	16,663	27,479	16,663	
Mineral.....	1	2.20				
Park.....	1,456	2,448.97	697	1,435	41	
Powell.....	2	8.34	64		54	
Sanders.....	3,590	84.36	19,330	17,108	3,758,573	763,163
Silver Bow.....	164,695	3,303.24	2,812,513	57,651,002	10,781,757	42,329,372
Total, 1933.....	181,685 149,991	22,829.64 15,591.53	3,413,026 2,423,478	57,905,879 54,534,788	16,052,270 10,821,908	47,977,279 31,806,310

BY CLASSES OF CONCENTRATES

Dry and siliceous.....	6,764	17,867.66	170,942	41,643	114,019	
Copper.....	113,963	1,374.11	1,804,274	56,619,958		
Lead.....	11,051	1,499.50	361,647	588,616	12,572,309	
Zinc.....	49,907	2,088.37	1,076,163	655,662	3,365,942	47,977,279

Smelting plants.—Nearly all the crude ore of smelting grade, concentrates, old tailings, etc., produced in Montana are shipped for smelting to either the copper plant of the Anaconda Copper Mining Co. at Anaconda or the lead plant of the American Smelting & Refining Co. at East Helena, or they go to the electrolytic zinc plant at Great Falls. A small part of the output, however, is shipped to metallurgical plants near Salt Lake City, Utah, and Kellogg, Idaho, for treatment.

The following tables give the total crude ore of smelting grade produced in Montana in 1934, by classes of ore and by counties. Gold ore shipped crude to smelters increased in nearly all the gold-producing areas of the State, but copper ore decreased due to the lower output from mines at Butte.

Gross metal content of Montana crude ore shipped to smelters in 1934, by classes of ore

Class of ore	Quantity (dry weight)	Gross metal content			
		Gold	Silver	Copper	Lead
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>
Dry and siliceous.....	44, 139	25, 779. 40	399, 890	130, 876	145, 428
Copper.....	474	22. 07	3, 830	51, 905	-----
Lead.....	7, 075	2, 099. 22	139, 307	30, 982	2, 561, 891
	51, 688	27, 900. 69	543, 027	213, 763	2, 707, 319
Total, 1933.....	37, 887	19, 436. 24	203, 292	1, 816, 435	2, 079, 717

Mine production of metals from Montana crude ore shipped to smelters in 1934, in terms of recovered metals

BY COUNTIES

	Ore	Gold	Silver	Copper	Lead
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>
Beaverhead.....	6, 833	1, 909. 39	133, 434	36, 034	194, 375
Broadwater.....	7, 321	5, 181. 85	17, 052	10, 971	146, 843
Cascade.....	237	13. 22	12, 686	439	35, 531
Deer Lodge.....	1, 755	1, 017. 51	3, 060	5, 619	-----
Fergus.....	215	144. 92	3, 298	150	1, 378
Flathead.....	3, 796	30. 53	133, 220	25	1, 649
Granite.....	4, 298	3, 969. 35	10, 551	12, 006	35, 625
Jefferson.....	8, 813	3, 462. 92	59, 621	29, 890	84, 101
Lewis and Clark.....	7, 366	4, 320. 74	54, 740	15, 063	431, 830
Lincoln.....	18	. 40	181	200	17, 243
Madison.....	5, 820	5, 025. 84	16, 292	15, 303	125, 202
Meagher.....	48	32. 20	12	200	-----
Missoula.....	837	985. 49	1, 932	9, 475	-----
Park.....	202	128. 72	9, 440	65	38, 121
Phillips.....	107	301. 60	843	-----	-----
Powell.....	1, 515	1, 154. 28	64, 060	3, 937	115, 162
Ravalli.....	184	66. 41	1, 086	3, 125	5, 000
Sanders.....	985	19. 36	7, 895	8, 117	1, 361, 373
Silver Bow.....	1, 338	135. 96	13, 624	37, 843	-----
	51, 688	27, 900. 69	543, 027	188, 462	2, 593, 433
Total, 1933.....	37, 887	19, 436. 24	203, 292	1, 766, 545	1, 993, 674

BY CLASSES OF ORE

Dry and siliceous.....	44, 139	25, 779. 40	399, 890	115, 824	138, 531
Copper.....	474	22. 07	3, 830	50, 105	-----
Lead.....	7, 075	2, 099. 22	139, 307	22, 533	2, 454, 902

Miscellaneous metallurgical plants.—Miscellaneous material treated in Montana in 1934, not included in the tables under "Metallurgic Industry", comprised 65,913 tons of lead-smelter slag treated at the zinc fuming plant at East Helena; mine-water precipitates from properties at Butte shipped to the smelter at Anaconda and yielding 5,167,305 pounds of copper; and 1,120 tons of old tailings, 115 tons of old slag, and 84 tons of mill clean-up material shipped for smelting.

Granite County:												
Alps	3		156	62.69		62.69	11		11			2,198
Antelope	1		119	48.04		48.04	14		14		1,700	
Boulder	5	2	295	418.54	14.85	433.39	317		317	150	15,496	
Dunkleberg	2		49	80		80	580		580	625	1,486	
First Chance	22	19	3,866	3,343.52	124.32	3,467.84	4,291	11	4,302	25	124,750	
Flint Creek	4		50,283	774.45		774.45	429,779		429,779	9,550	537,207	
Gold Creek		4			65.75	65.75		8	8	108	2,303	
Henderson	4		1,533	115.65		115.65	12,098		12,098	20,800	13,527	
Medicine Lake	1		231	69.69		69.69	4,308		4,308	150	5,103	
Moose Lake	2		581	763.12		763.12	478		478	1,450	27,096	
Red Lion	1	2	9,020	1,855.88	2.29	1,858.17	45		45		64,972	
Rock Creek	1	3	2	1.03	32.36	33.39		6	6		1,171	
Stony	1		47	21.23		21.23	17		17		753	
Upper Willow Creek		2			4.12	4.12					144	
Welcome Gulch		1			5.55	5.55					194	
Jefferson County:												
Amazon	2		28	8.04		8.04	512		512	75	837	
Bigfoot	4	1	34	30.10	.40	30.50	512		512	50	1,481	
Boulder	2	1	4	1.66		1.66	31	3	34	405	361	
Catarect	17	10	14,684	1,778.77	138.54	1,917.31	110,682	62	110,744	44,675	179,571	
Colorado	5		181	22.49		22.49	3,021		3,021	1,875	4,243	
Elkhorn	5	1	8,316	406.98	1.46	408.44	147		147	50	14,417	
Golconda	4		7	6.38		6.38	51		51	2,919	364	
Homestake	5	3	55	21.83	1.49	23.32	628		628	75	1,229	
Little Pipestone	1	1	18	6.18	4.98	11.16	51		51	125	433	
Lowland	2	12	4	1.86	15.68	17.54		3	3		615	
Lump Gulch	2	2	25	2.69	19.77	22.46	696	8	704	75	1,249	
McClellan Creek	1	1	5	4.12	1.83	5.95	34		34	25	232	
Mitchell	6		382	267.01		267.01	608		608	300	9,749	
Montana City and Prickly Pear Creek	2	6	29	7.21	3,863.05	3,863.26	17	795	812	25	185,548	
Pipestone	3	1	14	7.64	1.23	8.87	17		17	50	852	
Warm Springs Creek	4	4	7,001	525.98		525.98	1,881		1,881	550	20,269	
Whitehall	10	5	3,472	1,975.68	3.29	1,978.97	9,125		9,125	15,800	76,507	
Wilson Creek	1		2	4.15		4.15	14		14	25	162	
Woodland Park	1		11	14.42		14.42	17		17		515	
Lewis and Clark County:												
Bald Butte	4	2	4,454	213.82	6.15	219.97	928		928	1,525	8,526	
Dry Gulch	2	10	3,027	260.23	27.04	287.27	144	3	147	1,189	10,179	
Greenhorn		5			25.55	25.55		3	3		395	
Heddleston	1	1	81	18.97	3.09	22.06	464		464	100	1,518	
Helena	8	25	15,491	1,195.25	132.39	1,327.64	563	11	574	575	46,917	
Jefferson Gulch	1	1	48	84.32	1.23	85.55	79		79	25	3,059	
Lincoln	2	13	2	3.32	58.37	61.69		6	6		2,180	
Magpie Gulch		1			75.25	75.25		11	11		2,637	
Missouri River		11			182.26	182.26		17	17		6,381	
Ophir Gulch	2		24	18.14		18.14	6		6	100	646	
Ottawa	17		7,241	3,088.87		3,088.87	16,553		16,553	6,250	121,224	
Scratch Gravel	8		958	1,388.04		1,388.04	4,531		4,531	2,950	51,779	
Smelter	1		65,913			6,944			6,944	1,352,189	633,514	
Stample	9	8	15,604	6,220.40	120.00	6,340.40	40,460	28	40,488	100	247,779	
Vaughn	8	2	2,970	323.49	19.60	343.09	39,529	6	39,535	6,350	53,674	
Wolf Creek	2	1	13	.20	5.55	5.75	345	3	348	100	458	

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Mine production of gold, silver, copper, lead, and zinc in Montana in 1934, by counties and districts, in terms of recovered metals—Continued

County and district	Mines producing		Ore, old tailings, etc.	Gold			Silver			Copper	Lead	Zinc	Total value
	Lode	Placer		Lode	Placer	Total	Lode	Placer	Total				
Lincoln County:			Short tons	Fine ounces	Fine ounces	Fine ounces	Fine ounces	Fine ounces	Fine ounces	Pounds	Pounds	Pounds	
Libby.....	3	9	2, 236	439. 17	28. 44	467. 61	8, 808	3	8, 811	200	99, 892		\$25, 751
Sylvanite.....	3	1	1, 710	575. 48	. 60	576. 08	5, 213		5, 213	2, 025	54, 973		25, 700
Troy.....	1	2	18	. 40	1. 46	1. 86	181		181	200	17, 243		836
Wolf Creek.....		6			19. 17	19. 17		3	3				672
Madison County:													
Alder Gulch.....	12	37	9, 388	1, 984. 32	176. 48	2, 160. 80	9, 326	31	9, 357	3, 450	13, 243		82, 335
Bone Basin.....	5		154	119. 60		119. 60	232		232	675			4, 384
London Mountains.....		1			. 40	. 40							14
Lower Hot Springs.....	12		692	418. 34		418. 34	724		724	1, 000	2, 054		15, 245
McCarthy Mountain.....	3		632	325. 58		325. 58	874		874	225	11, 189		12, 376
Mineral Hill.....	16	6	32, 504	6, 015. 25	9. 73	6, 024. 98	9, 323		9, 323	23, 050	649		218, 468
Norwegian.....	9	3	377	195. 28	6. 81	202. 09	229		229	825	108		7, 281
Potosi.....	1		1	2. 06		2. 06							72
Rabbit.....	19	1	340	137. 97	4. 72	142. 69	2, 656		2, 656	775	72, 703		9, 456
Ramshorn.....	5	16	386	231. 73	94. 02	325. 75	99	17	116	50			11, 464
Red Mountain.....		1			8. 07	8. 07							282
Sand Creek.....	4		32	57. 51		57. 51	184		184				2, 129
Sheridan.....	17	3	1, 278	809. 47	52. 59	862. 06	2, 823	11	2, 834	1, 950	865		32, 149
Silver Star.....	14	4	788	590. 73	5. 35	596. 08	710		710	2, 975	2, 162		21, 610
Summit.....	3	1	892	303. 12	96. 28	399. 40	1, 007	17	1, 024	350			14, 649
Tidal Wave.....	23		8, 646	2, 102. 89		2, 102. 89	3, 827		3, 827	5, 300	25, 838		77, 350
Upper Hot Springs.....	14		830	501. 63		501. 63	973		973	3, 175			18, 415
Washington.....	7		1, 138	999. 80		999. 80	3, 383		3, 383	125	12, 811		37, 614
West Fork of Madison River.....		2			1. 46	1. 46							51
Willow Creek.....	1		2	. 20		. 20	34		34		243		38
Meagher County:													
Beaver Creek.....		3			20. 80	20. 80		3	3				729
Little Belt.....	1		110	59. 80		59. 80	17		17	200			2, 117
Tenderfoot Creek (Smith River).....		1			. 63	. 63							22
Thompson Gulch.....		1			15. 65	15. 65							547
Mineral County:													
Cedar Creek.....		29			573. 65	573. 65		11	11				20, 056
Gold Mountain.....	1		20	3. 52		3. 52							123
Missoula County:													
Colonia.....	7	1	692	974. 82	3. 12	977. 94	628		628	1, 700			34, 721
Elk Creek.....		6			23. 92	23. 92							836
Nine Mile.....	1	16	2	. 60	921. 86	922. 46		14	14				32, 249
Wallace.....	1		143	10. 07		10. 07	1, 304		1, 304	7, 775			1, 817

Park County:														
Cowles		1		4.12	4.12									144
Crevasse	1		2,000	152.59	152.59	31				31				5,353
Emigrant Creek		25		796.11	796.11		130			130				27,908
New World	4	2	3,732	802.66	5.12	807.78	9,733			9,733			225	35,954
Sheepsteer	1		29,617	4,104.75		4,104.75	812			812	1,275	38,162		144,088
Yellowstone River		5		33.82	33.82					3				1,184
Phillips County: Little Rockies	5	7	21,756	6,216.28	29.93	6,246.21	6,469			3	6,472			222,489
Powell County:														
Big Blackfoot	6	9	59	32.19	152.99	185.18	96	20	116	100	162			6,561
Blossburg	1		38	4.15		4.15								145
Champion (Peterson Creek)		1		.86	.86									30
Douglas Creek		1		12.13	12.13									424
Nigger Hill	3		274	150.30		150.30	2,243			2,243	100	14,081		7,232
Ophir	3	8	111	8.64	6,695.05	6,703.69	85			622				234,753
Pioneer		21		8,669.67	8,669.67	8,669.67	973			973				303,634
Racetrack Creek	1		71	65.98		65.98	51			51	75			2,345
Snowshoe		2		19.17	19.17									670
Washington Gulch	1	15	2	1.03	880.43	881.46	3	85						30,864
Zozell	6		1,378	943.69		943.69	61,906			61,906	3,750	100,919		77,036
Ravalli County:														
Curlew	1		184	66.41		66.41	1,086			1,086	3,125	5,000		3,458
Eight Mile		1		4.15	4.15									145
Overwich	3	5	60	27.41	51.10	78.51	3	3		6				2,748
Sanders County:														
Eagle	1		28,762	103.72		103.72	25,706			25,706	18,400	5,119,946	763,163	243,969
Revals Creek	1		23				1,519			1,519	6,825			1,528
Vermillion	1	4	15	4.12	107.81	111.93		17		17				3,923
Silver Bow County:														
Blacktail (Basin Creek)		1		1.43	1.43									50
Butte or Summit Valley	15		644,248	3,405.38		3,405.38	2,824,538			2,824,538	62,855,300	10,781,757	42,329,372	9,192,494
Divide Creek	4		18	10.53		10.53	34			34	275			412
Flint Creek	1		189	10.93		10.93	1,550			1,550	500			1,424
German Gulch		19		67.84	67.84			11		11				2,378
Highland	2	23	10	5.78	91.96	97.74		3		3				3,418
Independence	1		16	16.28		16.28	17			17	75			586
Lost Child		6		14.45	14.45			3		3				507
Melrose		6		10.30	10.30									360
Moose Creek		2		3.06	3.06									107
Silver Bow Creek		95		223.09	223.09			96		96				7,859
Toole County: Goldbutte		1		1.23	1.23									43
Yellowstone County: Yellowstone River		1		1.03	1.03									36
Total Montana, 1934														
	583	654	1,066,952	71,902.06	25,543.89	97,445.95	4,003,331	3,137	4,006,468	63,265,000	20,010,000	61,442,256	14,439,363	
1933	426	276	862,486	49,117.12	8,705.08	57,822.20	2,659,477	1,223	2,660,700	65,476,375	13,163,432	61,448,905	18,827,569	

¹ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

In the following review by counties and mining districts only the more important operations are mentioned. Many small producing mines and several entire districts whose output is included in the foregoing table are omitted from this review.

BEAVERHEAD COUNTY

Argenta district.—The Clark Canyon Mining Syndicate shipped in 1934 several hundred tons of lead ore and gold ore of smelting grade from the Goldfinch & Dolphin mine and treated 300 tons of low-grade lead ore in the new 20-ton mill. Other producers in the Argenta district included the Argenta & Gladstone, Badger, and Midnight properties.

Bannack district.—More than 20,000 tons of gold ore from the Sleeping Princess mine were treated in 1934 in the 125-ton cyanidation plant by the Thompson Gold Milling Co.; the output of gold was more than double that in 1933. Lessees shipped more than 800 tons of gold ore from the Gold Bug mine. One car of gold ore was shipped from the Hendricks property. Most of the placer output came from the Bon Accord and Gulch placers.

Blacktail (Deer Creek) district.—Siliceous silver ore of smelting grade was shipped in 1934 from the Nevada mine 23 miles southwest of Dillon.

Blue Wing district.—All the lode output from the Blue Wing district in 1934 was silver ore of smelting grade; most of it came from the New Departure, Blue Wing, Ingersoll, and Ruth mines.

Bryant district.—Lessees shipped silver ore and lead ore of smelting grade in 1934 from the Hecla mine 16 miles west of Melrose.

Polaris (Lost Cloud) district.—Most of the output from the Polaris district in 1934 was gold ore of smelting grade from the Polaris mine.

Vipond district.—The Quartz Hill Mining Co. shipped 2,806 tons of silver ore from the Lone Pine & Argyle Silver property in 1934; silver ore was also shipped from the Aurora, Nancy Ann, New Anaconda, and Monte Cristo mines.

BROADWATER COUNTY

Backer district.—All the output from lode mines in the Backer district in 1934 was siliceous gold ore; most of it came from the Satellite, Humming Bird, Slim Jim, and Klondike mines. Most of the placer output came from the Consolidated placer in Confederate Gulch.

Beaver district.—The Mary V. & Tramway group of the Vosburgh Mining Co. near Winston was the largest producer in the Beaver district in 1934; several hundred tons of gold ore were sent to the smelter at East Helena during the year, and a new 50-ton cyanide plant was under construction. Other shipments from the district included gold ore from the Custer, Iron Age, and Pocahontas mines and lead ore from the January and Marion properties.

Cedar Plains district.—All the output from the Cedar Plains district in 1934 was crude ore of smelting grade, and almost all was gold ore. Nearly 3,100 tons of gold ore were shipped to the smelter at East Helena from the Ohio-Keating mine, and 900 tons were shipped by lessees from the Keating mine; both mines are near Radersburg. Gold ore was also shipped from the Black Friday, Cyclone, Hidden Treasure, Hard Cash, Laura Mae, Pinchback, and Surprise mines and

from several small properties. Siliceous silver ore was shipped from the Spar and Clipper properties, and a little lead ore was shipped from the Bonanza mine.

Park (Indian Creek, Hassel) district (Townsend).—The entire output from lode mines in the Park district in 1934 was gold ore and lead ore of smelting grade. The important producers of gold ore included the Blacksmith, Marietta, Silver Mountain & Silver Wave, and Mississippi mines; lead ore was shipped from a number of mines, including the W. A. Clark, Springhill, Dixie, and Little Annie properties. The placer output of the district came chiefly from the Jim Long, Red Buck, and Wilson groups.

CARBON COUNTY

Placer gold was recovered in 1934 from operations at the Henry and Holland-Dawson properties on the Clark Fork of Yellowstone River near Belfry.

CASCADE COUNTY

Montana district (Neihart).—Lead ore of smelting grade from the Peabody, Graham & Hollowbush, London, and Star properties was shipped in 1934; silver ore from the Ruth Mary and Minute Man mines was shipped; and lead ore from the Hartley property was concentrated.

DEER LODGE COUNTY

Georgetown district.—The Gold Coin Mines Co. treated 13,500 tons of gold ore in the 40-ton amalgamation mill in 1934 and shipped 113 tons of gold ore to the smelter at Anaconda. Other important producers of gold ore of smelting grade included the Holdfast, Southern Cross, Short Shift, Pyrenees, and Silver Reef mines.

FERGUS COUNTY

Cone Butte district.—Siliceous ore of smelting grade was shipped in 1934 from the Dardanelles, Golden Jack, Cone Butte, Murphy, and Old Glory properties.

Warm Springs district.—Gold ore from the Spotted Horse mine (291 tons) and Tail Holt mine (75 tons) was treated by cyanidation in 1934; the remainder of the lode output of the Warm Springs district consisted of silver ore from the Silver Queen, Silver Bullion, and Argentite mines, 20 tons of gold ore from the Spotted Horse mine, and a little lead ore from the Horseshoe mine, all shipped for smelting.

FLATHEAD COUNTY

Hog Heaven district.—The Anaconda Copper Mining Co. shipped 3,765 tons of silver ore in 1934 from the Flathead mine to the smelter at Anaconda. Silver ore was also shipped from the Grant & Smith and Birdseye properties.

GALLATIN COUNTY

Placer gold was marketed in 1934 from a dragline-slucing plant operated at the Jewel placer on the West Fork of Gallatin River.

GRANITE COUNTY

Alps district.—Gold ore from the Gold Bug and Iron Age mines was treated by amalgamation in 1934, and 1 car of gold ore from the Hidden Treasure mine was sent to the smelter at Anaconda.

Antelope district.—Gold ore from the Mountain Ram mine was shipped in 1934 to Anaconda for smelting.

Boulder (South Boulder, Royal) district.—Gold ore and old tailings from the Gold King mine and gold ore from the Sunday, Blue Bird (Ethel B.), and Golden Fan mines were shipped in 1934 for smelting. A little ore from the Boulder district was amalgamated.

First Chance district (Garnet).—The entire output from lode mines in the First Chance district in 1934 was gold ore and old tailings shipped for smelting. The largest producers were the Grant & Hartford, Fourth of July, Lead King, Nancy Hanks, Tiger, Red Cloud, Gold Leaf, Free Coinage, Robert Emmett, Nabob, and Shamrock mines; the old tailings came from the Beartown mill dumps. Most of the placer output came from the Hill Top & Annex, Ben, Little Dick, and Potlatch groups.

Flint Creek district (Philipsburg).—The Trout Mining Co. shipped nearly 19,000 tons of lead-zinc ore during 1934 from the Trout & Algonquin group to the lead-zinc flotation mill at Anaconda; the mine was operated 293 days on a two-shift basis. The Silver Prince mine also shipped lead-zinc ore to Anaconda for milling. The Philipsburg Mining Co. treated by flotation about 30,000 tons of low-grade silver ore from the Granite Bimetallic mine; its milling plant was destroyed by fire, but a new plant was under construction early in 1935.

Gold Creek district.—Most of the output from the Gold Creek district in 1934 came from the Pineau (Friday) placer.

Henderson district.—Gold ore from the Sunrise and El Centro groups was shipped in 1934 for smelting, and oxidized copper ore and old tailings from the Black Pine property were treated by flotation.

Medicine Lake district.—Siliceous gold and silver ore from the Kent group 30 miles southwest of Philipsburg was shipped in 1934 for smelting.

Moose Lake district.—Gold ore from the Old Dominion property of the Toro Mining Corporation was treated by amalgamation and gravity concentration in 1934; the concentrates and a little crude ore were shipped for smelting. Gold ore of smelting grade was also shipped from the Banner mine.

Red Lion district.—The Lakes Mining & Milling Syndicate treated 9,020 tons of ore from the Hidden Lakes mine by cyanidation in 1934; during the year the daily capacity of the mill was increased from 20 to 75 tons.

JEFFERSON COUNTY

Cataract district (Basin).—The Basin Montana Tunnel Co. completed the construction of a new 100-ton flotation mill at the Comet & Gray Eagle property and treated in 1934 about 9,800 tons of lead-zinc-iron sulphide ore between September 22 and the end of the year; lead concentrates, zinc concentrates, and iron concentrates are produced. Before the mill was completed a lessee shipped from the property about 300 tons of gold ore and lead ore of smelting grade. Nearly 600 tons of siliceous silver ore were shipped for smelting from

the Morning Glory mine by the Morning Glory Mines Co. and a lessee. Basin Goldfields, Ltd., shipped 186 tons of rich gold ore from the Boulder mine to smelters. About 3,300 tons of siliceous gold and silver ore from the Hope & Katie (Jib) property were shipped by Roy E. Miller, Inc., to Anaconda for smelting; no old tailings were milled in 1934. Other shipments from the Cataract district included gold ore from the Josephine, Wonder, Sunny Boy, Mantle, and Rock of Ages mines; lead ore from the Hattie Ferguson, West Rumley, Alloy, and Idaho properties; and lead-zinc ore (to Anaconda for milling) from the Doris mine. Gold ore from the Gray Lead, Mantle, and Silver King mines was amalgamated. Most of the placer output of the district came from the Park & Anderson property on Basin Creek.

Colorado district.—The output from the Colorado district in 1934 consisted of lead ore from the Alta & Bertha and Blizzard mines, 1 car of lead-zinc ore from the Rarus mine, a test lot of gold ore from the Black Jack claim, and clean-up material from the old Peck mill.

Elkhorn district.—Low-grade gold ore from the Dolcoth and Golden Curry mines was treated by amalgamation in 1934, and ore from the Carmody & Papesh group was cyanided. Crude ore of smelting grade was shipped from the Elkhorn and Square Deal mines.

Homestake district.—Siliceous ore of smelting grade was shipped in 1934 from the Lucky Strike & Matilda, Irene, Minnietonka, Ajax, and Golden Valley mines.

Mitchell district.—In 1934 the Economy Mines Co. shipped about 300 tons of gold ore from the John & Jim group for smelting; gold ore was also shipped from the Gold Coin, Last Chance, Buddie, Emma, and Garneau properties.

Prickly Pear Creek district (East Helena).—The Winston Bros. Co. continued operations at the Prickly Pear Creek placers during 1934; about 472,000 cubic yards of gravel were treated in the dragline dredging plant south of East Helena, near Montana City.

Warm Springs Creek district (Alhambra).—The Newburgh Mining & Milling Co. treated in 1934 nearly 7,000 tons of gold ore from the Fleming dumps by gravity and flotation concentration; the concentrates were sent to East Helena for smelting. The remainder of the output of the Warm Springs Creek district was small lots of lead ore from the Bell, B. & G., and Mammoth mines.

Whitehall district.—The entire output from lode mines in the Whitehall district in 1934 was siliceous gold ore of smelting grade. More than 2,803 tons of ore from the Golden Sunlight property were shipped to Anaconda for smelting. Other producers of gold ore were the Blue Moose, Ohio, Lucky Hit, Lone Eagle, Sunny Corner, Emigrant, Surprise, and Excelsior mines.

LEWIS AND CLARK COUNTY

Bald Butte district (Marysville).—The Atlas Mines Corporation completed the construction of a 500-ton flotation plant and re-treated in 1934 about 4,200 tons of low-grade old tailings from the Larson property; the concentrates were shipped to East Helena for smelting. The Bald Butte Gold Mines made a test run of about 100 tons of gold ore from the Bald Butte mine in the amalgamation and concentration mill.

Dry Gulch (York) district.—The United Gold Corporation rebuilt the 100-ton cyanidation mill at the Golden Messenger property 24 miles northeast of Helena and treated 3,025 tons of ore in the new plant late in 1934. Cyanide bullion valued at about \$9,100 was sent to the mint at Denver.

Helena (Unionville, Spring Hill) district.—The Montana Consolidated Mines Corporation completed a new 250-ton flotation plant to replace the mill destroyed by fire in 1933; between September 22 and December 12, 1934, the company treated 15,245 tons of gold ore from the Spring Hill mine. Several cars of gold ore were shipped for smelting from the Burlington mine. Ore and old tailings from the Eula (Homestake) property were treated by amalgamation, and a little ore was sent to a smelter. Most of the placer output came from Grizzly and Last Chance Gulches.

Lincoln district.—The placer output from the Lincoln district in 1934 came chiefly from the Harvey placer in Sauerkraut Gulch and from the Bloom & Old Billy Williams placer south of Lincoln.

Magpie district.—Several lessees marketed bullion in 1934 from the Sheriff Patent placer in Magpie Gulch 25 miles east of Helena.

Missouri River (Hauser Lake) district.—The Eldorado, Sanborn, Mable, East Side, and other placers on the Missouri River in the vicinity of Hauser Lake were active in 1934; most of the output came from the Eldorado.

Ottawa district (Marysville).—The St. Louis Drumlummon Mines, Inc., acquired the Drumlummon property at Marysville October 1, 1934. Prior to October 1 the St. Louis Mining & Milling Co. treated about 2,800 tons of gold ore from the mine by cyanidation, and during the year various lessees shipped nearly 1,500 tons of ore for smelting. One small lot of mill clean-up material was sent to a smelter, and a lessee treated about 460 tons of Drumlummon tailings by cyanidation. The total output from the property was considerably greater in 1934 than in 1933. Various lessees shipped nearly 900 tons of ore and old tailings from the Piegán-Gloster property to smelters. The Belmont Mines, Inc., shipped about 400 tons of ore from the Cruse-Bald Mountain-Belmont group to the Drumlummon mill for cyanidation and more than 400 tons of crude gold ore to smelters. The Bell Boy Gold Mining Co. treated about 600 tons of ore from the Bell Boy mine by amalgamation and flotation. The remainder of the Ottawa district output consisted of crude ore of smelting grade from the Honeycomb, Empire, Gold Bar, North Star (Frankie), Sibly, and Swansea mines and gold ore treated by amalgamation from the Klondike and various small prospects.

Scratch Gravel district.—All the output from the Scratch Gravel district in 1934 was gold ore of smelting grade; most of it came from the Scratch Gravel, Julia, and Franklin mines.

Smelter district (East Helena).—The lead smelter of the American Smelting & Refining Co. at East Helena was operated 11 months during 1934; it was shut down during August. The total plant receipts were considerably greater than in 1933, due partly to increased shipments of lead ores and concentrates from the Coeur d'Alene region of Idaho and an increase in siliceous ores and concentrates from various points in Montana. The increase in receipts of siliceous material was due, in part, to the closing of the Washoe smelter of the Anaconda Copper Mining Co. at Anaconda during the summer of 1934.

The slag fuming plant of the Anaconda Copper Mining Co. at East Helena handled current slag from the lead smelter when the latter was in operation. The output of fume, sent to the zinc plant at Great Falls, was considerably greater than in 1933.

Stemple district.—The Standard Silver-Lead Mining Co. operated the 35-ton straight flotation plant from January 1 to November 10, 1934, treating 10,682 tons of gold ore from the Gould mine. On November 15 the new 80-ton flotation and cyanidation mill was placed in operation, and 3,209 tons of ore were treated in the new plant by the end of the year. The gold concentrates were shipped to East Helena for smelting, and the cyanide precipitates were sent to Selby, Calif. The Bachelor Gold Mining Co. treated several hundred tons of ore from the Bachelor mine in the 20-ton amalgamation and flotation mill and shipped 180 tons of crude gold ore to East Helena for smelting. Several hundred tons of old tailings from the Hubbard dumps were treated by flotation; the concentrates and 1 car of crude gold ore were sent to the smelter at East Helena. The remainder of the Stemple district lode output consisted of gold ore from the Seven-Up-Pete mine treated by gravity concentration; gold ore from the Grubstake mine treated by amalgamation; and crude ore of smelting grade from the Merrit, Crown, Grubstake, and Silver Bell mines. The placer output of the district came chiefly from the Gold Coin placer on upper Poorman Creek west of Wilborn and from small properties on Virginia Creek.

Vaughn district (Rimini).—Montana Lead, Inc., shipped in 1934 more than 2,700 tons of lead ore from the Little Sampson mine to East Helena for smelting and 120 tons of lead-zinc ore to Anaconda for milling. The remainder of the lode output of the Vaughn district included lead ore of smelting grade from the Anna May, Minnehaha, Kelly, and Lead Syndicate mines and small lots of siliceous ore from the Woodrow Wilson, Monte Cristo, and Kennedy properties. Most of the placer output of the district came from the Black Eagle property in Monitor Gulch.

LINCOLN COUNTY

Libby district.—The Glacier Silver Lead Mining Co. treated lead ore from the Hazel T. mine by flotation in 1934 and shipped the concentrates to East Helena for smelting; gold ore from the New Deal (Tip Top) property was amalgamated; and mill clean-up material from the Midas mill was sent to a smelter. The placer output of the Libby district came from several small properties on Libby Creek.

Sylvanite district.—Gold ore from the Keystone mine was treated by amalgamation and flotation in 1934, and ore from two prospects was amalgamated.

Troy district.—Lead ore from the Silver King group was sent to East Helena in 1934 for smelting.

Wolf Creek district.—Nearly all the output from the Wolf Creek district in 1934 came from the Grub Stake placer on Wolf Creek.

MADISON COUNTY

Alder Gulch district (Virginia City).—The Virginia City Gold Mining Co. treated in 1934 more than 8,900 tons of ore from the Prospect group in the 50-ton amalgamation and flotation mill; the rich gold

concentrates and about 100 tons of crude ore were shipped to East Helena for smelting. About 125 tons of slag from the Gilman dump were sold or treated in 1934; a little of this slag was amalgamated and the rest was smelted. The remaining lode output of the Alder Gulch district included gold ore from the Bamboo Chief and Rosebud properties, treated by amalgamation and gravity concentration, and crude ore of smelting grade from the Marietta, Bamboo Chief, East & West Mapleton, Alder Gulch, Hansen, and Wild Bill properties. The placer output came chiefly from the Alder Gulch, Anderson, Eggert, Batten, Chambers, and Cates placers, all in Alder Gulch.

Bone Basin district.—Five lode mines in the Bone Basin district produced gold ore of smelting grade in 1934, including the Gold Hill (Bonanza Fraction & Mary Ingobar), Colorado, and Bluebird groups.

Lower Hot Springs district (Norris).—The output from the Lower Hot Springs district in 1934 consisted of a small lot of gold ore from the Lindon mine treated by amalgamation; several hundred tons of old tailings from the Martin dumps sent to a smelter; and gold ore of smelting grade from the Birdia, Red Bluff, Barten, Boaz, West Branch, Eleanor, Josephine, Montida (Montana Boy), Comstock, and Jim mines.

McCarthy Mountain district.—Nearly 600 tons of gold ore from the Hidden Treasure mine were treated in 1934 by amalgamation, and 19 tons of crude ore were sent to Anaconda for smelting. A little ore from the Franz mine was amalgamated, and a little lead ore from the Polly Jane group was sent to a smelter in Utah.

Mineral Hill district.—The Pacific Gold Mining Co. treated nearly 27,000 tons of gold ore from the Boss Tweed & Clipper group near Pony in the 100-ton flotation mill in 1934; the concentrates were shipped to East Helena for smelting. The Liberty Montana Mines Co. mined and milled about 4,500 tons of gold ore from the Mammoth property at Jefferson Island in 1934 and shipped the concentrates to Anaconda and East Helena; the output from the Mammoth mine in previous years was classified as copper ore. Various lessees mined about 175 tons of gold ore at the Strawberry-Keystone group; part of the ore was treated by amalgamation and concentration, and the rest was shipped for smelting. The remainder of the lode output of the Mineral Hill district was crude ore of smelting grade, most of which was gold ore from the Atlantic & Pacific group; other lode producers included the Ben Harrison Fraction, Ben Harrison, and Iron Chief & Old Elephant mines.

Norwegian district.—The entire output from lode mines in the Norwegian district in 1934 was gold ore of smelting grade; most of it came from the Mascot & Pony, Old Norwegian, Eureka, and Bachelor mines.

Rabbit district.—Gold ore and lead ore of smelting grade were shipped from mines in the Rabbit district in 1934. Most of the gold ore came from the Calusa, Short Shift, Shoemaker, Combination, Elgin, Montrose, Diamond Hitch, and Blue Jay mines, and the lead ore came from the Emma, Jack Rabbit, Sunrise, and Densmore properties.

Ramshorn district.—Gold ore from the Blue Bird and Goldsmith mines was amalgamated in 1934, and gold ore from the Betsy Baker, Safeway, and First Chance mines was shipped for smelting. Most of the placer output came from the Canyon, Cottonwood, Last Chance, Camp Bird, Lucky Strike, Lone Pine, and Blue Bird properties.

Sand Creek district.—Gold ore of smelting grade was shipped from the McVey, Chile, Fraction, and Pay Day mines in 1934.

Sheridan district.—Nearly 700 tons of gold ore were produced at the Red Pine mine in 1934 by lessees and the Sheridan Mines Co.; part of the ore was treated in a small amalgamation plant, and the remainder was shipped for smelting. The Fairview Syndicate and a lessee shipped 183 tons of gold ore from the Fairview mine in 1934 for smelting. The remaining lode output of the Sheridan district included ore from the Tamarack and Ruby properties treated by amalgamation and siliceous ore of smelting grade from the Silver Bullion, Brandon, Jay Bird, Belle, Lucky Strike, and Homestake mines. All the placer output came from properties on Wisconsin Creek.

Silver Star district.—Nearly all the output from lode mines in the Silver Star district in 1934 was gold ore of smelting grade; most of it came from the Broadway, Hudson, Edgerton, Governor Hayes, Golden Rod, Stella, and Aurora mines.

Summit district.—The Virginia City Mining Co. treated 418 tons of ore from the Copper, LaClede, and Blade claims by amalgamation in 1934 and operated the Baldy placer 3 months during the summer. Gold ore of milling grade from the Winnetka mine was treated by amalgamation and concentration, and about 240 tons of crude ore were shipped for smelting. Old siliceous tailings from the Smith group were treated by cyanidation.

Tidal Wave district (Twin Bridges).—The Inspiration Gold Mining Co. treated 7,326 tons of ore from the B & H and Pete & Joe groups by flotation in 1934; the rich gold concentrates produced and 89 tons of crude ore mined by lessees were sent to East Helena for smelting. Several hundred tons of dump ore from the Agitator & Concentrator group were amalgamated, and 200 tons of gold ore from the Gold Quartz & Cabin property were treated by amalgamation and concentration. Most of the remainder of the Tidal Wave district output in 1934 was gold ore of smelting grade, chiefly from the Corncracker, Mountain View, and Carolina mines.

Upper Hot Springs district (Norris).—Nearly 600 tons of gold ore and old tailings from the Madisonian property were shipped in 1934 for smelting. The remaining output of the Upper Hot Springs district was gold ore of smelting grade, chiefly from the Emperor, Billy & Helen, Grandmother, Rosebud, Galena, and Sundberg mines.

Washington (Meadow Creek) district.—The Missouri-McKee Gold Mining Co. treated 900 tons of ore from the Missouri-McKee mine in 1934 by amalgamation, cyanidation, and gravity concentration. The remainder of the Washington district output consisted of a little ore from the Lehigh mine treated by amalgamation and of crude gold ore shipped for smelting, chiefly from the Highland Lady No. 2, Snowslide, and Red Bluff mines.

MEAGHER COUNTY

Most of the placer production from Meagher County in 1934 came from the Beaver Creek property in the Beaver Creek district and the Camp Robber placer in the Thompson Gulch district. The lode output (consisting of ore amalgamated and ore smelted) came from the Beverly Hills mine in the Little Belt district.

MINERAL COUNTY

Cedar Creek district (Iron Mountain, Quartz).—All the output from the Cedar Creek district in 1934 was from placer mines, including the Stockholm, Dakota, Golden Circle, Stemwinder, Alibi, Meadow Creek, Miller, Sunday, McFarland, Sunlight, and New State.

Gold Mountain district.—Gold Mountain Mines, Inc., treated a little gold ore from the Gold Mountain mine by amalgamation and concentration in 1934.

MISSOULA COUNTY

Coloma (Garnet) district.—Gold ore of smelting grade was shipped in 1934 from the Dandy, I. X. L., Mountain View, Arm & Hammer, Northern Star, Cato, and Bullion properties.

Nine Mile district.—Most of the placer output from the Nine Mile district in 1934 came from the Boyd placer 14 miles northwest of Stark. Other producing placers included the Marion Creek (Easy Find), Chrysalis, and Liberty properties.

PARK COUNTY

Crevasse district.—The Crevasse Mountain Mining Co. treated 2,000 tons of ore from the Snowshoe claim by amalgamation and concentration in 1934.

Emigrant Creek district.—Most of the output from the Emigrant Creek district in 1934 came from the Key & Fairhaven, Pittsburgh & Bullion, and Upper Falls & Hy-grade properties.

New World district.—The McLaren Gold Mines Co. produced about 3,600 tons of gold ore at the New Year's Gift property in 1934; most of the ore was treated by amalgamation and concentration, but a little was shipped crude for smelting. The remainder of the lode output of the New World district consisted of lead ore of smelting grade from the Black Rock mine of Irma Mines, Inc., gold ore from the Glengarry mine shipped for smelting, and gold ore from the Melrose mine treated by amalgamation and concentration.

Sheepeater district.—The Jardine Mining Co. treated 25,538 tons of ore and 4,079 tons of old tailings from the Jardine property in 1934 in the 200-ton amalgamation and concentration mill; the output of gold and silver from the mine was considerably less than in 1933.

PHILLIPS COUNTY

Little Rockies district.—The Little Ben Mining Co. treated 21,639 tons of ore from the August mine in the 75-ton cyanidation mill in 1934; the mine ranked third in Montana in 1934 as a gold producer, with an output considerably greater than in 1933. The leading gold producers in the State in 1934 were the two dredges in Powell County. A little gold ore from the Whitcomb No. 1 mine was amalgamated, and gold ore of smelting grade was shipped from the Little Rockies, Hawkeye, Idaho, and Whitcomb No. 1 mines. Most of the placer output of the Little Rockies district came from the Dorothy and Big Gold properties.

POWELL COUNTY

Big Blackfoot district.—All the output from lode mines in the Big Blackfoot district in 1934 was gold ore shipped for smelting, chiefly from the Hill Top property. Most of the placer output came from the Gold Dust (McCormick) property.

Nigger Hill district (Elliston).—One car of gold ore from the Ontario mine was shipped to a smelter in 1934, and about 150 tons of low-grade ore were treated by amalgamation. The remainder of the Nigger Hill district output was gold and silver ore from the Telegraph mine and lead ore from the Lilly mine shipped for smelting.

Ophir district.—Nearly all the placer output of the Ophir district in 1934 was from dredging operations by Yuba Consolidated Gold Fields at the Ophir Gulch placer. The new electric dredge, equipped to treat 4,500 cubic yards of gravel a day, was placed in operation January 25, 1934, and 1,467,296 cubic yards of gravel were treated during the year. The property ranked second in production of gold in Montana in 1934. Other producing placers in the Ophir district included the Montana Gold and Ophir Bar properties. Nearly all the lode output of the district was gold ore from the Fairview mine, treated in a small concentration plant by the Blackfoot City Mining & Milling Co.

Pioneer district (Gold Creek).—The 6,000-cubic yard dredge of the Pioneer Placer Dredging Co. (Yuba Associated Engineers, Ltd.) was operated continuously in 1934, treating 1,930,658 cubic yards of gravel. The dredge was the largest producer of gold in Montana in 1934. Additional production from the Pioneer placers was reported by the Henderson Mining Co. and by various lessees. Other producing placers in the Pioneer district included the Price, Yam Hill, Pat Wall, and Murray groups.

Washington Gulch district.—Except for a little mill clean-up material sent to a smelter from the Shamrock property, all the output of the Washington Gulch district in 1934 was from placer mines, most of it from the Fontana property of the El Dorado Gold Placer Mining Co. and the William Parel placer in American Gulch. Other producers included the Old Shoe, Cornucopia, and Beatrice placers.

Zozell district.—Nearly 700 tons of lead ore and about 280 tons of siliceous gold and silver ore were shipped from the Blue Eyed Maggie mine in 1934 for smelting; the Emery Consolidated Mining Co. shipped 203 tons of lead ore and 105 tons of siliceous gold and silver ore for smelting.

RAVALLI COUNTY

Curlew district.—Gold ore of smelting grade was shipped in 1934 from the Curlew mine 3 miles northwest of Victor.

Overwich district.—Gold ore from the Washington and Overwich mines and a prospect was treated by amalgamation in 1934. Most of the placer production of the Overwich district came from the Hughes Creek and Lucerne properties.

SANDERS COUNTY

Eagle district.—The American Smelting & Refining Co. acquired the property of the Jack Waite Mining Co. May 1, 1934, and the combined output of the two companies from the Silver King group during

the year consisted of 27,800 tons of lead-zinc ore treated in the 500-ton flotation mill at Duthie, Idaho, and 962 tons of first-class lead ore of smelting grade. The lead concentrates and crude lead ore were sent to the smelter near Kellogg, Idaho, and the zinc concentrates went to the Sullivan Mining Co. at Silver King, Idaho.

Vermillion district.—Most of the placer output of the Vermillion district in 1934 came from the Ogoma and Mammy Lou & Driftwood properties on the Vermillion River. A little gold ore from the Tincup mine was treated by amalgamation.

SILVER BOW COUNTY

The following table gives the output from mines in Silver Bow County in 1933 and 1934. There were increases in the output of silver, lead, and zinc but slight decreases in that of gold and copper.

Production of gold, silver, copper, lead, and zinc in Silver Bow County, Mont., 1933-34, in terms of recovered metals

Year	Mines producing	Ore	Gold (lode and placer)	Silver (lode and placer)	Copper ¹	Lead	Zinc	Total value
		Short tons	Fine ounces	Fine ounces	Pounds	Pounds	Pounds	
1933.....	43	613, 752	4, 464. 72	2, 361, 320	65, 239, 000	8, 370, 243	30, 962, 929	* \$6, 726, 018
1934.....	175	644, 487	3, 861. 03	2, 326, 252	62, 856, 150	10, 781, 757	42, 329, 372	9, 209, 595

¹ Includes copper saved from precipitates as follows: 1933, 9,167,018 pounds; 1934, 5,167,305 pounds.

* Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

From 1882 (the first year for which detailed records are available) to the end of 1934 the mines in Silver Bow County, which includes the Butte or Summit Valley district, produced the five metals as follows: Gold, 1,816,292.17 fine ounces; silver, 467,275,062 fine ounces; copper, 10,499,674,203 pounds; lead, 333,443,823 pounds; and zinc, 2,640,688,226 pounds. The total value of this production is \$2,188,560,259.

Butte or Summit Valley district.—The output of copper ore from the Butte properties of the Anaconda Copper Mining Co. was slightly less in 1934 than in 1933, due to the closing of the properties from May 8 to September 20 as the result of a labor strike. However, the output of lead-zinc ore from both the Orphan Girl mine (owned by the company) and the Emma mine (operated under lease from the Butte Copper & Zinc Co.) was considerably greater than in 1933, resulting in substantial increases in silver, lead, and zinc output from the Butte district. The company produced 456,909 tons of copper ore sent to the flotation mill at Anaconda and 304 tons of crude copper ore and 3,311 tons of mine-water precipitates sent to the Washoe smelter. The output of lead-zinc ore was 182,588 tons (122,326 tons from the Orphan Girl mine and 60,262 tons from the Emma mine).

The Anaconda Copper Mining Co. was the largest producer of silver, copper, lead, and zinc in Montana in 1934 and ranked ninth in production of gold; the Emma mine ranked second in output of copper and third in output of silver, lead, and zinc.

The copper flotation plant, lead-zinc flotation plant, and copper smelter of the Anaconda Copper Mining Co. at Anaconda were operated regularly during 1934 except when the mines at Butte were closed; receipts of custom material were suspended during the shut-down. The copper refinery, wire and rod mill, and electrolytic zinc plant of the company at Great Falls were closed from June 7 to September 20.

The remainder of the output from the Summit Valley district (exclusive of placer production, which is included under the Silver Bow Creek district) consisted of lead-zinc ore from the Curry (Paymaster), Otisco, Magna Charta, Josephine, and Cripple mines sent to Anaconda for milling and siliceous ore from the Agnes Highland, Addition, Lavena, Excelsior, Shorty, Britannia, and Alice (Anselmo) mines shipped for smelting.

Divide Creek district.—Gold ore of smelting grade was shipped in 1934 from the Combination & Alice and Dr. Howe mines, a little ore from the Eager mine was amalgamated, and copper ore from the Juno mine was treated in a small concentration plant.

Flint Creek district.—Lessees shipped silver ore from the Flint Creek dump to Anaconda in 1934 for smelting.

German Gulch district.—Most of the output from the German Gulch district in 1934 came from the Fairview and German Gulch placers.

Highland district.—Gold ore from the Highlands (Tilton) and Rabbit Foot mines was amalgamated in 1934. Most of the placer output came from the Gold Chief, Riley, and Little Bill placers.

Independence district.—One car of gold ore from the Jewel mine was shipped to Anaconda in 1934 for smelting.

Lost Child district.—Most of the output from the Lost Child district in 1934 came from the Mountain Lion and Portland placers.

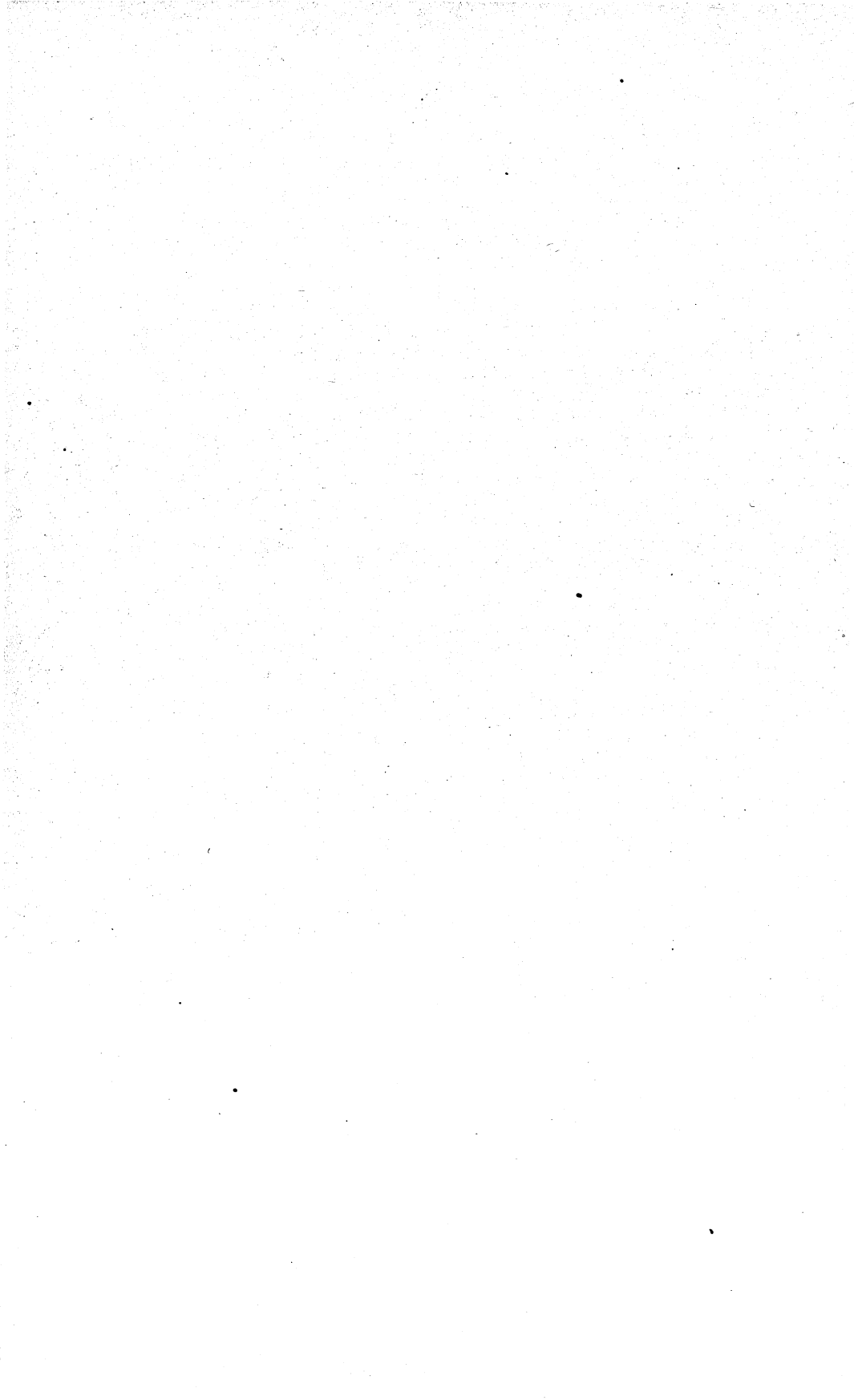
Silver Bow Creek district (Butte).—There was a marked increase in 1934 in small-scale placer mining along Silver Bow Creek and its tributary streams and gulches. Part of the ground included in this area lies in the Summit Valley district, but its entire placer production in 1934 is credited in this report to the Silver Bow Creek district. Most of the output was small lots of grains, dust, retorts, etc., sold to local bullion buyers; few of the producers had an output exceeding 10 ounces of gold, and there were no regular operations.

TOOLE COUNTY

A little placer gold was marketed in 1934 from a property on McDowell Creek in the Gold Butte district.

YELLOWSTONE COUNTY

A little placer gold was recovered in 1934 from operations along the Yellowstone River near Pompey's Pillar.



CEMENT

(DETAILED STATISTICS)

By B. W. BAGLEY

SUMMARY OUTLINE

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GENERAL REVIEW

Production of portland cement in 1934 was 77,747,765 barrels, and shipments were 75,901,279 barrels valued at \$116,921,084. Preliminary figures of production and shipments for 1934, published by the Bureau of Mines in January 1935, were 0.08 percent less and 0.02 percent greater, respectively, than the final figures.

The increases of 22 percent in production and 18 percent in shipments in 1934 compared with 1933 were the first experienced by the industry since 1928, the peak year of production.

The general average value of shipments for the whole country, \$1.54 per barrel, increased nearly 16 percent in 1934.

Production of natural and puzzolan cements, including masonry cements of the natural-cement class, increased in 1934 and exceeded that in 1933 by 43.9 percent. Shipments of these cements increased 56.8 percent in quantity and 68.1 percent in gross value.

CHIEF HYDRAULIC CEMENTS

Shipments of portland and other (masonry, natural, and puzzolan-lime) cements from mills in the United States in 1934 increased more than 22 percent in quantity and nearly 37 percent in value over 1933. Statistics of the output of alumina cement, representing the operations of only one manufacturer in the United States, are not included in the tables of this report.

The accompanying, abridged, historical table gives the production and value of natural, portland, and puzzolan cements for more than 100 years.

Principal hydraulic cements produced ¹ in the United States, 1818-1934

Year	Natural cement ¹		Portland cement		Puzzolan cement ¹		Total	
	Barrels	Value ²	Barrels	Value ²	Barrels	Value ²	Barrels	Value ^{2,3}
1818-1829	300,000	\$246,000					300,000	\$246,000
1830-1839	1,000,000	850,000					1,000,000	850,000
1840-1849	4,250,000	3,612,500					4,250,000	3,612,500
1850-1859	11,000,000	9,350,000					11,000,000	9,350,000
1860-1869	16,420,000	13,957,000					16,420,000	13,957,000
1870-1879	22,000,000	18,700,000	82,000	\$246,000			22,082,000	18,946,000
1880	2,030,943	1,726,707	42,000	126,000			2,072,943	1,852,707
1881	2,440,000	2,379,000	60,000	150,000			2,500,000	2,529,000
1882	3,165,000	3,481,500	85,000	191,250			3,250,000	3,672,750
1883	4,100,000	4,100,000	90,000	193,500			4,190,000	4,293,500
1884	3,900,000	3,510,000	100,000	210,000			4,000,000	3,720,000
1885	4,000,000	3,200,000	150,000	292,500			4,150,000	3,492,500
1886	4,350,000	3,697,500	150,000	292,500			4,500,000	3,990,000
1887	6,692,744	5,186,877	250,000	487,500			6,942,744	5,674,377
1888	6,253,295	4,533,639	250,000	487,500			6,503,295	5,021,139
1889	6,531,876	4,702,951	300,000	500,000			6,831,876	5,202,951
1890 ⁴	7,441,116	3,822,501	335,500	704,050			7,776,616	4,526,551
1891 ⁴	7,767,979	3,671,147	454,813	967,679			8,222,792	4,638,826
1892	8,211,181	3,991,455	547,440	1,152,600			8,758,621	5,144,055
1893	7,411,815	3,251,757	590,652	1,158,138			8,002,467	4,409,895
1894	7,563,488	3,635,731	798,757	1,383,473			8,362,245	5,019,204
1895	7,741,077	3,895,424	990,324	1,586,830			8,731,401	5,482,254
1896	7,970,450	4,049,202	1,543,023	2,424,011			9,525,738	6,485,463
1897	8,311,688	3,862,392	2,677,775	4,315,891			11,037,792	8,226,783
1898	8,418,924	3,888,728	3,692,284	5,970,773			12,344,208	10,057,551
1899	9,868,179	4,814,771	5,652,266	8,074,371			15,865,445	13,157,142
1900	8,383,519	3,728,848	8,482,020	9,280,525			17,231,150	13,283,581
1901	7,084,823	3,056,278	12,711,225	12,532,360	272,689	198,151	20,068,737	15,786,789
1902	8,044,305	4,076,630	17,230,644	20,864,078	478,555	425,672	25,753,504	25,366,380
1903	7,030,271	3,675,520	22,342,973	27,713,319	525,896	542,502	29,899,140	31,931,341
1904	4,866,331	2,450,150	26,505,881	23,355,119	303,045	226,651	31,675,257	26,031,920
1905	4,473,049	2,413,052	35,246,812	33,245,867	382,447	272,614	40,102,308	35,931,533
1906	4,055,797	2,423,170	46,463,424	52,466,186	481,224	412,921	51,000,445	55,302,277
1907	2,887,700	1,467,302	48,785,390	53,992,551	557,252	443,998	52,230,342	55,908,851
1908	1,686,862	834,509	51,072,612	43,547,679	151,451	95,468	52,910,925	44,477,656
1909	1,537,638	652,756	64,991,431	52,858,354	160,646	99,453	66,689,715	53,610,563
1910	1,139,239	483,006	76,549,951	68,205,800	95,951	63,286	77,785,141	68,752,092

1911	926, 091	378, 533	78, 528, 637	66, 248, 817	93, 230	77, 786	79, 547, 958	66, 705, 136
1912	821, 231	367, 222	82, 438, 096	67, 016, 928	91, 864	77, 363	83, 351, 191	67, 461, 513
1913	744, 658	345, 889	92, 097, 131	92, 557, 617	107, 313	97, 663	92, 949, 102	93, 001, 169
1914	751, 285	351, 370	88, 230, 170	81, 789, 368	68, 311	63, 358	89, 049, 766	82, 204, 096
1915	750, 863	358, 627	85, 914, 907	73, 886, 820	42, 678	39, 801	86, 708, 448	74, 285, 248
1916	§ 842, 137	§ 430, 874	91, 521, 198	100, 947, 881	(9)	(9)	92, 363, 335	101, 378, 755
1917	§ 639, 456	§ 435, 370	92, 814, 202	125, 670, 430	(9)	(9)	93, 453, 658	126, 105, 800
1918	§ 432, 966	§ 401, 341	71, 081, 663	113, 730, 661	(9)	(9)	71, 514, 629	114, 132, 002
1919	§ 528, 589	§ 583, 554	80, 777, 935	138, 130, 269	(9)	(9)	81, 306, 524	138, 713, 823
1920	§ 767, 481	§ 1, 150, 890	100, 023, 245	202, 046, 955	(9)	(9)	100, 790, 726	203, 197, 845
1921	§ 539, 402	§ 897, 025	98, 842, 049	186, 811, 473	(9)	(9)	99, 381, 451	187, 708, 498
1922	§ 889, 428	§ 1, 293, 598	114, 789, 984	202, 030, 372	(9)	(9)	115, 679, 412	203, 323, 970
1923	§ 1, 271, 674	§ 1, 947, 352	137, 460, 238	261, 174, 452	(9)	(9)	138, 731, 912	263, 121, 804
1924	§ 1, 418, 461	§ 2, 006, 559	149, 358, 109	270, 338, 177	(9)	(9)	150, 776, 570	272, 344, 736
1925	§ 1, 729, 343	§ 2, 524, 841	161, 658, 901	286, 136, 255	(9)	(9)	163, 388, 244	288, 661, 096
1926	§ 2, 104, 891	§ 2, 925, 798	164, 530, 170	281, 346, 591	(9)	(9)	166, 635, 061	284, 272, 389
1927	§ 2, 123, 868	§ 2, 824, 744	173, 206, 513	280, 594, 551	(9)	(9)	175, 330, 381	283, 419, 295
1928	§ 2, 210, 404	§ 2, 895, 629	176, 298, 846	276, 789, 188	(9)	(9)	178, 509, 250	279, 684, 817
1929	§ 2, 209, 465	§ 3, 026, 967	170, 646, 036	252, 556, 133	(9)	(9)	172, 855, 501	255, 583, 100
1930	§ 1, 792, 083	§ 2, 473, 075	161, 197, 228	232, 124, 008	(9)	(9)	162, 989, 311	234, 597, 083
1931	§ 1, 241, 803	§ 1, 639, 180	125, 429, 071	139, 226, 269	(9)	(9)	126, 670, 874	140, 865, 449
1932	§ 456, 785	§ 607, 524	76, 740, 945	77, 508, 354	(9)	(9)	77, 197, 730	78, 115, 878
1933	§ 466, 632	§ 615, 954	63, 473, 189	84, 419, 341	(9)	(9)	63, 939, 821	85, 035, 295
1934	§ 671, 588	§ 953, 655	77, 747, 765	119, 731, 558	(9)	(9)	78, 419, 353	120, 685, 213
	§ 256, 659, 873	§ 178, 813, 574	3, 144, 030, 425	4, 441, 788, 872	§ 4, 806, 757	§ 3, 937, 695	3, 405, 497, 055	4, 624, 540, 141

¹ For 1912 to 1924, inclusive, figures for natural and puzzolan cements represent shipments. Figures for production not available.

² For 1925 and later years values given for production of natural and puzzolan cements calculated at average value of shipments.

³ For 1913 and later years values given for production of portland cement calculated at average value of shipments.

⁴ Figures for 1890 and previous years are estimates made at close of each year and are believed to be substantially correct. For years since 1890 the official figures are based on practically complete returns from all producers.

⁵ Figures for puzzolan cement from 1916 to 1934, inclusive, included with natural cement.

PORTLAND CEMENT**PRODUCTION, SHIPMENTS, AND STOCKS**

The total production of portland cement in the United States was 22 percent greater in 1934 than in 1933. Shipments from the mills increased 18 percent in quantity and nearly 37 percent in gross value. The average factory value increased 21 cents a barrel (nearly 16 percent).

The production—77,747,765 barrels of 376 pounds net—is equivalent to 310,991,060 sacks, 13,050,518 long tons, or 14,616,580 short tons. In 1934 production exceeded shipments by 1,846,486 barrels.

In the following table the statistics are arranged by States, so far as permissible, and by districts. The term "active plant" is applied to a mill or group of mills situated at one place and operated by one company. If a company has establishments at different places its mill or group of mills at each place is counted as a plant. The districts are groups of States related geographically and commercially.

Portland cement produced, shipped, and in stock in the United States, 1933-34, by States and districts

	Active plants		Production			Shipments						Stock at mills (Dec. 31)			
			Barrels		In-crease in 1934 (per-cent)	1933		1934		Average fac-tory value per barrel		In-crease or de-crease in quantity, 1934 (per-cent)	Barrels		In-crease or de-crease, 1934 (per-cent)
	1933	1934	1933	1934		Barrels	Value	Barrels	Value	1933	1934		1933 (revised)	1934	
STATE															
Alabama.....	6	6	1,968,513	2,208,279	12	1,999,412	\$2,536,121	2,181,513	\$3,017,329	\$1.27	\$1.38	+9	458,793	485,559	+6
California.....	11	10	7,165,430	8,721,854	22	7,168,835	10,530,698	8,395,037	12,449,389	1.47	1.48	+17	1,018,613	1,345,430	+32
Illinois.....	4	4	3,973,853	4,124,805	4	4,193,048	4,607,335	3,908,107	5,498,568	1.10	1.41	-7	596,305	813,003	+36
Iowa.....	5	5	3,044,008	3,180,546	4	2,770,656	3,651,921	3,340,049	5,094,922	1.32	1.53	+21	1,605,116	1,445,613	-10
Kansas.....	6	6	2,201,182	2,497,911	13	2,189,137	2,881,978	2,425,867	3,734,493	1.32	1.54	+11	910,018	982,062	+8
Michigan.....	10	10	3,632,843	4,103,902	13	3,447,867	4,128,082	3,945,375	5,920,214	1.20	1.50	+14	1,669,624	1,828,151	+9
Missouri.....	5	5	3,798,662	4,033,859	6	3,994,690	4,722,441	3,779,125	5,449,606	1.18	1.44	-5	567,601	822,335	+45
New York.....	10	10	4,204,730	4,760,609	13	3,966,696	5,274,593	4,730,257	7,503,270	1.33	1.59	+19	1,554,851	1,585,203	+2
Ohio.....	10	10	2,781,008	4,045,854	45	3,042,645	3,662,733	3,674,384	5,565,525	1.20	1.51	+21	1,202,857	1,574,327	+31
Pennsylvania.....	24	25	12,294,374	16,323,116	25	12,486,585	15,696,852	15,435,648	23,138,676	1.26	1.50	+24	4,659,456	4,546,924	-2
Tennessee.....	6	6	1,347,528	2,481,379	84	1,468,860	2,044,970	2,305,578	3,645,659	1.39	1.58	+57	415,102	590,903	+42
Texas.....	9	9	2,970,070	3,537,734	19	3,091,071	5,268,605	3,418,781	5,995,677	1.70	1.75	+11	553,382	672,335	+21
Other States ¹	46	44	14,090,988	18,727,917	33	14,463,254	20,577,587	18,361,558	29,907,756	1.42	1.63	+27	4,393,605	4,759,964	+8
	152	150	63,473,189	77,747,765	22	64,282,756	85,583,916	75,901,279	116,921,084	1.33	1.54	+18	19,605,323	21,451,809	+9
DISTRICT															
Eastern Pennsylvania, New Jersey, and Maryland.....	22	22	11,813,561	14,917,633	26	11,946,187	15,159,197	14,939,237	22,395,697	1.27	1.50	+25	3,583,572	3,561,968	-6
New York and Maine.....	11	11	4,580,651	5,015,615	9	4,341,747	5,843,118	5,010,637	7,998,640	1.35	1.60	+15	1,675,840	1,680,818	+3
Ohio, western Pennsylvania, and West Virginia.....	19	19	5,328,747	7,355,563	38	5,815,717	7,039,172	6,963,534	10,547,449	1.21	1.51	+20	2,673,907	3,065,936	+15
Michigan.....	10	10	3,632,843	4,103,902	13	3,447,867	4,128,082	3,945,375	5,920,214	1.20	1.50	+14	1,669,624	1,828,151	+9
Wisconsin, Illinois, Indiana, and Kentucky.....	11	11	7,908,137	9,079,458	15	8,189,896	9,600,985	8,899,493	12,872,160	1.17	1.45	+9	1,908,891	2,088,856	+9
Virginia, Tennessee, Alabama, Georgia, Florida, and Louisiana.....	19	18	5,669,497	7,560,020	33	5,809,792	7,981,912	7,257,757	11,173,407	1.37	1.54	+25	1,432,831	1,735,094	+21

¹ Arkansas, Colorado, Florida, Georgia, Idaho, Indiana, Kentucky, Louisiana, Maine, Maryland, Minnesota, Montana, Nebraska, New Jersey, Oklahoma, Oregon, South Dakota, Utah, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

² Revised figures.

Portland cement produced, shipped, and in stock in the United States, 1933-34, by States and districts—Continued

	Active plants		Production			Shipments							Stock at mills (Dec. 31)		
			Barrels		In-crease in 1934 (per-cent)	1933		1934		Average factory value per barrel		In-crease or de-crease in quantity, 1934 (per-cent)	Barrels		In-crease or de-crease, 1934 (per-cent)
	1933	1934	1933	1934		Barrels	Value	Barrels	Value	1933	1934		1933 (revised)	1934	
DISTRICT—continued															
Eastern Missouri, Iowa, Min- nesota, and South Dakota....	11	11	7,317,163	7,786,482	6	7,093,411	\$8,891,961	7,826,458	\$11,646,388	\$1.25	\$1.49	+10	2,498,751	2,458,775	-2
Western Missouri, Nebraska, Kansas, Oklahoma, and Ar- kansas.....	12	12	4,936,477	5,837,914	18	4,996,109	6,792,160	5,549,945	8,789,590	1.36	1.58	+11	1,690,653	1,978,622	+17
Texas.....	9	9	2,970,070	3,537,734	19	3,091,071	5,268,605	3,418,781	6,995,677	1.70	1.75	+11	553,382	672,335	+21
Colorado, Montana, Utah, Wyoming, and Idaho.....	8	8	1,243,188	2,181,218	75	1,420,538	2,327,123	2,101,796	3,788,362	1.64	1.80	+48	366,223	445,645	+22
California.....	11	10	7,165,430	8,721,854	22	7,168,835	10,530,698	8,395,037	12,449,389	1.47	1.48	+17	1,018,613	1,345,430	+32
Oregon and Washington.....	9	9	907,425	1,650,372	82	961,586	* 2,020,903	1,593,229	3,344,111	* 2.10	2.10	+66	533,036	590,179	+11
	152	150	63,473,189	77,747,765	22	64,282,756	* 85,583,916	75,901,279	116,921,084	1.33	1.54	+18	19,605,323	21,451,809	+9

* Revised figures.

The following table of production, shipments, and stocks of finished portland cement by districts and by months for 1934 has been compiled from monthly reports on the operation of all but three plants in February, two plants in March and April, and one plant in the other months of the year; estimates have been included for these plants. The table also gives monthly totals in 1933 compiled from reports for all but two plants in October, November, and December; four plants in February, April, and May; and three in the other months of the year; and estimates have been included for these plants. Although the figures may differ slightly from the totals in other tables, which are based on final annual reports from the producers, they reflect accurately fluctuations in the industry during the year. In the colder part of the United States, the production of portland cement necessarily is curtailed somewhat by the weather during December, January, and February, as are also demand and hence shipments from the mills. Moreover, mills often close for repairs during the winter when the demand is lowest. As the quantity of clinker or unground cement produced and in reserve at the mills awaiting manufacture into finished cement is of interest, a table is given showing these statistics, compiled from the manufacturers' estimates.

Summary of monthly estimates of portland cement produced, shipped, and in stock at mills in the United States in 1934, by district, in thousands of barrels

District	January	February	March	April	May	June	July	August	September	October	November	December
PRODUCTION												
Eastern Pennsylvania, New Jersey, and Maryland.....	684	774	667	1,117	1,874	1,900	1,610	1,666	1,702	1,097	910	912
New York and Maine.....	44	149	155	247	562	749	722	732	701	600	262	79
Ohio, western Pennsylvania, and West Virginia.....	66	204	385	681	963	972	996	937	761	712	399	235
Michigan.....	111	96	144	296	536	579	558	485	433	482	267	123
Wisconsin, Illinois, Indiana, and Kentucky.....	434	470	705	767	998	1,172	930	819	806	714	755	510
Virginia, Tennessee, Alabama, Georgia, Florida, and Louisiana.....	456	646	777	838	608	446	529	703	651	739	747	462
Eastern Missouri, Iowa, Minnesota, and South Dakota.....	581	422	470	503	942	868	787	666	824	736	567	457
Western Missouri, Nebraska, Kansas, Oklahoma, and Arkansas.....	353	244	342	581	536	676	640	507	397	414	617	529
Texas.....	195	280	433	354	297	377	321	267	324	164	261	264
Colorado, Montana, Utah, Wyoming, and Idaho.....	134	104	191	203	236	182	217	292	221	148	157	100
California.....	699	690	791	851	814	800	759	652	657	711	676	591
Oregon and Washington.....	72	89	197	106	188	92	75	116	203	158	161	185
United States, 1934.....	3,779	4,168	5,257	6,544	8,554	8,813	8,144	7,842	7,680	6,675	5,779	4,447
1933.....	2,958	2,777	3,684	4,183	6,262	7,804	8,609	8,223	5,638	5,037	4,672	3,526
SHIPMENTS												
Eastern Pennsylvania, New Jersey, and Maryland.....	580	316	719	1,286	1,625	1,763	1,673	1,763	1,520	1,799	1,269	642
New York and Maine.....	119	66	170	374	571	691	640	719	541	591	365	161
Ohio, western Pennsylvania, and West Virginia.....	294	145	295	544	847	875	813	790	771	848	479	223
Michigan.....	188	101	157	254	496	601	615	488	437	408	232	90
Wisconsin, Illinois, Indiana, and Kentucky.....	291	192	324	638	1,249	1,096	1,042	1,046	989	1,132	662	234
Virginia, Tennessee, Alabama, Georgia, Florida, and Louisiana.....	630	521	641	643	660	587	598	678	621	673	597	425
Eastern Missouri, Iowa, Minnesota, and South Dakota.....	196	177	366	645	1,027	907	847	944	887	1,063	576	191
Western Missouri, Nebraska, Kansas, Oklahoma, and Arkansas.....	308	282	443	606	760	619	492	462	410	556	386	239
Texas.....	264	273	346	316	356	339	288	282	250	297	212	186
Colorado, Montana, Utah, Wyoming, and Idaho.....	126	122	166	218	205	137	195	180	176	209	214	116
California.....	692	639	831	810	828	754	653	709	642	722	581	502
Oregon and Washington.....	90	118	160	158	160	122	142	168	144	141	101	90
United States, 1934.....	3,778	2,952	4,618	6,492	8,784	8,541	7,898	8,249	7,388	8,439	5,674	3,104
1933.....	2,502	2,278	3,510	4,949	6,709	7,979	8,697	8,994	6,517	6,750	4,463	3,738

STOCKS (END OF MONTH)

Eastern Pennsylvania, New Jersey, and Maryland.....	3,710	4,167	4,115	3,952	4,201	4,337	4,280	4,183	4,368	3,665	3,306	3,562
New York and Maine.....	1,608	1,690	1,675	1,548	1,539	1,596	1,679	1,692	1,852	1,861	1,759	1,681
Ohio, western Pennsylvania, and West Virginia.....	2,446	2,505	2,596	2,733	2,848	2,945	3,128	3,275	3,264	3,129	3,049	3,096
Michigan.....	1,567	1,563	1,571	1,613	1,653	1,631	1,674	1,650	1,667	1,740	1,775	1,828
Wisconsin, Illinois, Indiana, and Kentucky.....	2,010	2,288	2,669	2,798	2,547	2,623	2,511	2,284	2,101	1,683	1,777	2,089
Virginia, Tennessee, Alabama, Georgia, Florida, and Louisiana.....	1,259	1,384	1,517	1,712	1,635	1,494	1,426	1,451	1,481	1,547	1,698	1,735
Eastern Missouri, Iowa, Minnesota, and South Dakota.....	2,829	3,074	3,178	3,035	2,950	2,911	2,851	2,573	2,509	2,183	2,173	2,459
Western Missouri, Nebraska, Kansas, Oklahoma, and Arkansas.....	1,736	1,698	1,598	1,572	1,349	1,406	1,554	1,599	1,586	1,451	1,682	1,979
Texas.....	484	492	579	617	557	595	628	603	678	545	594	672
Colorado, Montana, Utah, Wyoming, and Idaho.....	365	347	373	359	390	405	426	528	567	502	445	446
California.....	1,019	1,069	1,029	1,137	1,123	1,177	1,282	1,225	1,241	1,229	1,324	1,345
Oregon and Washington.....	514	485	522	481	509	480	413	361	420	437	496	590
United States, 1934.....	19,547	20,762	21,422	21,557	21,301	21,600	21,852	21,424	21,734	19,972	20,078	21,452
1933.....	20,624	21,125	21,298	20,542	20,117	19,936	19,848	22,078	21,216	19,502	19,709	19,605

1 Revised figures.

Summary of monthly estimates of clinker (unground portland cement) produced and in stock at mills in the United States in 1934, by districts, in thousands of barrels

District	January	February	March	April	May	June	July	August	September	October	November	December
PRODUCTION												
Eastern Pennsylvania, New Jersey, and Maryland.....	829	818	683	1,072	1,844	1,824	1,621	1,575	1,654	1,087	920	767
New York and Maine.....	70	179	212	218	500	746	727	727	725	631	229	49
Ohio, western Pennsylvania, and West Virginia.....	112	168	531	740	874	947	905	943	765	685	464	232
Michigan.....	146	125	133	291	529	617	603	488	357	386	263	136
Wisconsin, Illinois, Indiana, and Kentucky.....	408	493	795	1,006	899	1,096	941	684	678	713	770	502
Virginia, Tennessee, Alabama, Georgia, Florida, and Louisiana.....	456	581	835	899	658	571	550	556	538	768	797	535
Eastern Missouri, Iowa, Minnesota, and South Dakota.....	560	420	492	573	851	855	787	649	823	746	543	442
Western Missouri, Nebraska, Kansas, Oklahoma, and Arkansas.....	343	276	420	458	517	622	606	503	430	486	578	526
Texas.....	218	281	446	346	265	345	384	288	323	160	174	321
Colorado, Montana, Utah, Wyoming, and Idaho.....	112	86	174	215	213	182	240	318	217	146	156	74
California.....	643	645	700	769	921	883	879	709	661	704	741	678
Oregon and Washington.....	84	102	194	215	153	200	33	108	129	214	218	108
United States, 1934.....	3,981	4,174	5,615	6,802	8,224	8,888	8,276	7,548	7,300	6,726	5,853	4,370
1933.....	3,036	3,110	4,147	4,520	5,848	7,836	8,569	7,835	5,600	4,745	4,329	3,390
STOCKS (END OF MONTH)												
Eastern Pennsylvania, New Jersey, and Maryland.....	924	975	1,000	959	946	887	903	836	781	783	814	656
New York and Maine.....	296	323	387	362	305	312	326	330	360	397	368	340
Ohio, western Pennsylvania, and West Virginia.....	580	549	700	763	683	666	583	586	599	584	641	642
Michigan.....	780	809	807	808	812	863	919	925	874	787	787	801
Wisconsin, Illinois, Indiana, and Kentucky.....	429	452	542	781	682	607	617	482	354	354	369	361
Virginia, Tennessee, Alabama, Georgia, Florida, and Louisiana.....	419	358	421	487	566	693	717	575	467	501	547	634
Eastern Missouri, Iowa, Minnesota, and South Dakota.....	420	437	463	530	448	443	450	441	442	460	442	440
Western Missouri, Nebraska, Kansas, Oklahoma, and Arkansas.....	421	447	520	395	364	312	278	272	293	365	329	343
Texas.....	203	206	224	218	187	158	223	244	242	237	150	211
Colorado, Montana, Utah, Wyoming, and Idaho.....	90	72	54	66	42	43	66	92	91	89	90	63
California.....	1,150	1,081	979	877	994	1,045	1,146	1,194	1,190	1,159	1,278	1,349
Oregon and Washington.....	207	222	221	319	285	395	360	355	282	339	398	326
United States, 1934.....	5,919	5,936	6,318	6,565	6,304	6,424	6,588	6,332	5,975	6,055	6,213	6,166
1933.....	6,092	6,422	6,890	7,146	6,769	6,840	6,832	6,474	6,507	6,204	5,877	5,717

Producers' stocks of portland cement reported on hand at the mills increased each month except January, February, and August in 1934 compared with the corresponding month in 1933.

Reserves at the end of 1934 were more than 9 percent higher than those at the end of 1933 and nearly 6 percent below the average for the 5 preceding years (22,779,596 barrels). Totals by States and districts are given in the preceding tables. The following table gives stocks on December 31 and the monthly range, 1930 to 1934.

Producers' stocks of finished portland cement and clinker (unground cement) on hand at mills in the United States on Dec. 31 and monthly range, 1930-34

	Dec. 31 (barrels)	Monthly range			
		Low		High	
		Month	Barrels	Month	Barrels
1930 Cement.....	25,898,622	October.....	20,697,000	May.....	30,891,000
1930 Clinker.....	8,809,000	do.....	7,266,000	April.....	15,164,000
1931 Cement.....	24,342,446	do.....	21,218,000	do.....	29,715,000
1931 Clinker.....	7,035,000	do.....	6,021,000	do.....	13,854,000
1932 Cement.....	20,351,058	do.....	17,084,000	March.....	27,545,000
1932 Clinker.....	5,995,000	November.....	5,938,000	April.....	10,571,000
1933 Cement.....	19,605,323	October.....	19,502,000	August.....	22,078,000
1933 Clinker.....	5,717,000	December.....	5,717,000	April.....	7,146,000
1934 Cement.....	21,451,809	January.....	19,547,000	July.....	21,852,000
1934 Clinker.....	6,166,000	do.....	5,919,000	do.....	6,588,000

¹ Revised figures.

DOMESTIC CONSUMPTION

The total consumption of portland cement in the United States may be estimated by adding the imports to the shipments and subtracting the exports from the sum. Of course, at any time a variable but considerable quantity of cement is in transit, in warehouses at distributing points, and awaiting use at jobs, so that the estimate thus made is at best only approximate. Another item requiring careful interpretation is the fact that the cement imported and exported is classed as hydraulic cement; hence, the records do not discriminate between portland and other cements and probably include some plaster also. Portland cement, however, constitutes by far the greater part of the exports. The apparent domestic consumption increased 18 percent in 1934 compared with 1933, the only increase recorded since 1928 when consumption increased 2 percent over 1927.

Portland cement available for consumption in the United States, 1930-34, in barrels

Year	Shipments	Imports	Exports	Available for consumption
1930.....	159,059,334	975,546	755,778	159,279,102
1931.....	127,150,534	457,238	429,653	127,178,119
1932.....	80,843,187	462,496	374,581	80,931,102
1933.....	64,282,756	472,550	680,307	64,074,999
1934.....	75,901,279	261,844	566,462	75,596,661

The only available gauge of consumption of portland cement by States is the record of shipments into the several States by the manufacturers; it is therefore merely approximate. The shipments

of cement into a State in a year do not equal the consumption in the State during that year, but shipments over a long period should afford a fair index of consumption. The simplest available common unit is the estimated consumption in barrels per capita, which is ascertained by comparing the shipments into the several States with their population. The following table offers such figures for 1933 and 1934. The estimates of population used in calculating the per-capita consumption are those of the Bureau of the Census.

The official figures for exports of cement on pages 204 and 206 differ from those reported by manufacturers in the following table, because cement forwarded from mills and destined for foreign countries and for Alaska, Hawaii, and Puerto Rico is reported by shippers as exported, whether or not it leaves the country during the calendar year, whereas the Bureau of Foreign and Domestic Commerce export figures record the cement that actually leaves the country during the period specified. (Shipments to Alaska, Hawaii, and Puerto Rico appear on p. 206.) The exports for 1934 recorded by that Bureau include all other hydraulic cement exported, whereas the table of per-capita consumption relates to portland cement only.

The per-capita consumption indicated by the table necessarily falls short of the total apparent consumption by the quantity of the imports. These increase the consumption in certain States near the Canadian border and the seaboard; in 1934 they increased the general average per-capita consumption about 0.002 barrel.

*Shipments of domestic portland cement from mills into States and per capita, 1933-34, in barrels*¹

State	1933		1934	
	Total	Per capita ¹	Total	Per capita ¹
Alabama.....	926,199	0.34	942,005	0.35
Arizona ²	125,512	.28	266,528	.58
Arkansas.....	673,394	.36	698,672	.37
California.....	4,966,717	.82	5,071,975	.82
Colorado.....	430,248	.41	546,032	.52
Connecticut ²	736,736	.45	856,523	.52
Delaware ²	252,231	1.05	303,260	1.25
District of Columbia ²	942,601	1.90	827,642	1.67
Florida.....	597,776	.38	905,977	.58
Georgia.....	728,503	.25	938,448	.32
Idaho.....	118,811	.27	215,659	.48
Illinois.....	5,295,165	.68	5,008,440	.64
Indiana.....	1,986,509	.60	2,245,765	.68
Iowa.....	1,502,613	.61	2,220,369	.89
Kansas.....	946,388	.50	1,406,799	.74
Kentucky.....	1,244,560	.47	1,234,222	.46
Louisiana.....	756,252	.35	991,133	.46
Maine.....	312,182	.39	260,655	.32
Maryland.....	835,241	.50	1,283,158	.77
Massachusetts ²	1,474,000	.34	1,961,643	.45
Michigan.....	2,465,262	.49	2,966,829	.58
Minnesota.....	1,469,078	.57	1,636,176	.63
Mississippi ²	686,650	.34	671,594	.33
Missouri.....	2,548,680	.69	2,226,651	.61
Montana.....	162,318	.30	325,576	.61
Nebraska.....	1,025,869	.74	1,157,342	.83
Nevada ²	1,435,214	15.43	2,874,985	30.58
New Hampshire ²	261,686	.56	345,302	.73
New Jersey.....	2,026,606	.48	2,339,145	.55
New Mexico ²	193,681	.45	304,935	.70
New York.....	7,177,654	.55	8,052,312	.62
North Carolina ²	484,405	.15	764,381	.23

¹ Per-capita figures based on latest available estimates of population made by the Bureau of the Census.

² Non-cement-producing State.

*Shipments of domestic portland cement from mills into States and per capita, 1933-34,
in barrels—Continued*

State	1933		1934	
	Total	Per capita	Total	Per capita
North Dakota ¹	132,761	0.19	242,273	0.35
Ohio.....	2,738,270	.40	3,593,564	.53
Oklahoma.....	1,415,678	.58	1,289,514	.52
Oregon.....	330,294	.34	556,408	.56
Pennsylvania.....	4,128,354	.42	4,865,216	.50
Rhode Island ¹	282,078	.40	325,555	.46
South Carolina ¹	217,155	.12	326,995	.19
South Dakota.....	240,893	.34	398,559	.57
Tennessee.....	957,390	.36	1,533,774	.57
Texas.....	3,211,166	.53	3,262,882	.54
Utah.....	242,514	.47	349,790	.67
Vermont ¹	140,289	.39	241,278	.69
Virginia.....	921,463	.38	1,257,643	.51
Washington.....	687,439	.43	1,117,040	.69
West Virginia.....	642,998	.36	1,065,530	.60
Wisconsin.....	1,836,251	.61	2,380,334	.79
Wyoming.....	82,499	.36	161,092	.69
Unspecified.....	309,193	-----	54,886	-----
Exports reported by manufacturers but not included above ²	63,305,426	.50	74,872,466	.59
	977,330	-----	1,028,813	-----
Total shipped from cement plants.....	64,282,756	-----	75,901,279	-----

¹ Non-cement-producing State.

² Includes shipments to Alaska, Hawaii, and Puerto Rico.

The following table of monthly shipments from portland-cement mills into States in 1934 has been compiled from monthly reports of producers but includes estimates of the distribution of shipments from one to two plants each month. Although the figures vary slightly from the totals shown in the other tables, which are based on final annual reports from the producers, they reflect the fluctuations in shipments during the year.

Portland cement shipped from mills into States in 1934, by months, in barrels¹

Shipped to—	January	February	March	April	May	June	July	August	September	October	November	December
Alabama.....	120,597	82,600	86,680	41,036	56,284	54,337	76,085	58,083	101,797	87,236	100,205	76,703
Alaska.....	396	1,002	546	823	2,774	2,229	2,856	1,630	1,333	1,731	818	-----
Arizona.....	26,984	27,405	33,348	25,810	23,350	20,931	14,769	18,525	16,733	19,432	17,453	15,965
Arkansas.....	42,826	35,144	41,241	50,320	63,139	55,399	63,908	91,453	67,618	97,618	58,709	62,659
California.....	420,939	344,447	459,765	455,368	471,338	461,091	372,827	465,329	366,711	466,982	421,240	339,721
Colorado.....	26,540	22,046	48,410	57,363	59,402	45,758	64,350	54,310	39,342	57,877	45,572	24,234
Connecticut.....	24,328	7,991	31,248	71,645	112,171	124,743	105,321	100,394	74,140	91,403	77,344	31,618
Delaware.....	8,147	1,493	7,229	24,046	38,443	57,803	31,607	34,295	18,774	51,271	31,859	10,040
District of Columbia.....	44,541	10,794	39,711	68,391	67,170	89,735	94,185	108,254	79,636	108,859	75,082	47,067
Florida.....	85,609	79,619	97,036	107,267	85,562	65,270	54,516	68,890	64,110	73,072	63,706	58,371
Georgia.....	76,961	80,854	96,507	82,820	72,012	55,443	91,422	100,561	85,117	88,163	74,897	33,520
Hawaii.....	12,756	25,359	29,052	22,278	23,741	30,006	19,487	9,172	21,081	26,104	23,181	19,938
Idaho.....	8,096	11,062	19,980	14,682	19,432	29,229	21,717	19,775	21,414	29,034	15,797	6,706
Illinois.....	133,420	99,658	183,486	386,683	671,643	557,475	612,159	545,571	546,923	736,326	476,070	158,940
Indiana.....	68,130	46,468	80,074	175,352	335,335	326,093	323,604	280,620	222,833	224,541	121,787	38,360
Iowa.....	36,582	27,418	100,399	162,107	376,296	287,842	237,122	250,414	228,125	329,818	142,128	30,933
Kansas.....	84,581	82,193	142,187	197,628	193,532	153,683	114,941	93,270	81,170	123,666	94,229	45,163
Kentucky.....	55,883	28,290	52,065	126,330	187,223	122,911	125,254	140,851	124,073	141,905	92,442	42,499
Louisiana.....	99,525	72,742	114,612	104,635	103,895	81,409	91,859	81,455	69,826	70,353	49,674	40,856
Maine.....	6,711	3,535	10,609	20,734	27,513	37,802	30,862	34,026	28,336	36,766	17,148	6,971
Maryland.....	51,441	32,436	68,007	103,993	136,713	137,133	161,833	141,347	122,026	166,675	104,750	58,301
Massachusetts.....	69,993	40,016	87,069	145,552	185,865	192,352	191,942	267,319	245,802	262,016	192,924	77,054
Michi.....	171,041	85,168	129,029	195,229	423,275	473,640	365,576	342,974	303,850	301,764	160,379	65,426
Minnesota.....	28,533	30,219	62,101	106,896	149,171	171,954	202,247	243,654	273,902	264,381	78,034	25,061
Mississippi.....	50,277	42,702	70,322	73,716	62,712	63,418	79,266	24,962	47,836	58,221	73,138	29,029
Missouri.....	95,930	88,749	141,436	230,971	327,619	216,904	177,605	210,723	178,361	263,192	220,636	70,636
Montana.....	11,586	9,675	14,924	19,817	32,594	29,299	37,841	30,700	24,566	52,764	27,265	34,499
Nebraska.....	27,642	29,470	53,206	127,795	185,856	155,585	95,554	101,600	83,806	149,285	84,595	19,590
Nevada.....	244,948	243,455	314,690	308,963	284,443	231,401	262,265	224,548	265,840	232,657	185,775	173,335
New Hampshire.....	4,907	5,871	13,546	21,165	36,762	73,016	43,978	40,459	37,094	38,821	19,935	10,051
New Jersey.....	84,978	37,489	123,965	216,336	252,487	270,397	285,365	296,701	234,868	273,552	174,649	87,153
New Mexico.....	17,361	18,813	27,045	24,520	25,889	25,889	25,090	29,547	26,948	33,476	24,708	20,656
New York.....	227,196	122,717	315,790	643,533	923,702	1,049,819	978,403	1,046,116	871,477	916,781	636,979	310,852
North Carolina.....	59,997	85,435	61,595	52,706	61,447	61,300	80,208	80,785	57,349	68,440	67,811	30,994
North Dakota.....	7,384	5,313	9,591	19,823	36,042	32,055	39,435	30,352	23,947	29,468	8,952	3,129
Ohio.....	131,995	73,047	154,827	304,617	443,918	483,707	411,800	367,150	378,580	438,861	249,683	119,446
Oklahoma.....	101,643	87,120	120,961	118,919	157,029	136,378	115,418	116,089	90,398	91,615	71,507	70,971
Oregon.....	28,175	31,114	56,490	55,892	37,891	37,042	52,330	56,553	46,140	50,775	57,224	49,967
Pennsylvania.....	208,317	88,759	212,702	400,087	544,402	566,807	584,073	588,029	533,900	607,231	357,660	173,159
Puerto Rico.....	7,700	27,408	12,039	6,500	10,132	11,988	12,261	28,739	18,094	18,456	15,393	15,331
Rhode Island.....	10,183	4,606	12,521	28,604	39,543	53,074	49,123	35,253	26,513	30,808	24,040	10,966
South Carolina.....	26,218	18,654	31,541	23,213	24,582	28,877	23,677	36,768	24,579	29,110	31,610	23,153
South Dakota.....	5,932	8,830	19,890	27,492	43,874	37,917	41,909	77,908	61,947	44,257	22,811	6,202

Tennessee.....	98,058	74,518	89,925	172,536	172,233	121,763	101,964	158,610	124,708	157,836	141,735	120,388
Texas.....	244,007	265,706	329,209	302,929	347,606	324,339	275,683	273,028	256,306	277,621	198,986	173,229
Utah.....	7,739	10,470	18,289	39,860	41,514	28,513	18,483	22,408	24,600	27,443	28,493	6,705
Vermont.....	3,741	3,201	8,356	17,466	39,800	43,224	25,367	35,735	23,969	22,588	13,972	3,421
Virginia.....	103,602	49,682	93,741	111,332	128,834	140,554	126,463	140,236	106,690	118,421	91,825	46,336
Washington.....	66,403	94,457	119,181	115,953	125,718	97,178	101,897	116,244	93,233	93,272	50,160	41,296
West Virginia.....	55,535	21,323	40,493	72,429	134,170	115,949	102,598	114,309	192,073	120,769	91,613	47,136
Wisconsin.....	64,953	42,398	66,387	137,572	291,111	379,484	338,500	347,459	238,421	272,528	119,096	28,743
Wyoming.....	5,673	4,217	7,611	10,914	16,617	20,369	15,394	23,461	22,976	13,692	10,982	9,551
Unspecified.....	1,187	-----	221	4,093	6,250	7,811	4,963	9,201	16,974	13,195	2,460	3,165
Foreign countries.....	3,707,827	2,873,218	4,560,885	6,437,141	8,742,909	8,501,883	7,862,078	8,213,591	7,360,805	8,402,128	5,638,526	3,045,195
	70,173	78,782	57,115	54,859	41,091	39,117	35,922	35,409	27,195	36,872	35,474	58,805
Total shipped from cement plants.....	3,778,000	2,952,000	4,618,000	6,492,000	8,784,000	8,541,000	7,898,000	8,249,000	7,388,000	8,439,000	5,674,000	3,104,000

† Includes estimated distribution from 2 plants for January to March and for November and from 1 plant for the remaining months of the year.

The Bureau of Mines has had no facilities for collecting statistics on the consumption of portland cement by uses. The following estimates, based on studies of construction figures and other data, were made by engineers of the Portland Cement Association who are in touch with the various industries throughout the country that use cement.

Estimated distribution of portland cement in the United States in 1934, by uses

	Percent	Barrels
Structural concrete in buildings of all types.....	26.3	20,000,000
Concrete roads, streets, alleys, curbs, gutters, and pavement bases.....	24.4	18,500,000
Bridges, river and harbor works, dams and water power projects, storage tanks, and reservoirs.....	19.8	15,000,000
Rural uses exclusively, including farm structures.....	8.5	6,500,000
Railways, all uses, including street railways.....	7.2	5,500,000
Sewerage, drainage, culverts, and specialties.....	7.9	6,000,000
Concrete products, except products used on farms.....	3.3	2,500,000
Sidewalks and private driveways (exclusive of rural).....	2.6	2,000,000
	100.0	76,000,000

LOCAL SUPPLIES

The following table compares the shipments from the mills within a State or group of States with the estimated consumption (State receipts of mill shipments) and indicates the surplus or deficiency in the supply of cement locally available. Consumption in the States that do not produce cement is also indicated in the table on page 188. Data for 1916 to 1931 will be found in the annual volumes of Mineral Resources of the United States from 1917 to 1931 and for 1932 in Statistical Appendix to Minerals Yearbook, 1932-33.

The surplus in the following table was distributed by years as follows: In 1933, to non-cement-producing States, 7,364,999 barrels; foreign countries and Alaska, Hawaii, and Puerto Rico, 977,330 barrels; and unspecified, 309,193 barrels. In 1934, to non-cement-producing States, 10,312,894 barrels; foreign countries and Alaska, Hawaii, and Puerto Rico, 1,028,813 barrels; and unspecified, 54,886 barrels.

Estimated surplus or deficiency in local supply of portland cement in cement-producing States, 1933-34, in barrels

State or division	1933			1934		
	Shipments from mills	Estimated consumption	Surplus or deficiency	Shipments from mills	Estimated consumption	Surplus or deficiency
Alabama.....	1,999,412	926,199	+1,073,213	2,181,513	942,005	+1,239,508
California.....	7,168,835	4,966,717	+2,202,118	8,395,037	5,071,975	+3,323,062
Illinois.....	4,193,048	5,295,165	-1,102,117	3,908,107	5,008,440	-1,100,333
Iowa.....	2,770,656	1,502,613	+1,268,043	3,340,040	2,220,369	+1,119,680
Kansas.....	2,189,137	946,388	+1,242,749	2,425,867	1,406,799	+1,019,068
Michigan.....	3,447,867	2,465,262	+982,605	3,945,375	2,966,829	+978,546
Missouri.....	3,994,690	2,548,680	+1,446,010	3,779,125	2,226,651	+1,552,474
Ohio.....	3,042,645	2,738,270	+304,375	3,674,324	3,593,504	+80,820
Pennsylvania.....	12,436,585	4,128,354	+8,308,231	15,435,648	4,865,216	+10,570,432
Tennessee.....	1,468,860	957,390	+511,470	2,305,578	1,533,774	+771,804
Texas.....	3,091,071	3,211,166	-120,095	3,418,781	3,262,882	+155,899
Colorado, Montana, Utah, Wyoming, and Idaho.....	1,420,538	1,036,390	+384,148	2,101,796	1,598,149	+503,647
Oregon and Washington.....	961,586	1,017,733	-56,147	1,593,229	1,473,448	+119,781
Georgia, Kentucky, Virginia, Florida, and Louisiana.....	2,908,533	4,248,554	-1,340,021	3,415,048	5,327,423	-1,912,375
Indiana, Wisconsin, Minnesota, Nebraska, Oklahoma, South Dakota, and Arkansas.....	6,564,872	8,647,672	-2,082,800	8,178,366	9,806,362	-1,627,996
Maryland, New Jersey, and West Virginia.....	2,232,674	3,504,845	-1,272,171	2,792,739	4,687,833	-1,895,094
New York and Maine.....	4,341,747	7,489,836	-3,148,089	5,010,637	8,312,967	-3,302,330
	64,282,756	55,631,234	+8,651,522	75,901,279	64,304,686	+11,596,593

TRANSPORTATION

As the cost of transportation and delivery is one of the large items in the cost of cement to the consumer the accompanying table, showing the quantities of portland cement shipped in 1934 from mills by truck, railroad, and boat in bulk and in containers, is of interest. (Detailed data as to mode of shipping are lacking for 2,982,924 barrels—a little less than 4 percent—of the total shipments for the year.)

The only comparable figures are those for 1928, when reports of producers to the Bureau of Mines showed that of the total shipments 2.4 percent were in bulk and 97.6 percent in containers.

Shipments of portland cement from mills in the United States in 1934, in bulk and in containers, by types of carriers

[Unit of measure, barrels of 376 pounds]

Type of carrier	In bulk		In containers				Mode of shipping not stated	Total shipments	
			In bags		In other containers ¹	Total in containers			
			Paper	Cloth					
	<i>Barrels</i>	<i>Percent</i>	<i>Barrels</i>	<i>Barrels</i>	<i>Barrels</i>	<i>Barrels</i>	<i>Barrels</i>	<i>Percent</i>	
Truck.....	452, 116	3. 0	2, 081, 301	2, 306, 663	166	4, 388, 130	4, 840, 246	6. 4	
Railroad.....	13, 270, 738	87. 4	25, 254, 019	26, 813, 430	151, 539	52, 218, 988	65, 489, 726	86. 3	
Boat.....	1, 288, 816	8. 5	761, 596	536, 519	1, 452	1, 299, 567	2, 588, 383	3. 4	
Not stated.....	171, 793	1. 1	192, 714	321, 616	-----	514, 330	2, 982, 924	3. 9	
Percent of total shipments.....	15, 183, 463	100. 0	28, 289, 630	29, 978, 228	153, 157	58, 421, 015	2, 296, 801	75, 901, 279	100. 0
	20. 0	-----	37. 3	39. 5	0. 2	77. 0	3. 0	100. 0	-----

¹ Includes steel drums and iron and wooden barrels.

² Includes 32,200 barrels used at plants by producers.

³ Includes 2,296,801 barrels for which mode of shipping not stated.

Companies reported bulk shipments from 131 plants in 32 of the 35 cement-producing States in 1934; 126 plants shipped in bulk by rail, 10 plants by boat, and 20 plants by truck. Reports from plants making bulk shipments showed a range in shipments by this method from less than 1 percent to 79.2 percent of the total plant shipments; the range in bulk shipments by commercial districts was from 4.6 percent in the Texas district to 41.1 percent in the California district. Of the plants furnishing detailed information on the methods used in shipping their output in 1934 (and such data were received from most of the plants), only 14 reported no shipments in bulk. As stated, the only comparable figures are those for 1928, when producers reported bulk shipments from 71 plants in 19 States; 65 plants shipped in bulk by rail and 12 by truck or boat. Reports from plants making bulk shipments in 1928 showed a range in such shipments from less than 1 percent to 40 percent of the total plant shipments.

PRICES

At factories.—The average selling value of portland cement f. o. b. factories, with the price of containers excluded and cash discounts deducted where allowed, as reported to the Bureau of Mines is stated in the table of shipments by States and districts during 1933 and 1934 on page 181.

The average factory value of portland cement may be higher in certain States than if ordinary structural cement were the only kind considered. For these States the average includes certain special cements that command higher prices, including the white portland cement made in Pennsylvania and, in 1933 and 1934, in California, and the high-early-strength portland cements now manufactured in many States. Statistics of output of high-early-strength portland cement, masonry cements of the portland-cement class, and other special cements appear on page 196.

Average factory value per barrel in bulk of portland cement in the United States, 1930-34

1930-----	\$1.44	1933-----	\$1.33
1931-----	1.11	1934-----	1.54
1932-----	1.01		

At markets.—Data showing the position of cement prices among those of other structural materials are summarized in the following table.

*Comparative prices of building materials in December 1933-34*¹

[Percentage of increase or decrease from 1926 average]

	1933	1934
Building materials in general.....	-14.4	-14.9
Lime, building, at plant (composite price).....	-16.6	-19.4
Plate glass, 3 to 5 square feet, New York.....	-13.4	-38.5
Turpentine, New York.....	-49.4	-44.3
Brick, common, building, at plant (composite price).....	-15.7	-8.6
Linseed oil, raw, New York.....	-15.2	-21.3
Douglas fir, No. 1, common, at mills.....	+12.2	-2.9
Yellow pine, flooring, at mills.....	-17.1	-24.5
Oak, plain, white, No. 1, common, Cincinnati.....	-15.2	-28.8
Portland cement, at plant (composite price).....	-8.8	-6.1

¹ Bureau of Labor Statistics, U. S. Department of Labor, Wholesale Prices of Commodities: Rept. for December and year 1934, pp. 21-23.

CAPACITY

At the end of 1934 the capacity for producing finished portland cement of the 150 shipping plants in 1934 and 14 plants inactive in 1934 but producing within the 6 previous years was 262,709,000 barrels per year, according to manufacturers' reports supplemented by a few estimates. No new plants were reported as producing in 1934. The total output for 1934 was 29.6 percent of the indicated capacity at the close of the year, based on producers' reports; the corresponding figure for 1933 was 23.6 percent.

Portland cement-manufacturing capacity of the United States, 1933-34, by commercial districts

District	Estimated capacity (barrels)		Percent of capacity utilized	
	1933	1934	1933	1934
Eastern Pennsylvania, New Jersey, and Maryland	56,399,000	55,063,000	20.9	27.1
New York and Maine	18,622,000	18,402,000	24.6	27.3
Ohio, western Pennsylvania, and West Virginia	28,725,000	28,227,000	18.6	26.1
Michigan	19,044,000	17,180,000	19.1	23.9
Wisconsin, Illinois, Indiana, and Kentucky	31,836,000	30,216,000	24.8	30.0
Virginia, Tennessee, Alabama, Georgia, Florida, and Louisiana	25,473,000	25,588,000	22.3	29.5
Eastern Missouri, Iowa, Minnesota, and South Dakota	24,014,000	23,267,000	30.5	33.5
Western Missouri, Nebraska, Kansas, Oklahoma, and Arkansas	17,938,000	17,559,000	27.5	33.2
Texas	10,725,000	10,925,000	27.7	32.4
Colorado, Montana, Utah, Wyoming, and Idaho	6,207,000	6,057,000	20.0	36.0
California	22,830,000	22,830,000	31.4	38.2
Oregon and Washington	7,574,000	7,395,000	12.0	22.3
	269,387,000	262,709,000	23.6	29.6

Range of plant capacity for manufacture of finished portland cement in the United States in 1934

Estimated annual capacity, barrels:	Number of plants
Less than 1,000,000	41
1,000,000 to 1,999,000	86
2,000,000 to 2,999,000	24
Between 2,999,000 and 11,000,000	13

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The following estimates (based on the monthly reports of producers) of the relation between the production of finished portland cement and the manufacturing capacity of the industry for each month in 1934 and for the 12 months ended with each month indicate the seasonal changes in utilizing capacity.

Ratio (percent) of finished portland cement produced to manufacturing capacity of the United States, 1933-34

	Monthly		12 months ended—			Monthly		12 months ended—	
	1933	1934	1933	1934		1933	1934	1933	1934
January	12.9	16.6	27.6	23.9	July	37.6	35.7	26.3	26.9
February	13.4	20.2	27.1	24.4	August	35.9	34.5	26.5	26.8
March	16.1	23.0	26.7	25.0	September	25.5	34.8	25.5	27.6
April	18.9	29.6	26.2	25.9	October	22.1	29.3	24.5	28.3
May	27.4	37.5	26.0	26.7	November	21.2	26.2	23.9	28.7
June	35.2	39.8	26.0	27.1	December	15.5	19.5	23.6	29.0

The following table gives statistics of capacity by the two general methods—the “wet” and the “dry”—used in manufacturing portland cement at plants in the United States. The figures are based on the estimated capacity of the wet- and dry-process plants for the manufacture of finished cement. Statistics of production of both clinker and finished cement, by processes, appear on page 200.

Portland cement-manufacturing capacity of the United States, 1933-34, by processes

Process	Estimated capacity				Percent of capacity utilized		Percent of total finished cement produced	
	Barrels		Percent of total		1933	1934	1933	1934
	1933	1934	1933	1934				
Wet.....	124,962,000	124,010,000	46.4	47.2	24.2	30.9	47.6	49.3
Dry.....	144,425,000	138,699,000	53.6	52.8	23.0	28.4	52.4	50.7
	269,387,000	262,709,000	100.0	100.0	23.6	29.6	100.0	100.0

SPECIAL CEMENTS

Various types of cement for a number of specifications and uses are being manufactured and marketed in the United States in addition to the standard or "ordinary" portland cement, but many of them have not yet gained universally accepted names. These types have been developed in response to a demand for cement of certain pronounced qualities or characteristics, such as greater plasticity, high early strength, low heat of hardening, impermeability, and resistance to chemical action. With the increase in types manufactured, a wider variety of raw materials is being brought into use in the cement industry.

Such special cements as the white portland cement and plastic portland cement have long been produced and marketed in the United States and have been included in the statistics in this series of reports. The Bureau of Mines is not at liberty to publish separately either the figures on white portland cement or those on alumina cement, a hydraulic cement noted especially for its attainment of high strength at early periods. The latter also has been manufactured in the United States for some years.

For some time the producers have reported "mixed" and "improved" cements among the natural cements noted for their plasticity and much used in masonry.

Figures on special cements in the United States in 1934, as reported to the Bureau of Mines by producers, show the following:

High-early-strength portland cement produced in the United States in 1934, as reported by producers, totaled 2,235,570 barrels (including a small quantity manufactured under the trade name "Super", which is also high-early-strength cement), and shipments from the mills totaled 2,060,572 barrels valued at \$3,972,014, an average of \$1.93 per barrel. These figures represent the output of 46 of the portland-cement plants located in 20 States, as follows: One each in Illinois, Kentucky, Maine, Oklahoma, Tennessee, West Virginia, and Wyoming; two each in Alabama, Colorado, Indiana, Iowa, Michigan, Missouri, and Texas; three each in Ohio and Washington; four each in California, Kansas, and New York; and seven in Pennsylvania. Corresponding data for 1933, which represent the output of 43 plants in 22 States and include portland cement manufactured under the trade name "Super", are: Production, 1,207,559 barrels; shipments, 1,276,120 barrels valued at \$2,509,773, an average of \$1.97 per barrel. Progress in the use of this variety of cement in winter concreting operation in 1934 was possibly a factor in the increases of more than

85 and 61 percent, respectively, in production and shipments compared with 1933.

Masonry cement of the portland-cement class produced in 1934, as reported by producers, totaled 441,330 barrels and shipments from the mills 405,138 barrels valued at \$550,588, an average of \$1.36 per barrel; these figures represent the output of 33 plants in 11 States. Corresponding data for 1933, which represent the output of 34 plants in 14 States, are: Production, 398,289 barrels; shipments, 405,814 barrels valued at \$545,393, an average of \$1.34 per barrel.

So-called low-heat cement (including Tennessee Valley Authority type B portland cement) produced in 1934 totaled 1,293,672 barrels and shipments from the mills 1,105,616 barrels valued at \$1,567,467, an average of \$1.42 per barrel. Figures on low-heat and similar cements for 1933 were not shown separately but were included under "Miscellaneous."

Low-heat cement manufactured for and used by the United States Government in river jobs in the Middle West was reported by producers as used in the construction of Pine Canyon Dam, California, and in such projects as Boulder Dam, under construction by the Federal Government in Nevada.

It has been stated¹ in regard to type B cement, a specification developed for the Tennessee Valley Authority by the United States Bureau of Reclamation in Denver, Colo.:

This specification was along lines similar to that for low-heat cement being used in the construction of Boulder Dam but sufficiently modified to produce a cement which would make satisfactory concrete in both the winter and summer weather which prevails in the Tennessee Valley.

Type B cement is variously known as modified, moderate-heat, and sulphate-resistant.

Miscellaneous special cements produced in 1934 totaled 975,458 barrels and shipments from the mills 928,073 barrels valued at \$1,703,422, an average of \$1.84 per barrel. These totals include in addition to so-called oil-well portland cement, portland-puzzolan cements reported as high-silica cement and especially designed to resist the action of sea water, Tufa cement, etc. Corresponding data for 1933 are: Miscellaneous cement production, 680,187 barrels; shipments, 584,852 barrels valued at \$1,010,372, an average of \$1.73 per barrel.

MANUFACTURING CONDITIONS

Plants.—In 1934 portland cement was manufactured at 147 plants and shipments were made from 150 plants compared with 143 producing and 152 shipping plants in 1933.

Additional plants were reported to be under construction but not completed in Arkansas and Pennsylvania.

*Fuels.*²—The following quantities of fuel were consumed at portland-cement plants in the United States in 1934 in the production of 77,747,765 barrels of finished cement and 77,757,000 barrels of clinker (unground cement): Coal, 3,500,486 short tons; oil, 1,862,589 barrels (78,228,738 gallons); and natural gas, 27,330,962,027 cubic feet. Corresponding figures for 1933 are: Finished cement produced,

¹ Freeman, P. J., *The Present Status of Type B Cement After One Year's Experience: Pit and Quarry*, vol. 28, no. 1, July 1935, pp. 35-38.

² Data on fuels for 1933 and 1934, compiled from monthly estimates of the producers, include some revisions and a few estimates by the Bureau of Mines.

63,473,189 barrels, and clinker produced, 62,965,000 barrels; fuels consumed—coal 2,863,654 short tons, oil 1,555,451 barrels (65,328,942 gallons), and natural gas 22,000,951,600 cubic feet. Of the portland cement produced in 1934, 66.0 percent was burned with coal alone compared with 62.4 percent in 1933, 8.5 percent was burned with oil alone compared with 8 percent in 1933, and 7.8 percent was burned with natural gas alone compared with 6.7 percent in 1933.

As the annual statistics of the Bureau of Mines on portland cement deal principally with the finished product, estimates of fuel consumption are generally compared with the output of finished cement.

The average consumption of fuel per barrel of clinker produced at plants using a single fuel in 1934, which for that year does not differ greatly from the average fuel consumption per barrel of finished cement shown in the first table on page 200, was as follows: Coal, 129 pounds; oil, 0.2221 barrel; and natural gas, 1,639 cubic feet.

The second table on page 200 compares the output of clinker and finished cement in 1933 and 1934 with the estimated fuel consumption, by processes.

Coal was reported as the only fuel used at 98 plants in the United States in 1934 compared with 96 plants in 1933. Its use was reported by plants in all but three of the portland-cement-producing States. The apparent average consumption of coal per barrel of finished cement was 129.0 pounds in 1934 compared with 130.1 pounds in 1933. The 47 dry-process plants using coal as the only fuel in 1934 reported a total consumption of 1,738,393 short tons of coal in the manufacture of 27,341,273 barrels of finished cement (an average of 127.2 pounds per barrel) compared with a consumption in 1933 at 45 dry-process plants (where coal was reported as the only fuel used) of 1,339,370 short tons of coal in the manufacture of 21,047,534 barrels of finished cement (an average of 133.0 pounds per barrel). The 51 wet-process plants using coal alone as fuel in 1934 reported a total consumption of 1,475,102 short tons in the manufacture of 22,480,296 barrels of finished cement, an average of 131.2 pounds per barrel. In 1933, 51 wet-process plants using coal alone as fuel reported a total consumption of 1,176,108 short tons in the manufacture of 18,548,351 barrels of finished cement, an average of 126.8 pounds per barrel.

The 11 plants (in 4 States) using oil alone as fuel in 1934 reported a total consumption of 1,472,100 barrels of oil in the manufacture of 6,592,766 barrels of finished cement, an average of 0.2233 barrel (9.4 gallons) of oil per barrel of finished cement; in other words, 1 barrel of oil burned 4.5 barrels of cement. The average consumption of oil by the dry-process plants using oil alone as fuel was 0.2073 barrel (8.7 gallons) per barrel of finished cement and by the wet-process plants 0.2400 barrel (10.1 gallons) per barrel of finished cement. The use of oil in 1934 was reported at 13 additional plants which also used other fuel; 4 of these plants were east and 9 west of the Mississippi River.

Eleven plants reported natural gas as the only fuel used in 1934 compared with nine plants in 1933. The average consumption in 1934 was 1,585 cubic feet of gas per barrel of finished cement; the

corresponding figure for 1933 was 1,655 cubic feet. The average consumption of natural gas by the dry-process plants using that fuel alone in 1934 was 1,855 cubic feet per barrel of finished cement and by the wet-process plants 1,474 cubic feet. The use of natural gas was reported by 19 additional plants which also used other fuel in 1934 compared with 22 additional plants which also used other fuel in 1933. Natural gas was used as fuel at 30 plants in 11 States in 1934 compared with 31 plants in 11 States in 1933. The total quantity of natural gas consumed at portland-cement plants in 1934 increased more than 24 percent over 1933 compared with increases of 23 and 22 percent, respectively, in the total clinker and finished cement produced. Fifteen plants in five States reported the use of natural gas in 1927.

In addition to the foregoing fuels, one plant reported the use of manufactured gas in 1934, and six plants reported the use of petroleum coke with other fuels. The quantity of petroleum coke consumed at cement plants in 1934 was 23,170 short tons.

The two following tables show the quantities of natural gas and oil used at portland-cement plants in the United States in 1933 and 1934, by States, so far as permissible.

Natural gas used at portland-cement plants in the United States, 1933-34, by States, in cubic feet ¹

State	1933	1934
Kansas.....	3, 863, 783, 304	4, 667, 426, 069
Texas.....	3, 623, 040, 008	4, 513, 105, 200
Other States ²	14, 514, 128, 288	18, 150, 430, 753
	22, 000, 951, 600	27, 330, 962, 027

¹ Compiled from monthly estimates of the producers.

² 1933: Arkansas, California, Colorado, Iowa, Missouri, Nebraska, Oklahoma, Pennsylvania, and South Dakota; 1934: Same States as in 1933, except Pennsylvania.

Oil used at portland-cement plants in the United States, 1933-34, by States, in barrels of 42 gallons ³

1933:		1934:	
California.....	1, 090, 648	California.....	1, 311, 855
Other States ⁴	464, 803	Other States ⁴	550, 734
	1, 555, 451		1, 862, 589

³ Compiled from monthly estimates of the producers.

⁴ 1933: Florida, Indiana, Kansas, Louisiana, Minnesota, Nebraska, Oregon, Pennsylvania, Texas, and Washington; 1934: Same States as in 1933 with the omission of Indiana and Minnesota and the addition of Ohio.

Portland cement burned in the United States, 1933-34, by kinds of fuel

Fuel	Finished cement produced			Fuel consumed ¹		
	Number of plants	Barrels of 376 pounds	Percent of total	Coal (short tons)	Oil (barrels of 42 gallons)	Natural gas (cubic feet)
1933						
Coal ²	96	³ 39,595,885	62.4	2,575,478		
Oil.....	11	³ 5,071,987	8.0		1,133,375	
Natural gas.....	9	³ 4,252,520	6.7			7,039,660,640
Coal and oil ⁴	5	14,552,797	22.9	288,176	422,076	14,961,290,960
Coal and natural gas ⁵	14					
Oil and natural gas ⁶	3					
Coal, oil, and natural gas.....	5					
	143	63,473,189	100.0	7,286,654	1,555,451	22,000,951,600
1934						
Coal ⁸	101	³ 51,358,415	66.0	3,277,021		
Oil.....	11	³ 6,592,766	8.5		1,472,100	
Natural gas.....	11	³ 6,068,031	7.8			9,618,606,567
Coal and oil ⁴	5	13,728,553	17.7	223,465	390,489	17,712,355,460
Coal and natural gas ⁵	12					
Oil and natural gas.....	3					
Coal, oil, and natural gas.....	4					
	147	77,747,765	100.0	3,500,486	1,862,589	27,330,962,027

¹ Figures compiled from monthly estimates of the producers.

² In addition to the coal shown for this group 1 plant reported the use of petroleum coke with coal and 1 plant the use of coke-oven gas with coal.

³ Average consumption of fuel per barrel of cement produced was as follows: 1933—coal, 130.1 pounds; oil, 0.2235 barrel; natural gas, 1,655 cubic feet. 1934—coal, 129.0 pounds; oil, 0.2233 barrel; natural gas, 1,585 cubic feet.

⁴ In addition to the coal and oil included for this group 1 plant reported the use of petroleum coke with coal and oil.

⁵ In addition to the coal and natural gas included for this group: In 1933, 1 plant reported the use of petroleum coke with coal and natural gas; in 1934, 2 plants reported the use of petroleum coke with coal and natural gas and 1 plant the use of oil and petroleum coke with coal and natural gas.

⁶ In addition to the oil and natural gas included for this group 1 plant reported the use of petroleum coke with oil and natural gas.

⁷ Includes 72,323 short tons of anthracite and 2,791,331 short tons of bituminous coal.

⁸ In addition to the coal shown for this group 2 plants reported the use of petroleum coke with coal. The production figures for this group include the output of 1 plant which used coke-oven gas alone.

⁹ Includes 42,645 short tons of anthracite and 3,457,841 short tons of bituminous coal.

Finished portland cement and cement clinker (unground cement) produced and fuels used in the United States, 1933-34, by processes

Process	Clinker—				Finished cement produced			Fuel consumed ¹		
	Produced			In stock Dec. 31 (barrels)	Number of plants	Barrels of 376 pounds	Percent of total	Coal (short tons)	Oil (barrels of 42 gallons)	Natural gas (cubic feet)
	Number of plants	Barrels ¹ of 376 pounds	Percent of total							
1933										
Wet.....	80	30,382,000	48.2	3,215,000	80	30,226,531	47.6	2,195,764	939,672	14,150,106,692
Dry.....	61	32,583,000	51.8	2,502,000	63	33,246,658	52.4	1,667,890	615,779	7,850,844,908
	141	62,965,000	100.0	5,717,000	143	63,473,189	100.0	2,863,654	1,555,451	22,000,951,600
1934										
Wet.....	82	38,442,000	49.4	3,822,000	83	38,299,376	49.3	1,518,940	1,128,148	16,155,471,309
Dry.....	63	39,315,000	50.6	2,344,000	64	39,448,389	50.7	1,981,546	734,441	11,175,490,718
	145	77,757,000	100.0	6,166,000	147	77,747,765	100.0	3,500,486	1,862,589	27,330,962,027

¹ Figures compiled from monthly estimates of the producers.

² In addition to the coal shown for this group 1 plant reported the use of coke-oven gas with coal.

³ In addition to the coal shown for this group 1 plant reported the use of petroleum coke with coal.

⁴ Includes 72,323 short tons of anthracite and 2,791,331 short tons of bituminous coal.

⁵ Includes the output of 1 plant which manufactured from coke-oven gas only.

⁶ Includes 42,645 short tons of anthracite and 3,457,841 short tons of bituminous coal.

Electric power.—In connection with the statistics on fuels employed in the wet and dry processes of manufacture the following data on electrical energy used at portland-cement plants are of interest. The figures, which include some estimates, show the total electrical energy purchased and that generated by the plants. The figures given for comparison with 1934 are those for 1930, the only other year for which figures on electric power have been collected by the Bureau of Mines.

Electrical energy used at portland cement-producing plants in the United States, 1930 and 1934, by processes, in kilowatt-hours

Process	Electrical energy used						Finished cement produced	Average electrical energy used per barrel of cement produced
	Generated at portland-cement plants		Purchased		Total			
	Active plants ¹	Kilowatt-hours	Active plants	Kilowatt-hours	Kilowatt-hours	Per cent	Barrels	Kilowatt-hours
1930								
Wet.....	35½	587, 077, 234	69	845, 077, 258	1, 432, 154, 492	46. 8	73, 554, 129	19. 5
Dry.....	44½	1, 020, 513, 554	48	609; 609, 750	1, 630, 123, 304	53. 2	87, 643, 099	18. 6
Percent of total electrical energy used.....	80	1, 607, 590, 788	117	1, 454, 687, 008	3, 062, 277, 796	100. 0	161, 197, 228	19. 0
		52. 5		47. 5	100. 0			
1934								
Wet.....	35	382, 006, 670	67	475, 439, 748	857, 446, 418	50. 0	38, 299, 376	22. 4
Dry.....	37	559, 040, 924	48	299, 703, 177	858, 744, 101	50. 0	39, 448, 389	21. 8
Percent of total electrical energy used.....	72	941, 047, 594	115	775, 142, 925	1, 716, 190, 519	100. 0	77, 747, 765	22. 1
		54. 8		45. 2	100. 0			

¹ 1 wet mill and 1 dry mill in the same plant are each counted as half a plant.

NATURAL, MASONRY (NATURAL), AND PUZZOLAN CEMENTS

The term "masonry cement" is used here to designate certain cements made, as are natural cements, by grinding calcined calcareous rock and used largely in mortar for laying brick and stone, although other hydraulic cements are also suitable for masonry and are being manufactured for this purpose in increasing quantities.

Natural cement (including masonry cement of the natural-cement class and hydraulic lime) was produced at and shipments were made from 11 plants in 1934. The plants engaged in the manufacture of natural cement are located at Utica, Ill.; Speed, Ind.; Fort Scott, Kans.; Kosmosdale, Ky.; Austin and Mankato, Minn.; Brixment and Rosendale, N. Y.; Lisbon, Ohio; and Siegfried, Pa.

Two producers (with one plant each, located, respectively, at Riverton, Va., and Highcliff, Wis.) reported an output of hydraulic lime in 1934.

Three manufacturers (with one plant each, located, respectively, at Birmingham and Graystone, Ala., and Bessemer, Pa.) reported an output of puzzolan-lime or slag-lime cement in 1934.

The following table on natural, masonry (natural), and puzzolan cements from 1930 to 1934 shows a production of 671,588 barrels in 1934, an increase of 43.9 percent over 1933. Shipments from mills increased 56.8 percent in quantity and 68.1 percent in gross value in 1934. Stocks at mills at the end of the year were 3.6 percent lower in 1934 than in 1933. The average factory value per barrel of the cement shipped from mills was \$1.42 in 1934 and \$1.32 in 1933.

Like portland cement, these cements are packed four sacks to the barrel, and each sack holds about 1 cubic foot. The lower specific gravity of the nonportland cements accounts for their lighter weight per barrel. In 1934 the weights reported ranged from 220 to 320 pounds. For statistical purposes, however, the output has been expressed in terms of 376-pound barrels to correspond with the figures for portland cement.

Producers reported that 9,181 short tons of coal and 923 short tons of coke were consumed in 1934 in manufacturing these cements; they also reported the use of a small quantity of gas having a total fuel value equivalent to about 23 short tons of coal. The fuel consumed in 1933 consisted of 6,288 short tons of coal and of small quantities of coke and gas having a total fuel value equivalent to about 1,518 short tons of coal.

At natural-cement plants in the United States where coal was reported as the only fuel used the average consumption of coal per barrel (376 pounds) of cement was 51 pounds in 1934 compared with 49 pounds in 1933.

In addition to the statistics of puzzolan-lime cement here included, reported as manufactured from granulated blast-furnace slag and lime, the statistics of portland and special portlands include, under the names by which they were reported by the producers, figures on the output of certain portland cements in which an active siliceous material (puzzolan) is a part of the manufacture. Figures on portland-puzzolanic cements, classified under the various names by which they were reported by the producers, such as "High-Silica" cement, Tufa cement, etc., are given on page 197.

Natural, masonry (natural), and puzzolan cements produced, shipped, and in stock at mills in the United States, 1930-34

Year	Production		Shipments		Stock (Dec. 31)
	Active plants	Barrels (376 pounds)	Barrels (376 pounds)	Value	Barrels (376 pounds)
1930.....	11	1,792,083	1,787,016	\$2,469,531	202,416
1931.....	12	1,241,803	1,226,850	1,619,920	224,100
1932.....	15	456,785	524,844	696,474	150,164
1933.....	13	466,632	432,415	571,648	¹ 182,686
1934.....	14	671,588	678,204	960,732	176,070

¹ Revised figures.

FOREIGN TRADE IN CEMENT⁵

Imports.—The figures in the following tables cover imports of hydraulic cement of all kinds. Total imports in 1934 decreased 44 percent compared with 1933.

The average of the values assigned to imports, supposed to represent values in the foreign countries from which the material is exported, including the cost of the containers or coverings, ranged from \$0.56 per barrel for imports from the U. S. S. R. (Russia in Europe) to \$3.10 per barrel for imports from Canada.

"Roman, portland, and other hydraulic" cements imported into the United States, 1933-34, by countries and districts¹

COUNTRY	1933		1934	
	Barrels	Value	Barrels	Value
Belgium.....	154,953	\$111,707	106,326	\$95,548
Canada.....	857	2,665	2,334	7,245
Cuba.....	1,516	2,589		
Denmark.....	221,071*	188,673	92,195	97,356
France.....	1,032	2,555	403	464
Germany.....	15,188	12,559	2,516	3,246
Italy.....			6	13
Japan.....	19,092	17,782	18,901	20,248
Mexico.....			306	705
Netherlands.....	588	536		
Norway.....	3,004	2,540	8,105	6,287
Poland and Danzig.....	3,417	3,015	7,037	6,827
Sweden.....	607	474		
U. S. S. R. (Russia in Europe).....			14,653	8,250
United Kingdom.....	51,225	43,365	9,057	7,586
	472,550	388,460	261,844	253,775
DISTRICT				
Alaska.....			93	246
Dakota.....	3	11		
Florida.....	1,849	1,511	10,063	12,360
Galveston.....			600	516
Hawaii.....	16,818	15,557	16,918	18,170
Los Angeles.....	3,805	4,758	1,853	1,994
Maine and New Hampshire.....	1,403	2,800	1,634	5,379
Maryland.....	426	375		
Massachusetts.....	79,012	55,169	77,146	65,840
Mobile.....	498	313	1,397	1,212
New Orleans.....			200	172
New York.....	205,614	182,778	91,645	91,970
Oregon.....	10,202	7,207	7,901	6,129
Philadelphia.....	3,487	2,725	25	17
Puerto Rico.....	140,471	108,356	44,912	41,813
Sabine.....	5,050	3,775	2,996	2,600
St. Lawrence.....	178	418	418	1,035
San Antonio.....			3,456	3,438
San Diego.....	2,451	1,382	127	97
San Francisco.....	263	149	136	97
Vermont.....	23	56	177	491
Washington.....	997	1,120	147	199
	472,550	388,460	261,844	253,775

¹ Data on total imports in 1934 and 1933 may not be strictly comparable due to the change made by the Bureau of Foreign and Domestic Commerce, beginning January 1934, in its system of reporting imports. For 1933 and earlier years the figures represent "general imports" and cover goods imported for immediate consumption plus goods entering the country under bond, whereas totals for 1934 represent "imports for consumption" and include goods imported for immediate consumption plus withdrawals from bonded warehouses.

⁵ Figures on imports and exports compiled by Claude Galliher, of the Bureau of Mines, from records of the Bureau of Foreign and Domestic Commerce.

In addition to the imports listed in the preceding table "white, nonstaining portland cement" was reported "imported for consumption", as follows: 1934, 4,153 barrels valued at \$10,641, of which 3,646 barrels valued at \$8,668 came from France; 1933, 5,244 barrels valued at \$12,162, of which 4,508 barrels valued at \$9,450 came from France.

Hydraulic cement imported for consumption in the United States, 1930-34

Year	Barrels	Value	Year	Barrels	Value
1930.....	984, 807	\$1, 154, 562	1933.....	477, 193	\$400, 153
1931.....	469, 598	535, 773	1934.....	265, 997	264, 416
1932.....	468, 139	363, 247			

Exports.—In 1934 total exports of hydraulic cement (mostly portland cement) to foreign countries, the Philippine Islands, and the Virgin Islands of the United States decreased nearly 17 percent in quantity and more than 10 percent in value compared with 1933. The decrease by destinations was not general; virtually all the West Indies and the South and Central American countries (except Panama, where a decrease of nearly 49 percent was recorded) showed noteworthy increases in quantity received. The destinations in 1934 were approximately as follows: South America, 161,000 barrels; Central America, 275,000 barrels (of which 239,000 barrels went to Panama, including the Canal Zone); Mexico, 75,000 barrels; Cuba, 3,000 barrels; other West Indies and Bermuda, 26,000 barrels; Canada, 6,000 barrels; and other countries, 20,000 barrels.

Although the United States is the major cement-producing country of the world, its export trade has never attained large proportions; since 1925 it has been under 1,000,000 barrels.

The total exported in 1934 was 0.7 percent of the total quantity of hydraulic cement shipped from mills during the year and was the largest (except in 1933) since 1930.

The value of exports of domestic cement is their actual cost, when exported, at United States ports of export, as declared by the shipper on the export declarations. The average value at the ports was \$2.36 a barrel in 1934 compared with \$2.19 in 1933.

Hydraulic cement exported from the United States, 1933-34, by countries

Country	1933		1934	
	Barrels	Value	Barrels	Value
North America:				
Bermuda.....	97	\$274	1, 046	\$1, 762
Canada.....	3, 841	18, 726	6, 350	27, 922
Central America:				
British Honduras.....	270	445	1, 955	2, 793
Costa Rica.....	1, 430	1, 936	2, 782	5, 230
Guatemala.....	451	1, 763	1, 046	3, 255
Honduras.....	25, 846	34, 298	29, 420	37, 632
Nicaragua.....	398	1, 384	1, 138	2, 828
Panama.....	466, 243	917, 290	238, 936	516, 971
Salvador.....	199	877	106	502
Mexico.....	44, 468	120, 822	74, 610	166, 603
Newfoundland and Labrador.....	420	778	924	1, 737

Hydraulic cement exported from the United States, 1933-34, by countries—Contd.

Country	1933		1934	
	Barrels	Value	Barrels	Value
North America—Continued.				
West Indies:				
British:				
Jamaica.....	62	\$208	96	\$439
Trinidad and Tobago.....	25	147	12	88
Other British.....	2,136	4,177	3,202	5,560
Cuba.....	2,784	5,913	3,425	11,837
Dominican Republic.....	1,816	2,965	5,893	10,275
French.....	426	969	25	44
Haiti.....	2,279	3,664	495	1,240
Netherland.....	6,230	8,433	14,114	23,235
Virgin Islands of the United States.....	787	1,715	857	1,605
	560,208	1,126,784	386,432	821,559
South America:				
Argentina.....	19,103	80,651	22,183	94,472
Bolivia.....	96	503	95	491
Brazil.....	8,783	46,174	12,711	62,939
Chile.....	952	5,600	2,419	14,146
Colombia.....	14,741	38,613	32,341	71,402
Ecuador.....	774	3,310	802	3,799
Guiana: French.....	330	710	330	710
Paraguay.....			50	256
Peru.....	365	1,704	1,139	3,921
Uruguay.....	3,399	16,127	3,388	14,773
Venezuela.....	54,805	91,444	85,220	153,170
	103,348	284,836	160,678	420,079
Europe:				
Azores and Madeira Islands.....			10	58
Belgium.....	1,466	6,455	614	2,844
France.....	38	81		
Germany.....			60	188
Greece.....			3	15
Irish Free State.....			357	1,504
Netherlands.....	354	1,882	453	2,580
Norway.....	150	848	163	973
Portugal.....	20	56		
Sweden.....	16	88	16	88
United Kingdom.....	6,672	26,489	5,019	19,742
	8,716	35,899	6,695	27,992
Asia:				
Aden.....	15	79	25	150
Arabia.....			25	131
China.....	810	4,602	576	3,384
East Indies:				
British:				
India.....	1,737	8,317	2,228	10,953
Malaya.....	165	734	641	2,943
Netherland.....			79	376
Hong Kong.....	30	179		
Iran (Persia).....			375	1,706
Japan.....			59	649
Kwantung.....			40	222
Palestine.....	2,743	13,340	6,462	33,638
Philippine Islands.....	524	3,182	168	963
Other Asia.....	775	3,779	625	3,156
	6,799	34,212	11,303	58,271
Africa:				
British:				
Union of South.....	664	3,495	100	540
Other South.....	4	24		
Portuguese:				
Mozambique.....	125	597		
Other Portuguese.....	67	142	1	3
	860	4,258	101	543
Oceania:				
British:				
Australia.....	105	436	546	2,535
New Zealand.....	250	1,230	416	2,402
Other British.....	21	52		
	376	1,718	962	4,937
	680,307	1,487,707	566,171	1,333,384

Domestic hydraulic cement shipped to Alaska, Hawaii, and Puerto Rico, 1933-34

	1933		1934	
	Barrels	Value	Barrels	Value
Alaska.....	14,037	\$37,679	20,494	\$56,352
Hawaii.....	152,560	339,103	232,959	467,596
Puerto Rico.....	99,001	118,353	233,721	323,318
	265,598	495,135	487,174	847,266

Hydraulic cement exported from the United States, 1930-34

Year	Barrels	Value	Percent of total shipments from mills	Year	Barrels	Value	Percent of total shipments from mills
1930.....	755,778	\$2,454,515	0.5	1933.....	680,307	\$1,487,707	1.1
1931.....	429,653	1,220,600	.3	1934.....	566,171	1,333,381	.7
1932.....	374,581	802,205	.5				

WORLD PRODUCTION

The accompanying table, copied from the Statistical Year Book of the League of Nations, 1934-35,⁶ gives data on the cement output of the world from 1930 to 1934. The figures are in thousands of metric tons (1 metric ton equals 2,204.6 pounds). The following statement prefaces the year book.

Throughout this volume the sign "—" indicates that the figure is nil or negligible, ". . ." indicates that the figures are not yet published, "." that information is not available or is nonexistent, and "*" that the figures are provisional or estimated. Decimal figures are preceded in the tables by a full stop and not a comma.

In 1932, the latest year for which figures are available for most of the countries of the world, the principal cement-producing countries were, in order, as follows: The United States, France, the United Kingdom, Japan (including Korea, Formosa, and Kwantung), U. S. S. R. (Russia), Italy, Germany, and Belgium. In that year the United States produced nearly 27 percent of the estimated production of the world.

⁶ League of Nations, Statistical Year Book, 1934-35: Geneva, 1935, p. 127.

Cement production, in thousands of metric tons

Country	1930	1931	1932	1933	1934 ¹
Africa	529	541	...	...	...
Algeria.....	68	77	...	...	...
Belgian Congo.....	64	45	16	11	10
Egypt.....	300	245	243	250	297
Morocco (French).....	74	150	220	201	184
Mozambique.....	23	24	25	21	...
Union of South Africa ².....	...	...	...	...	...
North America	29,670	23,223	13,903	11,288	13,903
Canada.....	1,872	1,619	737	383	553
United States.....	27,798	21,604	13,166	10,905	13,350
Central America (Mexico).....	...	...	...	...	...
South America^{1,3}	657	833	783	906	...
Argentina.....	384	536	501	514	...
Brazil.....	87	167	149	226	324
Chile.....	161	102	112	139	203
Peru.....	25	28	21	27	46
Asia (excluding U. S. S. R.)^{1,4}	5,000	4,950	5,000	6,200	6,600
China ⁵	178	235	192	270	...
French Indo-China.....	168	152	171	113	115
India.....	573	588	592	623	749
Japan ⁶	3,748	3,615	3,731	4,784	5,019
Netherland Indies.....	142	130	80	74	113
Palestine.....	78	84	100	135	143
Philippines.....	100	95	114	95	...
U. S. S. R.	3,115	3,336	3,481	2,732	3,600
Europe (excluding U. S. S. R.)¹	31,900	28,470	24,820	26,000	6,600
Austria.....	602	500	350	280	815
Belgium ⁷	3,050	2,465	2,100	1,950	1,900
Bulgaria.....	174	104	139	121	130
Czechoslov ¹	1,195	1,200	1,081	850	...
Denmark.....	779	509	415	554	770
Estonia.....	47	41	30	30	26
Finland.....	203	162	154	163	...
France.....	4,989	4,908	5,028	...	...
Germany ⁸	5,511	3,711	2,785	3,484	...
Greece.....	180	195	196	200	248
Hungary.....	329	296	197	179	...
Italy.....	3,482	3,077	3,177	3,535	4,018
Latvia.....	70	71	50	52	67
Netherlands.....	224	200	254	360	394
Norway.....	321	220	235	222	1,250
Poland.....	822	546	354	411	718
Portugal.....	99	95	121	164	185
Roumania.....	396	196	213	...	...
Saar.....	161	126	93	111	155
Spain.....	1,839	1,630	1,425	1,407	...
Sweden.....	611	518	484	403	1,600
Turkey.....	57	100	108	...	...
United Kingdom.....	5,111	5,986	4,320	4,470	5,280
Other countries ¹	1,640	1,610	1,500	1,600	...
Oceania^{1,4}	900	550	400	500	...
Australia ⁹	708	396	251	326	...
Total¹	72,000	62,200	49,300	48,500	...

¹ Estimated.² Country not included in the totals.³ South America: The U. S. Department of Commerce estimated total production in 1927 at 570,000 tons.⁴ Asia, Oceania: Total includes estimate for other countries not mentioned.⁵ China: Total shipments from "Customs ports" in China excluding Manchuria.⁶ Japan: Including Korea, Formosa, and Kwantung.⁷ Belgium: Artificial cement.⁸ Germany: Works affiliated to the German Cement Association.⁹ 12 months ending June 30.

NOTE.—The table covers, as far as possible, the total of natural cements and artificial cements, portland or other.

SOURCES.—National official statistics.

CEMENT IN CANADA

The cement industry in Canada began with the manufacture of hydraulic or natural rock cement. According to the Dominion Bureau of Statistics the first production was probably at Hull, Quebec, between 1830 and 1840. The manufacture of portland cement began about 1889. Owing to its superior uniformity and strength, it soon superseded the older product. Production declined greatly from 1929 to 1933 but recovered somewhat in 1934.

The mill shipments of portland cement from plants in Canada in 1934 were 3,783,226 barrels valued at \$5,667,946 compared with 3,007,432 barrels valued at \$4,536,935 in 1933, an increase of 25.8 percent in quantity and 24.9 percent in value. The average selling price per barrel over the whole Dominion, computed from the total quantity sold and the total value as given, was \$1.50 in 1934 and \$1.51 in 1933.

Cement is produced in the Provinces of Quebec, Ontario, Manitoba, Alberta, and British Columbia. In 1934 mills in Quebec produced 43 percent of the total Canadian shipments; in Ontario, 45 percent; in Manitoba, 5 percent; in Alberta, 4 percent; and in British Columbia, 3 percent.

In 1934 the Canadian cement industry consumed 806,546 tons of limestone and 19,172 tons of gypsum, from which were manufactured 3,484,233 barrels of cement. At the close of 1934 the plants had on hand 1,562,501 barrels of cement or nearly 300,000 barrels less than the quantity on hand at the beginning of the year.

Imports of portland cement into Canada totaled 14,341 barrels (estimated at 350 pounds each) having an average value of \$3.18 per barrel in 1934 compared with 19,119 barrels averaging \$1.98 per barrel in 1933 and 21,350 barrels averaging \$2.72 per barrel in 1932.

Exports of portland cement amounted to 70,046 barrels valued at \$55,181 in 1934 compared with 52,531 barrels valued at \$47,369 in 1933. Whereas Canada was an importer of portland cement in pre-war years, she is now an exporter of this commodity.

*Summary statistics of the cement industry in Canada, 1933-34*¹

	1933		1934	
	Barrels	Value	Barrels	Value
Output.....	2, 410, 518		3, 484, 233	
Sales:				
Quebec.....	1, 517, 555	\$2, 128, 900	1, 613, 641	\$2, 294, 847
Ontario.....	1, 005, 845	1, 587, 812	1, 702, 128	2, 403, 590
Manitoba.....	129, 540	295, 351	181, 166	411, 247
Alberta.....	149, 206	299, 530	163, 946	326, 253
British Columbia.....	115, 286	225, 342	122, 345	232, 009
	3, 007, 432	4, 536, 935	3, 783, 226	5, 667, 946
Stocks, Dec. 31.....	1, 830, 928		1, 562, 501	
Imports:				
Portland.....	19, 119	37, 768	14, 341	45, 548
Manufactures.....		4, 971		4, 167
		42, 739		49, 715
Exports.....	52, 531	47, 369	70, 046	55, 181
Apparent consumption.....	2, 974, 020		3, 727, 521	

¹ Dominion Bureau of Statistics.

GOLD, SILVER, COPPER, LEAD, AND ZINC IN ARIZONA

(DETAILED STATISTICS—MINE REPORT)

By C. N. GERRY AND PAUL LUFF¹

SUMMARY OUTLINE

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The output of gold, silver, copper, lead, and zinc from mines in Arizona in 1934, in terms of recovered metals, was 167,024.12 fine ounces of gold, 4,448,474 fine ounces of silver, 178,082,213 pounds of copper, 6,877,216 pounds of lead, and 1,810,279 pounds of zinc. There were 747 lode mines and 867 placers producing in 1934 compared with 399 lode mines and 179 placers in 1933.

From 1903 to the end of 1934 mines in Arizona have produced 352,095,817 tons of ore, etc., 5,689,142.31 fine ounces of gold, 147,313,845 fine ounces of silver, 14,228,068,371 pounds of copper, 362,429,372 pounds of lead, and 139,754,565 pounds of zinc. The total value of the metal output for this period is \$2,556,371,201, of which \$2,302,409,867 represents the value of copper, \$120,380,824 the value of gold, and \$98,784,679 the value of silver.

Calculation of value of metal production.—The value of metal production herein reported has been calculated at the figures given in the table that follows. Gold in 1930–32 is figured at \$20.671835 per ounce, the Treasury legal coinage value for fine gold from January 18, 1835, to January 31, 1934; in 1933 at \$25.56 and in 1934 at \$34.95 per ounce, the average weighted yearly United States Government prices.² The silver price in 1930–33 is the average New York price for bar silver; in 1934 the Treasury buying price for newly mined silver, \$0.64646464+ per ounce. The copper, lead, and zinc prices are weighted averages, for each year, of all grades of primary metal sold by producers.

¹ Assisted by Jeannette Froiseth and LaRu Shepherd.

² The Treasury from Feb. 1, 1934, through December 1934 has calculated all gold, old and new, at \$35.00 per ounce, under authority of the Gold Reserve Act of Jan. 31, 1934. Details of the U. S. Government fluctuating price of gold in 1933 to Jan. 31, 1934, may be found in *Minerals Yearbook, 1934*, pp. 25–28.

Prices of gold, silver, copper, lead, and zinc, 1930-34

Year	Gold	Silver	Copper	Lead	Zinc
	<i>Per fine ounce</i>	<i>Per fine ounce</i>	<i>Per pound</i>	<i>Per pound</i>	<i>Per pound</i>
1930-----	¹ \$20.67+	\$0.385	\$0.130	\$0.050	\$0.048
1931-----	¹ 20.67+	.290	.091	.037	.038
1932-----	¹ 20.67+	.282	.063	.030	.030
1933-----	25.56	.350	.064	.037	.042
1934-----	34.95	² .646+	.080	.037	.043

¹ \$20.671835.² \$0.6464644.*Mine production of gold, silver, copper, lead, and zinc in Arizona, 1930-34, in terms of recovered metals*

Year	Mines producing		Ore, old tailings, etc. (short tons)	Gold (lode and placer)		Silver (lode and placer)	
	Lode	Placer		Fine ounces	Value	Fine ounces	Value
1930-----	301	41	19,802,919	169,390.38	\$3,501,610	5,540,732	\$2,133,182
1931-----	252	68	13,690,610	126,185.94	2,608,495	3,245,311	941,140
1932-----	341	179	4,414,579	66,789.67	1,380,665	2,082,823	587,356
1933-----	399	179	995,728	79,992.61	¹ 2,044,611	2,390,363	836,627
1934-----	747	867	3,270,242	167,024.12	5,837,493	4,448,474	2,875,781

Year	Copper		Lead		Zinc		Total value
	Pounds	Value	Pounds	Value	Pounds	Value	
1930-----	576,190,607	\$74,904,779	8,491,623	\$424,581	1,630,506	\$78,264	\$81,042,416
1931-----	401,344,909	36,522,387	1,964,112	72,672	-----	-----	40,144,694
1932-----	182,491,825	11,496,985	2,364,300	70,929	-----	-----	13,535,935
1933-----	114,041,781	7,298,674	3,442,540	127,374	11,024	463	¹ 10,307,749
1934-----	178,082,213	14,246,577	6,877,216	254,457	1,810,279	77,842	23,292,150

¹ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

Gold and silver produced at placer mines in Arizona, 1930-34, in fine ounces, in terms of recovered metals

Year	Sluicing		Dry-land dredges ¹		Floating dredges		Total	
	Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver
1930-----	631.63	85	-----	-----	-----	-----	631.63	85
1931-----	1,069.23	157	-----	-----	-----	-----	1,069.23	157
1932-----	3,479.76	454	-----	-----	-----	-----	3,479.76	454
1933-----	3,671.45	424	257.73	18	1,200.94	161	5,130.12	603
1934-----	4,066.45	669	431.81	33	2,484.00	336	6,982.26	1,038

¹ Drag-line and power-shovel excavators with sluices or special amalgamators.

Gold.—The output of gold in Arizona in 1934 was 167,024.12 fine ounces, more than double the output (79,992.61 ounces) in 1933. Gold recovered at placers amounted to 6,982.26 ounces (1,852.14 ounces more than in 1933) and accounted for 4 percent of the State total; most of the increase resulted from operation of the floating dredge on Lynx Creek by the Lynx Creek Placer Mine Co. and operation of the Phoenix Lynx Creek Placers near Prescott, the Savoy

property near Mayer, and claims in the Plomosa, Weaver, Copper Basin, and Warren districts. More than 45 percent of the total gold came from copper ore, chiefly from the Copper Queen branch of the Phelps Dodge Corporation at Bisbee, the New Cornelia mine at Ajo, the Magma property at Superior, and the United Verde Extension mine at Jerome; the yield from copper ore increased from 47,410.62 ounces in 1933 to 76,092.34 ounces in 1934. Dry and siliceous gold ore, etc., yielded 74,298.78 ounces of gold (44.5 percent of the State total and an increase of 50,478.79 ounces), chiefly from the Tom Reed and Big Jim mines at Oatman, the Lake Superior & Arizona Lease at Superior, the Gold Standard at Katherine, the Sheeptanks mine near Vicksburg, the Hillside property near Hillside, the Gladstone-McCabe group at Humboldt, and the Molybdenum Gold Mining Co. at Mammoth. Other classes of ore (dry and siliceous silver, dry and siliceous gold and silver, lead, lead-zinc, and copper-lead) yielded only 6 percent of the total.

The Copper Queen branch of the Phelps Dodge Corporation at Bisbee was by far the largest producer of gold in Arizona in 1934 and was followed by the Lake Superior & Arizona Lease, New Cornelia mine, Magma mine, United Verde Extension property, and Tom Reed mine; these six properties produced 57 percent of the State total, and each yielded more than 7,000 ounces. Others producing more than 2,000 ounces were: Gold Standard, Sheeptanks, Big Jim, Hillside, Gladstone-McCabe, Tombstone (Bunker Hill), United American, Eagle-Picher (Montana), Lynx Creek dredge, and Molybdenum Gold properties.

Silver.—The output of silver in Arizona was 4,448,474 fine ounces in 1934 compared with 2,390,363 ounces in 1933, an increase of more than 2,058,000 ounces but less than the average annual output (5,352,891 ounces) for the decade 1925-34. The largest increase in silver (more than 1,000,000 ounces) was made by the Copper Queen branch of the Phelps Dodge Corporation. Copper ore, etc., yielded 77.76 percent of the total silver; dry and siliceous ore, etc., 14.15 percent; and lead ore and lead-zinc ore, 8.05 percent, or nearly all the remainder. There were increases of 1,345,417 ounces in silver from copper ore, etc.; 493,460 ounces from dry and siliceous ore, etc.; 188,551 ounces from lead-zinc ore; and 29,232 ounces from lead ore.

The Copper Queen branch of the Phelps Dodge Corporation at Bisbee produced more than half the State's total silver. Other large producers were the Magma mine at Superior, the Tombstone (Bunker Hill) property at Tombstone, the United Verde Extension mine at Jerome, the Eagle-Picher (Montana) property at Ruby, the New Cornelia mine at Ajo, and the Hillside property near Hillside.

Copper.—The output of copper in Arizona was 178,082,213 pounds in 1934 compared with 114,041,781 pounds in 1933, an increase of 56 percent; the average annual output for the decade 1925-34 was 513,389,828 pounds. More than 99 percent of the total copper in 1934 came from copper ore and most of the remainder from dry and siliceous ores and from precipitates. The marked increase in copper from copper ore was due to resumption of operations at the New Cornelia and Miami properties in July and to large increases in output of copper ore from the Copper Queen branch of the Phelps Dodge Corporation and the Magma mine. The Shattuck Denn Mining Corporation resumed operations at its copper mine (Denn) in October,

but the production of copper was comparatively small. The output of copper from the United Verde Extension mine decreased about 7,000,000 pounds. Several of the large copper properties in Arizona remained idle throughout the year.

The Copper Queen branch of the Phelps Dodge Corporation at Bisbee was by far the largest producer of copper in Arizona in 1934 and was followed by the New Cornelia mine (also owned by the Phelps Dodge Corporation) at Ajo, the Magma Copper Co. at Superior, the United Verde Extension mine at Jerome, and the Miami Copper Co. at Miami; these five properties produced 99 percent of the State total.

Lead.—The output of lead in Arizona in 1934 was 6,877,216 pounds, nearly double the output (3,442,540 pounds) in 1933 but considerably less than the average annual output (12,057,513 pounds) for the decade 1925-34. The large increase in 1934 was due chiefly to resumption in August of milling of lead-zinc-silver ore by the Eagle-Picher Mining & Smelting Co. at Ruby (idle since July 15, 1930) and to the increase in output of smelting lead-silver-gold ore from the Tombstone (Bunker Hill) property at Tombstone. Lead-zinc ore yielded 49 percent of the total lead, lead ore 40 percent, and dry and siliceous gold ore and dry and siliceous silver ore most of the remainder. There were increases of 3,340,233 pounds in lead from lead-zinc ore and 537,970 pounds from dry and siliceous gold ore and dry and siliceous silver ore; there was, however, a decrease of 469,189 pounds from lead ore, due chiefly to the decrease in shipments of lead ore from the "79" mine near Winkelman.

The largest producers of lead in Arizona in 1934 were the Eagle-Picher Mining & Smelting Co. and the Tombstone Extension and Tombstone (Bunker Hill) properties; these three produced more than 83 percent of the State total. Other fairly large producers of lead were the "79", Golden Turkey, Molybdenum Gold Mining Co., and Golden Belt properties.

Zinc.—The output of zinc in Arizona was 1,810,279 pounds in 1934 compared with 11,024 pounds in 1933; no zinc was produced in 1931 or 1932. Nearly all the zinc produced in 1934 was recovered from lead-zinc-[silver] ore from the property of the Eagle-Picher Mining & Smelting Co. at Ruby, Santa Cruz County; a little zinc was produced from a property on Stockton Hill north of Kingman, Mohave County.

MINE PRODUCTION BY COUNTIES

Mine production of gold, silver, copper, lead, and zinc in Arizona in 1934, by counties, in terms of recovered metals

County	Mines producing			Ore, old tailings, etc. (short tons)	Gold						Silver					
					Lode		Placer		Total		Lode		Placer		Total	
	Lode	Placer	Total		Fine ounces	Value	Fine ounces	Value	Fine ounces	Value	Fine ounces	Value	Fine ounces	Value	Fine ounces	Value
	Cochise.....	81	49		130	546,320	54,404.72	\$1,901,445	311.39	\$10,883	54,716.11	\$1,912,328	2,630,170	\$1,700,312	73	\$47	2,630,243	$1,700,359
Gila.....	31	13	44	359,673	654.85	22,887	105.12	3,674	759.97	26,561	9,920	6,413	28	18	9,948	6,431
Graham.....	6	1	7	39	20.46	715	.77	27	21.23	742	116	75	-----	-----	116	75
Greenlee.....	12	25	37	766	437.71	15,298	101.69	3,554	539.40	18,852	5,787	3,741	20	13	5,807	3,754
Maricopa.....	35	33	68	54,153	5,627.24	196,672	116.88	4,085	5,744.12	200,757	8,047	5,202	23	15	8,070	5,217
Mohave.....	85	19	104	139,267	25,345.84	885,337	89.21	3,118	25,435.05	888,955	41,795	27,019	17	11	41,812	27,030
Pima.....	119	48	167	1,480,798	11,773.16	411,472	201.06	7,027	11,974.22	418,499	148,364	95,912	37	24	148,401	95,936
Pinal.....	82	4	86	316,084	25,455.42	889,667	39.23	1,371	25,494.65	891,038	878,529	567,938	11	7	878,540	567,945
Santa Cruz.....	57	7	64	36,527	3,069.27	107,271	28.87	1,009	3,098.14	108,280	196,710	127,166	3	2	196,713	127,168
Yavapai.....	186	316	502	315,552	27,620.57	965,339	5,064.58	177,007	32,685.15	1,142,346	510,331	329,911	707	457	511,038	330,368
Yuma.....	53	352	405	21,063	5,632.62	196,860	923.46	32,275	6,556.08	229,135	17,667	11,421	119	77	17,786	11,488
Total, 1933..	747	867	1,614	3,270,242	160,041.86	5,593,463	6,982.26	244,030	167,024.12	5,837,493	4,447,436	2,875,110	1,038	671	4,448,474	2,875,781
	399	179	578	995,728	74,862.49	1,913,485	5,130.12	131,126	79,992.61	2,044,611	2,389,760	836,416	603	211	2,390,363	836,627

County	Copper		Lead		Zinc		Total value		
	Pounds	Value	Pounds	Value	Pounds	Value	Lode	Placer	Lode and placer
	Cochise.....	71,239,037	\$5,699,123	2,583,189	\$95,578	-----	-----	\$9,396,458	\$10,930	$9,407,388
Gila.....	14,326,075	1,146,086	192,405	7,119	-----	-----	1,182,605	3,692	1,186,197
Graham.....	75	6	1,270	47	-----	-----	843	27	870
Greenlee.....	11,175	894	514	19	-----	-----	19,952	3,567	23,519
Maricopa.....	35,838	2,867	1,973	73	-----	-----	204,814	4,100	208,914
Mohave.....	46,650	3,732	52,973	1,960	10,698	\$460	919,008	3,129	922,137
Pima.....	33,108,713	2,648,697	62,027	2,295	-----	-----	3,158,376	7,051	3,165,427
Pinal.....	32,756,850	2,620,548	148,595	5,498	-----	-----	4,083,651	1,378	4,085,029
Santa Cruz.....	151,975	12,158	3,378,405	125,001	1,799,581	77,382	448,978	1,011	449,989
Yavapai.....	26,397,887	2,111,831	454,108	16,802	-----	-----	3,423,883	177,464	3,601,347
Yuma.....	7,938	635	1,757	65	-----	-----	208,981	32,352	241,333
Total, 1933..	178,082,213	14,246,577	6,877,216	254,457	1,810,279	77,842	23,047,449	244,701	23,292,150
	114,041,781	7,298,674	3,442,540	127,374	11,024	463	10,176,412	131,337	10,307,749

! Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

GOLD, SILVER, COPPER, LEAD, AND ZINC IN ARIZONA 213

Gold and silver produced at placer mines in Arizona in 1934, by counties, in fine ounces, in terms of recovered metals

County	Sluicing		Dry-land dredges ¹		Floating dredges		Total	
	Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver
Cochise.....	311.39	73					311.39	73
Gila.....	105.12	28					105.12	28
Graham.....	77						77	
Greenlee.....	101.69	20					101.69	20
Maricopa.....	116.88	23					116.88	23
Mohave.....	89.21	17					89.21	17
Pima.....	201.06	37					201.06	37
Pinal.....	39.23	11					39.23	11
Santa Cruz.....	128.77	3					128.77	3
Yavapai.....	2,148.77	338	431.81	33	2,484.00	336	5,064.58	707
Yuma.....	923.46	119					923.46	119
Total, 1933.....	4,066.45	669	431.81	33	2,484.00	336	6,982.26	1,038
	3,671.45	424	257.73	18	1,200.94	161	5,130.12	603

¹ Drag-line and power-shovel excavators with sluices or special amalgamators.

MINING INDUSTRY

Improvement was shown in the general condition of the mining industry in Arizona in 1934 over 1933; not only was there an increase in quantity of each of the five metals produced but in total value of the metal output. The total value, however, fell far short of that in 1931, was little better than one fourth of the 1930 value, and was between one sixth and one seventh of the 1929. Large increases were made in 1934 in both quantity and value of copper, gold, and silver. Although several large copper properties remained idle, a marked increase in copper from copper ore resulted from the resumption of milling at the New Cornelia and Miami properties and from the large increases in output of copper ore made by the Copper Queen branch at Bisbee and Magma Copper mine at Superior. Activity in mining and milling at lode gold properties more than tripled the output of gold from that source and resulted in a total from gold ore nearly equal to that from copper ore. Gold from copper ore increased 60 percent, or at almost the same rate as did copper. The increase in gold from dry and siliceous gold ore was notable at Oatman, Superior, Katherine, Vicksburg, Hillside, Humboldt, and Mammoth. A small part of the increase in total gold was due to rejuvenation of placer mines. The output of silver was nearly doubled as a result of increased output of copper- [silver-gold] ore and dry and siliceous ore; there was also an increase in silver from lead-zinc-[silver] ore. Production of both lead and zinc increased materially in 1934 but continued far below the average annual output for the decade 1925-34. Only three of Arizona's eight smelting plants were active during 1934; receipts at two of them were greatly increased over 1933. The larger number of milling plants active—184 in 1934 compared with 99 in 1933—indicates the work done in revamping old and constructing new mills in gold-ore districts.

ORE CLASSIFICATION

Ore, old tailings, etc., sold or treated in Arizona in 1934, with content in terms of recovered metals

Source	Mines producing	Ore, old tailings, etc.	Gold	Silver	Copper	Lead	Zinc
Dry and siliceous gold ore.....	528	Short tons 1 344, 910	Fine ounces 74, 298. 78	Fine ounces 248, 457	Pounds 269, 052	Pounds 497, 098	Pounds
Dry and siliceous gold and silver ore.....	36	15, 919	2, 120. 30	110, 858	134, 269	4, 611	-----
Dry and siliceous silver ore.....	62	12, 244	1, 530. 43	270, 028	49, 049	230, 002	-----
	\$ 622	373, 073	77, 949. 51	629, 343	452, 370	731, 711	-----
Copper ore.....	58	2, 845, 604	76, 092. 34	3, 459, 138	\$ 177, 402, 898	7, 659	-----
Lead ore.....	87	16, 203	3, 333. 44	168, 938	77, 625	2, 763, 993	-----
Copper-lead ore.....	6	47	7. 53	1, 016	4, 683	15, 164	-----
Lead-zinc ore.....	2	35, 315	2, 659. 04	189, 001	144, 637	3, 358, 689	1, 810, 279
	\$ 125	2, 897, 169	82, 092. 35	3, 818, 093	\$ 177, 629, 843	6, 145, 505	1, 810, 279
Total, lode mines.....	\$ 747	3, 270, 242	160, 041. 86	4, 447, 436	\$ 178, 082, 213	6, 877, 216	1, 810, 279
Total, placers.....	367		6, 982. 26	1, 038			
	1, 614	3, 270, 242	167, 024. 12	4, 448, 474	\$ 178, 082, 213	6, 877, 216	1, 810, 279
Total, 1933.....	578	995, 728	79, 992. 61	2, 390, 363	\$ 114, 041, 781	3, 442, 540	11, 024

- ¹ Includes 41,030 tons of old tailings cyanided, 3,500 tons of old tailings concentrated, and 12 tons of old tailings and 52 tons of old mill cleanings sold to a smelter.
- ² Includes 70 tons of old mill cleanings sold to a smelter.
- ³ A mine producing more than one class of ore is counted but once in arriving at total for all classes.
- ⁴ Includes 26,689 tons of copper-tungsten ore concentrated and 27 tons of old mill cleanings and 1 ton of old copper matte sold to a smelter.
- ⁵ Includes 345,475 pounds of copper recovered from precipitates.
- ⁶ Includes 3 tons of old tailings and 104 tons of old mill cleanings sold to a smelter.
- ⁷ Includes 0.17 ounce of gold recovered from precipitates.
- ⁸ Includes 59 ounces of silver recovered from precipitates.
- ⁹ Includes 836,942 pounds of copper recovered from precipitates.

Value of metals from ore, old tailings, etc., sold or treated in Arizona in 1934, by classes of ore

Class	Ore, old tailings, etc. (short tons)	Gold	Silver	Copper	Lead	Zinc	Total value
Dry and siliceous gold ore.....	344, 910	\$2, 596, 742	\$160, 619	\$21, 524	\$18, 393	-----	\$2, 797, 278
Dry and siliceous gold and silver ore.....	15, 919	74, 104	71, 666	10, 742	170	-----	156, 682
Dry and siliceous silver ore.....	12, 244	53, 489	174, 563	3, 924	8, 510	-----	240, 486
	373, 073	2, 724, 335	406, 848	36, 190	27, 073	-----	3, 194, 446
Copper ore.....	2, 845, 604	2, 659, 427	2, 236, 210	\$ 14, 192, 232	283	-----	19, 088, 152
Lead ore.....	16, 203	116, 504	109, 212	6, 210	102, 268	-----	334, 194
Copper-lead ore.....	47	263	657	374	561	-----	1, 855
Lead-zinc ore.....	35, 315	92, 934	122, 183	11, 571	124, 272	\$77, 842	428, 802
	2, 897, 169	2, 869, 128	2, 468, 262	\$ 14, 210, 387	227, 384	77, 842	19, 853, 003
Total, lode mines.....	3, 270, 242	5, 593, 463	2, 875, 110	\$ 14, 246, 577	254, 457	77, 842	23, 047, 449
Total, placers.....		244, 030	671	-----	-----	-----	244, 701
	3, 270, 242	5, 837, 493	2, 875, 781	\$ 14, 246, 577	254, 457	77, 842	23, 292, 150
Total, 1933.....	995, 728	\$ 2, 044, 611	\$ 836, 627	\$ 7, 298, 674	127, 374	463	\$ 10, 307, 749

- ¹ Includes value of 345,475 pounds of copper recovered from precipitates.
- ² Includes value of 0.17 ounce of gold, 59 ounces of silver, and 836,942 pounds of copper recovered from precipitates.
- ³ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

Dry and siliceous gold ore.—The output of dry and siliceous gold ore, old tailings, etc., was 344,910 tons (10.5 percent of the State total ore, etc.) from 528 properties in 1934 compared with 93,802 tons from 310 properties in 1933. The large increase in quantity of gold ore produced, coupled with the increase in gold from copper ore, raised the gold output (in ounces) nearly to the 1929 figure. Nearly half (47 percent) of the total gold ore, etc., was treated by cyanidation; 25.4 percent was concentrated; 10.2 percent was crude ore smelted; 7.5 percent was amalgamated and concentrated; and most of the remainder was concentrated and cyanided.

Dry and siliceous gold and silver ore.—The output of dry and siliceous gold and silver ore was 15,919 tons from 36 mines in 1934 compared with 1,625 tons of ore, etc., from 10 mines in 1933. Nearly 86 percent of the total in 1934 came from the Davis-Dunkirk property near Prescott, the Tombstone (Bunker Hill) group at Tombstone, and the Belmont mine at Superior. More than 40 percent of the total was treated by flotation concentration; 33 percent was shipped crude to smelters; and the remainder was treated by concentration and cyanidation.

Dry and siliceous silver ore.—Sixty-two properties produced 12,244 tons of dry and siliceous silver ore, etc., in 1934 compared with 11 properties producing 663 tons of ore in 1933. More than 81 percent of the total in 1934 was crude ore shipped to smelters, most of it from the Tombstone (Bunker Hill) group at Tombstone, Cochise County.

Copper ore.—The output of copper ore, etc., mined and treated was 2,845,604 tons (87 percent of the State total ore, etc.) from 58 properties in 1934 compared with 888,508 tons from 26 properties in 1933. Nearly all in 1934 came from five properties—the New Cornelia mine at Ajo, the Copper Queen branch of the Phelps Dodge Corporation at Bisbee, the Miami property at Miami, the Magma mine at Superior, and the United Verde Extension property at Jerome. Four large copper properties (United Verde, Inspiration, Morenci branch of the Phelps Dodge Corporation, and Ray mines) remained idle throughout the year. About 25 percent of the copper ore was shipped crude to smelters in Arizona, and nearly 75 percent was first treated in concentration plants. The combined value of the metals recovered from copper ore, etc., was 82 percent of the total value of the gold, silver, copper, lead, and zinc produced in the State in 1934.

Lead ore.—The output of lead ore, etc., was 16,203 tons from 87 properties in 1934 compared with 11,029 tons of ore from 46 properties in 1933. Nearly half the total was ore of smelting grade from two properties at Tombstone, Cochise County; the remainder was largely ore of milling grade from a property 26 miles southeast of Kingman, Mohave County.

Copper-lead ore.—There were six small producers of copper-lead ore in 1934 and none in 1933. The output (47 tons) in 1934 was ore of smelting grade and came chiefly from two properties near Copper Creek, Pinal County.

Lead-zinc ore.—Two mines (one in Mohave County and one in Santa Cruz County) produced 35,315 tons of lead-zinc ore in 1934 compared with one property producing 101 tons in 1933. All was treated by flotation concentration, and nearly all in 1934 came from the Eagle-Picher property at Ruby in Santa Cruz County.

GOLD, SILVER, COPPER, LEAD, AND ZINC IN ARIZONA 217

Ore, old tailings, etc., sold or treated in Arizona in 1934, by counties, with content in terms of recovered metals

DRY AND SILICEOUS GOLD ORE

County	Ore, old tailings, etc.	Gold	Silver	Copper	Lead	Zinc
	Short tons	Fine ounces	Fine ounces	Pounds	Pounds	Pounds
Cochise.....	3,837	1,999.74	4,019	6,153	23,305	-----
Gila.....	3,043	493.18	609	3,149	3,966	-----
Graham.....	25	14.88	10	34	-----	-----
Greenlee.....	687	426.13	4,932	2,637	514	-----
Maricopa.....	¹ 53,835	5,619.18	4,727	11,239	1,973	-----
Mohave.....	² 107,624	25,152.67	28,831	1,754	5,216	-----
Pima.....	1,097	699.67	5,455	3,126	7,387	-----
Pinal.....	46,694	15,642.84	27,001	134,402	130,288	-----
Santa Cruz.....	1,130	385.43	834	1,231	176	-----
Yavapai.....	³ 105,943	18,237.13	157,942	103,325	323,570	-----
Yuma.....	⁴ 20,995	5,627.93	14,097	2,002	703	-----
Total, 1933.....	344,910 93,802	74,298.78 23,819.99	248,457 70,015	269,052 130,819	497,098 180,930	-----

DRY AND SILICEOUS GOLD AND SILVER ORE

Cochise.....	5,949	544.50	31,757	3,396	2,284	-----
Gila.....	60	14.27	537	488	162	-----
Graham.....	2	1.20	93	-----	-----	-----
Greenlee.....	1	3.28	171	-----	-----	-----
Mohave.....	215	57.61	3,528	1,079	176	-----
Pima.....	157	51.94	2,586	1,735	1,989	-----
Pinal.....	3,065	933.32	48,700	39,517	-----	-----
Santa Cruz.....	46	25.67	1,533	182	-----	-----
Yavapai.....	6,424	488.51	21,953	87,872	-----	-----
Total, 1933.....	15,919 1,625	2,120.30 773.36	110,858 36,954	134,269 13,132	4,611 1,681	-----

DRY AND SILICEOUS SILVER ORE

Cochise.....	8,796	1,394.38	150,909	34,205	206,503	-----
Gila.....	41	1.84	2,148	1,215	-----	-----
Greenlee.....	40	4.90	623	38	-----	-----
Mohave.....	142	29.95	5,463	-----	-----	-----
Pima.....	67	7.50	1,671	633	1,269	-----
Pinal.....	⁵ 2,091	26.03	33,461	9,132	1,649	-----
Santa Cruz.....	111	5.40	3,313	3,448	706	-----
Yavapai.....	914	59.58	69,330	3,050	19,875	-----
Yuma.....	42	.85	3,105	278	-----	-----
Total, 1933.....	12,244 663	1,530.43 64.46	270,028 28,914	49,049 4,105	230,002 8,200	-----

COPPER ORE

Cochise.....	519,143	48,020.48	2,297,212	⁶ 71,142,628	6,432	-----
Gila.....	356,111	16.60	4,517	14,317,809	-----	-----
Graham and Greenlee.....	39	3.42	62	8,529	-----	-----
Maricopa.....	318	8.06	3,320	24,599	-----	-----
Mohave.....	⁷ 25,037	4.98	1,451	42,853	-----	-----
Pima.....	⁸ 1,479,187	10,943.35	132,366	33,096,124	18	-----
Pinal.....	264,185	8,845.40	768,349	32,569,437	-----	-----
Santa Cruz.....	64	4.62	1,046	4,809	1,209	-----
Yavapai.....	⁹ 201,497	8,241.79	250,401	26,190,452	-----	-----
Yuma.....	23	3.64	414	5,658	-----	-----
Total, 1933.....	2,845,604 888,508	76,092.34 ⁶ 47,410.62	3,459,138 ² 113,721	⁶ 177,402,898 ⁶ 113,812,633	7,659 91	-----

¹ Includes 30,200 tons of old tailings cyanided.

² Includes 1,010 tons of old tailings cyanided and 7 tons of old mill cleanings sold to a smelter.

³ Includes 3,270 tons of old tailings cyanided, 3,500 tons of old tailings concentrated, and 11 tons of old tailings and 45 tons of old mill cleanings sold to a smelter.

⁴ Includes 1,550 tons of old tailings cyanided and 1 ton of old tailings sold to a smelter.

⁵ Includes 70 tons of old mill cleanings sold to a smelter.

⁶ Includes metal recovered from precipitates.

⁷ Includes 25,000 tons of copper-tungsten ore concentrated.

⁸ Includes 1,689 tons of copper-tungsten ore concentrated and 1 ton of old copper matte sold to a smelter.

⁹ Includes 27 tons of old mill cleanings sold to a smelter.

Ore, old tailings, etc., sold or treated in Arizona in 1934, by counties, with content in terms of recovered metals—Continued

LEAD ORE

County	Ore, old tailings, etc.	Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Cochise.....	¹⁰ 8,595	2,445.62	146,273	52,655	2,344,665	-----
Gila.....	418	128.96	2,109	3,414	188,277	-----
Graham.....	11	4.36	12	12	1,270	-----
Mohave.....	6,049	86.59	2,293	775	40,847	-----
Pima.....	287	68.00	6,233	6,794	50,828	-----
Pinal.....	7	3.12	127	93	2,421	-----
Santa Cruz.....	¹¹ 59	3.03	1,135	694	23,968	-----
Yavapai.....	774	593.56	10,705	13,188	110,663	-----
Yuma.....	3	.20	51	-----	1,054	-----
Total, 1933.....	16,203 11,029	3,333.44 2,768.43	168,938 139,706	77,625 30,547	2,763,993 3,233,182	-----

COPPER-LEAD ORE

Pima.....	3	2.70	53	251	536	-----
Pinal.....	42	4.71	891	4,269	14,237	-----
Santa Cruz.....	2	.12	72	163	391	-----
Total, 1933.....	(¹²) 47	7.53	1,016	4,683	15,164	-----

LEAD-ZINC ORE

Mohave and Santa Cruz.....	35,315	2,659.04	189,001	144,637	3,358,689	1,810,279
Total, 1933.....	35,315 101	2,659.04 25.63	189,001 450	144,637 545	3,358,689 18,456	1,810,279 11,024

¹⁰ Includes 104 tons of old mill cleanings sold to a smelter.

¹¹ Includes 3 tons of old tailings sold to a smelter.

¹² None produced in 1933.

METALLURGIC INDUSTRY

Of the total ore, old tailings, etc., produced in 1934 in Arizona, 2,267,336 tons (69 percent) were treated at concentration plants, 774,937 tons (nearly 24 percent) represented crude ore smelted, and 227,700 tons (7 percent) were treated at gold and silver mills; no ore was treated by straight leaching.

The ore concentrated was treated in 38 plants—17 using straight flotation, 5 combined gravity and flotation, and 16 straight gravity concentration. There were 145 gold and silver mills in operation—100 amalgamation plants, 18 cyanidation plants, 24 combined amalgamation and concentration plants, 2 combined concentration and cyanidation plants, and 1 combined amalgamation, cyanidation, and concentration plant. One plant precipitated copper from mine water. In all, 184 plants were active in 1934 compared with 99 in 1933; of these plants 145 in 1934 and 78 in 1933 were gold and silver mills. Of the eight copper-smelting plants in Arizona, three (Douglas, Superior, and Clemenceau) were operated during 1934.

Of the total material (186,670 tons of ore and 41,030 tons of old tailings) treated at gold and silver mills, 2.56 percent (5,829 tons of ore) was treated at straight amalgamation plants; 11.35 percent (25,840 tons of ore) was treated by combined amalgamation and concentration; 72.06 percent (123,060 tons of ore and 41,030 tons of old

tailings) was treated at straight cyanidation plants; 13.01 percent (29,621 tons of ore) was treated by combined concentration and cyanidation; and 1.02 percent (2,320 tons of ore) was treated by combined amalgamation, cyanidation, and concentration.

The following table summarizes data for operations at gold and silver mills in 1934, by counties.

Mine production of metals from gold and silver mills in Arizona in 1934, by counties, in terms of recovered metals

County	Ore and old tailings treated (dry weight)		Recovered in bullion			
			Amalgamation		Cyanidation	
	Ore	Old tailings ¹	Gold	Silver	Gold	Silver
	<i>Short tons</i>	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>
Cochise.....	6,262	-----	119.07	50	269.23	18,535
Gila.....	2,586	-----	98.70	32	62.37	19
Greenlee.....	100	-----	26.52	18	-----	-----
Maricopa.....	18,914	30,200	1,572.29	371	907.46	1,820
Mohave.....	106,054	1,010	151.12	138	24,474.33	27,289
Pima.....	511	-----	91.30	54	-----	-----
Final.....	25,595	-----	84.75	47	1,876.97	1,636
Santa Cruz.....	862	-----	27.45	9	109.10	37
Yavapai.....	6,829	8,270	1,232.15	566	665.90	1,653
Yuma.....	18,957	1,550	635.45	157	4,424.14	13,424
Total, 1933.....	186,670	41,030	4,038.80	1,442	32,789.50	64,413
	34,482	33,300	2,256.15	918	7,852.24	12,033

County	Concentrates and recovered metal				
	Concentrates produced	Gold	Silver	Copper	Lead
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>
Cochise.....	4	10.91	16	-----	972
Gila.....	22	97.81	44	263	27
Maricopa.....	177	333.20	341	365	-----
Mohave.....	1	6.26	14	11	56
Pima.....	16	33.42	156	63	1,895
Final.....	259	216.83	201	-----	130,000
Yavapai.....	409	449.82	5,107	1,643	3,831
Yuma.....	33	127.88	161	13	-----
Total, 1933.....	921	1,276.13	6,040	2,358	136,781
	129	203.80	598	86	-----

¹ All treated by cyanidation.

Ore treated at straight concentration plants increased from 320,288 tons in 1933 to 2,263,836 tons in 1934. The increase was largely in copper ore (from 307,551 tons in 1933 to 2,131,164 tons in 1934) and was due chiefly to resumption of milling operations in July at the New Cornelia and Miami properties. Most of the copper ore was concentrated by flotation; it came chiefly from mines at Ajo, Miami, Superior, and Jerome. Dry and siliceous gold ore treated at concentration plants increased from 11,871 tons in 1933 to 84,061 tons in 1934; nearly all of it was treated by flotation, and most of it came from mines at Humboldt, Cordes, and Hillside in Yavapai County. There was an increase of 35,115 tons in the treatment of lead-zinc ore from Ruby, Santa Cruz County.

The following tables present detailed ore-concentration data for 1934.

Arizona ore and old tailings concentrated in 1934, by classes of ore, etc., methods of concentration, and classes of concentrates

[Exclusive of copper ore treated by leaching and flotation]

Class of material concentrated	Method of concentration	Ore and old tailings concentrated	Gross content of mill feed				
			Gold	Silver	Copper	Lead	Zinc
Dry and siliceous gold ore	Flotation	Short tons 83,823	Fine ounces 15,280.73	Fine ounces 154,120	Pounds 93,260	Pounds 371,200	Pounds
Dry and siliceous gold and silver ore	do	6,400	540.00	25,050	108,800		
Dry and siliceous silver ore	do	808	16.15	3,735	360	3,700	
Copper sulphide ore	do	¹ 1,775,054	23,794.60	746,597	64,939,926		
Lead-zinc sulphide ore	do	35,315	2,986.00	214,450	253,400	3,739,800	3,797,700
		¹ 1,901,400	42,617.48	1,143,952	65,400,746	4,114,700	3,797,700
Dry and siliceous gold ore and old tailings	Gravity	² 3,738	481.50	891	1,236	1,790	
Lead sulphide ore	do	6,088	153.65	3,751	2,355	25,740	
		9,826	635.15	4,642	3,591	27,530	
		³ 1,911,226	43,252.63	1,148,504	65,404,337	4,142,230	3,797,700

Class of material concentrated	Method of concentration	Concentrates produced		Gross content of concentrates				
		Class	Quantity	Gold	Silver	Copper	Lead	Zinc
Dry and siliceous gold ore	Flotation	Siliceous gold	Short tons 3,228	Fine ounces 8,024.96	Fine ounces 98,611	Pounds 57,678	Pounds 36,636	Pounds
		Lead sulphide	1,192	4,278.97	31,794	14,147	265,014	
Dry and siliceous gold and silver ore	do	Copper sulphide	4,420	12,303.93	130,405	71,825	301,650	
Dry and siliceous silver ore	do	Siliceous silver	640	473.76	21,296	90,273		
Coppersulphide ore	do	Copper sulphide	45	9.21	3,256	254	2,900	
Lead-zinc sulphide ore	do	Lead sulphide	⁴ 165,538	19,820.51	678,001	60,803,244		
			Zinc sulphide	3,590	2,291.48	155,630	158,035	3,313,362
			2,031	367.56	33,371	22,792	285,782	2,000,486
			5,621	2,659.04	189,001	180,827	3,599,144	2,000,486
		⁵ 176,264	35,266.45	1,021,959	61,146,423	3,903,784	2,000,486	
Dry and siliceous gold ore and old tailings	Gravity	Siliceous gold	107	359.55	648	883	1,357	
Lead sulphide ore	do	Lead sulphide	59	116.06	2,598	1,476	18,922	
			166	475.61	3,246	2,359	20,279	
			⁵ 176,430	35,742.06	1,025,205	61,148,782	3,924,063	2,000,486

¹ Figures include copper ore treated by combined gravity and flotation concentration.

² Includes 3,500 tons of old tailings.

³ Figures do not include ore treated at gold and silver mills.

⁴ Figures include concentrates from copper ore treated by combined gravity and flotation concentration.

⁵ Figures do not include concentrates from ore treated at gold and silver mills.

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Mine production of metals from concentrating mills in Arizona in 1934, by counties, in terms of recovered metals

County	Ore and old tailings treated		Concentrates and recovered metal					
	Ore	Old tailings	Concentrates produced	Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Short tons</i>	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Cochise.....	1,471		88	612.87	877	1,593	14,426	
Gila.....	356,114		12,826	17.36	4,512	14,317,625		
Mohave.....	31,223		185	105.2 ^a	3,480	33,661	17,044	10,698
Pima.....	1,479,195		60,324	10,957.09	132,793	33,091,010	5,958	
Pinal.....	216,978		84,945	6,804.15	504,917	22,389,064	1,876	
Santa Cruz.....	35,131		5,607	2,673.73	188,914	144,448	3,351,955	1,799,581
Yavapai.....	143,599	3,500	25,262	14,543.05	194,201	4,099,918	263,853	
Yuma.....	125		18	38.54	23	487		
Total, 1933.....	2,263,836 320,288	3,500	189,255 86,269	35,757.05 9,630.82	1,029,717 477,610	74,077,811 23,096,161	3,655,111 151,037	1,810,279 11,024

Gross metal content of Arizona concentrates produced in 1934, by classes of concentrates

Class of concentrates	Concentrates produced (dry weight)	Gross metal content				
		Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Dry and siliceous.....	4,029	9,409.33	108,193	61,192	47,192	
Copper.....	179,003	20,310.67	703,809	75,551,362		
Lead.....	5,113	6,945.62	190,384	173,753	3,738,861	
Zinc.....	2,031	367.56	33,371	22,792	285,782	2,000,486
Total, 1933.....	190,176 86,398	37,033.18 9,834.62	1,035,757 478,208	75,809,099 23,652,379	4,071,835 166,989	2,000,486 12,397

Mine production of metals from Arizona concentrates in 1934, in terms of recovered metals

BY COUNTIES

	Concentrates	Gold	Silver	Copper	Lead	Zinc
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Cochise.....	92	623.73	893	1,598	15,398	
Gila.....	12,848	115.17	4,556	14,317,888	27	
Marcopa.....	177	333.20	341	365		
Mohave.....	186	111.52	3,494	33,672	17,100	10,698
Pima.....	60,340	10,990.51	132,949	33,091,073	7,853	
Pinal.....	85,204	7,020.98	505,118	22,389,064	131,875	
Santa Cruz.....	5,607	2,673.73	188,914	144,448	3,351,955	1,799,581
Yavapai.....	25,671	14,997.87	199,308	4,101,561	267,684	
Yuma.....	51	166.42	184	500		
Total, 1933.....	190,176 86,398	37,033.18 9,834.62	1,035,757 478,208	74,080,169 23,096,247	3,791,892 151,037	1,810,279 11,024

BY CLASSES OF CONCENTRATES

Dry and siliceous.....	4,029	9,409.33	108,193	57,112	33,014	
Copper.....	179,003	20,310.67	703,809	73,866,052		
Lead.....	5,113	6,945.62	190,384	138,762	3,501,655	
Zinc.....	2,031	367.56	33,371	18,243	257,223	1,810,279

The quantity of ore shipped crude from mines in Arizona to smelters increased from 607,531 tons in 1933 to 774,937 tons in 1934. More than 92 percent of it in 1934 was copper ore, chiefly from mines at Bisbee, Jerome, and Superior; the remainder was largely gold ore from the Lake Superior & Arizona property at Superior. There were increases of 133,461 tons in crude copper ore and 34,154 tons in dry and siliceous ores (chiefly gold ore) smelted; the lead ore smelted was slightly less than in 1933.

The following tables give the contents of the crude ore smelted in 1934, by classes and by counties.

Gross metal content of Arizona crude ore shipped to smelters in 1934, by classes of ore

Class of ore	Quantity (dry weight)	Gross metal content			
		Gold	Silver	Copper	Lead
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>
Dry and siliceous.....	50,470	26,579.90	396,805	306,378	554,454
Copper.....	714,412	56,239.58	2,776,434	107,448,915	13,029
Lead.....	10,008	2,973.96	164,448	91,368	2,973,809
Copper-lead.....	47	7.53	1,016	5,507	16,291
Total, 1933.....	774,937 607,531	85,800.97 54,614.92	3,338,703 1,897,746	107,852,668 93,200,582	3,557,583 3,646,054

Mine production of metals from Arizona crude ore shipped to smelters in 1934, in terms of recovered metals

BY COUNTIES

	Ore	Gold	Silver	Copper	Lead
	<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>
Cochise.....	538,483	53,148.77	2,608,862	70,891,396	2,554,250
Gila.....	973	378.61	5,313	8,187	192,378
Graham.....	39	20.46	116	75	1,270
Greenlee.....	666	411.19	5,769	11,175	514
Maricopa.....	5,039	2,814.29	5,515	35,473	1,973
Mohave.....	973	559.92	15,357	16,989	54,174
Pima.....	1,091	690.85	10,850	12,978	35,873
Pinal.....	73,441	16,471.32	367,326	10,367,024	16,720
Santa Cruz.....	531	258.03	7,688	7,527	26,136
Yavapai.....	153,271	10,632.86	308,005	22,294,518	185,153
Yuma.....	430	404.67	3,902	7,438	1,757
Total, 1933.....	774,937 607,531	85,800.97 54,614.92	3,338,703 1,897,746	103,652,780 90,104,023	3,070,198 3,291,403

BY CLASSES OF ORE

Dry and siliceous.....	50,470	26,579.90	396,805	295,371	315,140
Copper.....	714,412	56,239.58	2,776,434	103,276,648	7,659
Lead.....	10,008	2,973.96	164,448	76,078	2,732,235
Copper-lead.....	47	7.53	1,016	4,683	15,164

Miscellaneous material in Arizona in 1934, not included in the tables given under "Metallurgic Industry", consisted of copper precipitates, 253 tons of old mill clean-up, and 16 tons of old tailings and matte, all smelted.

REVIEW BY COUNTIES AND DISTRICTS

Mine production of gold, silver, copper, lead, and zinc in Arizona in 1934, by counties and districts, in terms of recovered metals

County and district	Mines producing		Ore, old tailings, etc.	Gold			Silver			Copper	Lead	Zinc	Total value
	Lode	Placer		Lode	Placer	Total	Lode	Placer	Total				
Cochise County:			<i>Short tons</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Fine ounces</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	
California.....	1		2	0.03		0.03	82		82	62			\$59
Cochise.....	2		(1)	(1)		(1)	(1)		(1)	(1)			(1)
Dos Cabezas.....	28	4	2,547	1,684.62	7.84	1,642.46	6,254	3	6,257	49,013	25,649		66,319
Huachuca Mountain.....	11	1	433	105.38	3.98	109.36	218		218	313			3,988
Swishalm.....	3		172	61.23		61.23	5,575		5,575	200	29,081		6,836
Teviston.....	1	14	(1)	(1)		(1)	(1)		(1)	(1)			(1)
Tombstone.....	14		20,344	3,700.83		3,700.83	296,737		296,737	70,512	2,400,324		415,627
Turquoise.....	8	3	793	58.94	4.95	63.89	2,356		2,356	1,312	595		3,853
Warren.....	13	27	521,963	48,815.88	245.55	49,061.43	2,318,846	62	2,318,908	71,110,775	127,540		8,907,370
Gila County:													
Banner.....	5	3	474	80.60	50.13	130.73	1,912	14	1,926	2,413	154,432		11,721
Globe.....	14	8	356,522	265.58	50.90	316.48	6,865	11	6,876	14,321,700	26,135		1,162,200
Green Valley.....	10	2	2,635	267.01	4.09	271.10	1,044	3	1,047	1,612	27		10,282
Pinto Valley.....	1		1	.03		.03	31		31	63	216		34
Pioneer ¹	1		41	41.63		41.63	68		68	287	11,595		1,951
Graham County:													
Clark.....	2		21	11.19		11.19	3		3	63			398
Lone Star.....	3	1	16	8.07	.77	8.84	20		20	12	1,270		370
Rattlesnake.....	1		2	1.20		1.20	93		93				102
Greenlee County:													
Chase Creek.....		5			15.02	15.02		3	3				527
Copper Mountain.....	10	4	762	433.22	10.36	443.58	5,606	3	5,609	11,175	514		20,042
Mayflower.....	2		4	4.49		4.49	181		181				274
San Francisco River.....		16			76.31	76.31		14	14				2,676
Maricopa County:													
Agua Fria.....	1		1	1.20		1.20							42
Big Horn.....	2	1	94	29.27	6.64	35.91	14	3	17	100			1,274
Camp Creek.....	1		30	33.65		33.65	3		3				1,178
Cave Creek.....	8	3	661	286.38	5.95	292.33	475	3	478	550	1,973		10,643
Ellsworth ²	2		69	39.20		39.20	17		17	300			1,405
Gila Bend Mountains.....	1		50	1.43		1.43							50
Hassayampa River.....		1			2.86	2.86							100

¹ Included under "Undistributed."

² Pioneer district lies in both Gila and Pinal Counties.

³ Ellsworth district lies in both Maricopa and Yuma Counties.

Mine production of gold, silver, copper, lead, and zinc in Arizona in 1934, by counties and districts, in terms of recovered metals—Continued

County and district	Mines producing		Ore, old tailings etc.	Gold			Silver			Copper	Lead	Zinc	Total value
	Lode	Placer		Lode	Placer	Total	Lode	Placer	Total				
Maricopa County—Continued.													
Magazine.....	2		Short tons 258	Fine ounces 4.75	Fine ounces	Fine ounces 4.75	Fine ounces 3,284	Fine ounces	Fine ounces 3,284	Pounds 20,563	Pounds	Pounds	\$3,934
Osborn.....	1		1	1.63		1.63							87
Salt River Mountains.....	3		3,329	1,879.57		1,879.57	1,400		1,400	7,637			67,207
San Domingo.....		22			75.68	75.68		14	14				2,654
Vulture.....	11	6	49,405	3,128.07	25.75	3,153.82	2,752	3	2,755	5,663			112,460
Winifred.....	3		255	222.09		222.09	102		102	1,025			7,910
Mohave County:													
Bentley.....	1		16	.40		.40	82		82	5,600			515
Black Canyon.....	1		1	.83		.83							29
Bull Rush Canyon.....	1		17	.23		.23	48		48	3,838			346
Cedar Valley.....	1		25,000	4.15		4.15	1,143		1,143	32,537			3,487
Chemehuevis.....	8	6	116	33.99	32.62	66.61	62	3	65	13	514		2,390
Cottonwood.....	1		278	190.53		190.53	82		82	1,025	54		6,796
Gold Basin.....	4	10	3,310	323.32	44.29	367.61	82	11	93				12,908
Indian Secret.....	1		50	12.99		12.99	2,509		2,509				2,076
Lost Basin.....		3			12.30	12.30		3	3				432
Maynard.....	1		6,000	75.45		75.45	2,028		2,028	762	10,162		4,385
Minnesota.....	2		34	41.06		41.06	31		31	63	81		1,463
Owens.....	7		75	37.11		37.11	167		167		30,243		2,524
San Francisco (including Katherine)	31		102,977	24,211.56		24,211.56	27,160		27,160				863,752
Wallapai.....	20		1,057	223.69		223.69	4,718		4,718	2,737	11,514	10,698	11,973
Weaver.....	6		336	190.53		190.53	3,683		3,683	75	405		9,061
Pima County:													
Ajo.....	1		(1)	(1)		(1)	(1)		(1)	(1)			(1)
American.....	1		(1)	(1)		(1)	(1)		(1)	(1)			(1)
Amole.....	2		99	18.34		18.34	823		823	1,150	1,297		1,313
Arivaca.....	30	13	1,933	139.37	98.31	237.68	2,280	20	2,300	8,125	11,703		10,877
Babogquivari.....	13		305	280.63		280.63	5,080		5,080	2,270			13,307
Cababi.....	16	1	368	77.34	2.26	79.60	3,578		3,578	5,850	28,595		6,621
Casa Grande.....	1		(1)	(1)		(1)	(1)		(1)	(1)			(1)
Cerro Colorado.....	2		7	.20		.20	102		102	87	378		94
Empire.....	3		60	34.42		34.42	130		130	813	1,892		1,422
Fresno.....	1		1	.60		.60							21
Greaterville.....	14	22	56	32.59	68.93	101.52	2,192	14	2,206	625	9,649		5,373
Helvetia.....	3		32	1.00		1.00	102		102	3,475			379
Old Hat.....		4			11.13	11.13							389
Papago.....	1		5				113		113		541		93
Pima.....	8		67	22.89		22.89	1,174		1,174	387	2,649		1,688

Quijotas	16	8	327	150.33	20.43	170.76	478	3	481	38	1,459	6,336
Santa Rosa	7		32	23.69		23.69	280		280	975	1,324	1,136
Pinal County:												
Aravaipa	1		2				113		113	175		87
Big Butte	1		100	11.33		11.33	3		3			398
Blackwater	1		8	6.81		6.81	17		17	100		257
Bunker Hill	2		39	4.12		4.12	809		809	4,137	13,892	1,512
Casa Grande ⁴	14		190	166.98		166.98	461		461	2,138	2,405	6,394
Cottonwood	2		25	16.54		16.54	14		14			587
Goldfields	4		46	22.86		22.86	17		17			810
Jack Rabbit	1		2	.60		.60	48		48		135	57
Mineral Creek	3		42	4.78		4.78	102		102	375		263
Mineral Hill	2		7	1.03		1.03	17		17	712		104
Old Hat ⁵	24	4	25,477	2,172.93	39.23	2,212.16	2,099	11	2,110	425	130,514	83,642
Owl Head	1		10	.43		.43	195		195			141
Pioneer ²	17		288,750	22,839.17		22,839.17	865,687		865,687	32,734,700		3,976,641
Ripsey	2		222	100.60		100.60	4,062		4,062	2,213		6,319
Riverside	3		123	44.75		44.75	201		201	525		1,736
Saddle Mountain	3		1,007	62.29		62.29	3,448		3,448	1,025	1,649	4,549
Summit	1		34	.20		.20	1,236		1,236	10,325		1,632
Santa Cruz County:												
Greaterville ⁶	1		1	.23		.23	48		48		243	48
Harshaw	2		4	.20		.20	167		167	237		157
Nogales	4	2	18	4.69	5.61	10.30	82		82	238		446
Oro Blanco	20	3	36,297	3,021.03	11.16	3,032.19	193,641	3	193,644	145,650	3,352,838	1,799,581
Pajarito	3		4	1.43		1.43	48		48	50	2,730	186
Palmetto	2		26	3.09		3.09	659		659	2,362	486	741
Patagonia	8	2	97	37.14	12.10	49.24	724		724	1,763	11,324	2,749
Tyndall	4		31	.63		.63	348		348	1,587	1,640	435
Wrightson	4		51	.83		.83	993		993	188	8,135	987
Yavapai County:												
Ash Creek	1		60	32.36		32.36	331		331	862	135	1,419
Big Bug	19	30	43,385	5,089.04	534.48	5,623.52	15,181	48	15,229	54,150	105,568	214,625
Black Canyon	13	19	15,789	3,446.41	81.60	3,528.01	48,148	11	48,159	14,588	284,459	166,129
Black Rock	13	4	693	208.67	12.33	221.00	5,278	3	5,281	28,937		13,478
Blue Tank	1	1	48	5.52	2.52	8.04						281
Castle Creek	6	2	303	278.37	4.09	282.46	246		246	6,263		10,532
Cherry Creek	11		671	342.69		342.69	181		181	687		12,149
Copper Basin	3		220	58.34	256.51	314.85	48	37	85	850		11,127
Copper Creek	1		1				3		3	263		23
Eureka	18	5	21,903	4,220.00	15.25	4,235.25	91,442		91,442	23,337	10,459	209,390
Granite	1		2	2.86		2.86						100
Granite Creek		3			4.12							144
Hassayampa	41	18	11,474	1,837.94	80.00	1,917.94	35,459	17	35,476	97,988	9,541	98,158
Humbug	2	32	2,015	921.20	127.87	1,049.07	2,192	20	2,212	1,050	19,622	38,905
Indian Creek		1			3.09							108
Kirkland	6	2	83	61.26	5.75	67.01	17		17		27	2,354
Lynn Creek		33			3,615.02	3,615.02		520		520		126,681
Martinez	6		11,917	1,091.16		1,091.16	1,864		1,864	787		39,404

¹Included under "Undistributed."

²Pioneer district lies in both Gila and Pinal Counties.

³Greaterville district lies in both Pima and Santa Cruz Counties.

⁴Casa Grande district lies in both Pima and Pinal Counties.

⁵Old Hat district lies in both Pima and Pinal Counties.

Mine production of gold, silver, copper, lead, and zinc in Arizona in 1934, by counties and districts, in terms of recovered metals—Continued

County and district	Mines producing		Ore, old tailings, etc.	Gold			Silver			Copper	Lead	Zinc	Total value
	Lode	Placer		Lode	Placer	Total	Lode	Placer	Total				
			Short tons	Fine ounces	Fine ounces	Fine ounces	Fine ounces	Fine ounces	Fine ounces	Pounds	Pounds	Pounds	
Yavapai County—Continued.													
Peck.....	2		384	4.78		4.78	44,058		44,058	925	18,811		\$29,419
Pine Grove.....	2		369	229.50		229.50	993		993	3,125	2,892		9,020
Silver Mountain.....	3	1	33	23.95	3.92	27.87	14		14				983
Squaw Peak.....	1		93	3.49		3.49							122
Thumb Butte.....	2		9	4.78		4.78	3		3				169
Tiger.....		2			3.35	3.35							117
Tip Top.....	8		443	31.13		31.13	16,533		16,533	2,125			11,946
Turkey Creek.....	2	1	20	.20	2.26	2.46	2,322		2,322	1,050			1,671
Verde.....	1		200,754	8,064.52		8,064.52	242,632		242,632	26,147.463			2,530,505
Walker.....	3	7	247	41.23	32.99	74.22	2,263	14	2,277	1,362	486		4,193
Walnut Grove.....	1	4	8	3.69	11.56	15.25		3	3				535
Weaver.....	16	100	3,610	818.34	266.41	1,084.75	809	34	843	1,838	1,432		38,657
White Picacho.....	3	1	1,018	799.14	1.46	800.60	314		314	10,237			29,003
Yuma County:													
Castle Dome.....	6		13	19.00		19.00	116		116				739
Cocopah.....		1			1.26	1.26							44
Colorado River.....		38			110.47	110.47		11	11				3,868
Copper Mountains.....	1		5	3.09		3.09				500			148
Dome.....		25			91.33	91.33		14	14				3,201
Ellsworth ³	19	1	2,842	725.78	1.83	727.61	1,038		1,038	6,363	703		26,636
Fortuna.....	4		35	65.15		65.15	11		11				2,289
Kofa.....	2		15,347	4,223.12		4,223.12	13,221		13,221	62			156,145
Laguna.....		69			153.65	153.65		34	34				5,392
La Paz.....	2	36	2,124	309.44	83.06	392.50	68		68	88			13,771
Muggins Mountains.....		4			14.42	14.42		3	3				506
Planet.....	2		12	35.48		35.48							1,240
Plomosa.....	11	178	559	204.52	467.44	671.96	3,148	54	3,202	925			25,629
Silver.....	1		3	.20		.20	51		51		1,054		79
Trigo Mountains.....	1		2	11.76		11.76							411
Wellton Hills.....	4		121	35.08		35.08	14		14				1,235
Undistributed ⁷			1,477,572	11,019.57	49.07	11,068.64	132,134	8	132,142	33,092,500	270		3,119,684
Total Arizona, 1934.....	747	867	3,270,242	160,041.86	6,982.26	167,024.12	4,447,436	1,038	4,448,474	178,082,213	6,877,216	1,810,279	23,292,150
1933.....	399	179	995,728	74,862.49	5,130.12	79,992.61	2,389,760	603	2,390,363	114,041,781	3,442,540	11,024	10,307,749

³ Ellsworth district lies in both Maricopa and Yuma Counties.

⁷ Includes items entered as "(1)" above.

⁸ Change in value from previous report of this series due to valuation of gold for 1933 at average weighted price (\$25.56 per ounce) instead of at legal coinage value (\$20.67+ per ounce).

COCHISE COUNTY

Cochise and Golden Rule districts (Johnson, Dragoon).—The output of the Cochise district in 1934 was gold ore from the Golden Eagle mine, treated by amalgamation, and first-class copper ore from a claim near Dragoon.

Dos Cabezas district.—The Dives property of the Consolidated Gold Mines Co. in the Dos Cabezas district in 1934 yielded 1,430 tons of gold ore treated in a 40-ton flotation-concentration plant and 207 tons of high-grade gold ore shipped crude to a smelter. Other producers of gold ore were the Gold Ridge, Gold Prince, Silver Dike, Speaks, and Cottonwood mines and several small prospects. The remainder of the lode output consisted chiefly of copper ore of smelting grade from the Southwestern Metals property and silver ore from the Antelope, Mowery, and Parent properties. A little placer gold was recovered from gulches near Dos Cabezas.

Huachuca Mountain (Hartford) district.—Aside from a small lot of gold and silver ore shipped from the Lucy Bell mine, nearly all the lode output in the Huachuca Mountain district in 1934 was gold ore treated by amalgamation from mines in Ash and Bear Canyons. A little placer gold was marketed from a claim in Ash Canyon.

Swisshelm district (Webb, Elfrida).—The output of the Swisshelm district in 1934 was chiefly gold and silver ore, lead ore, and silver ore of smelting grade from the property of the Four-Horse Mining Co.

Teviston district.—Placer gold recovered largely from the Apache Chief and Gold Gulch properties and gold ore of smelting grade shipped from the Cowboy mine were reported from the Teviston district in 1934.

Tombstone district.—The output of ore in the Tombstone district in 1934 was nearly three times that in 1933, due chiefly to the large increase in shipments of silver ore and lead ore from the Tombstone (Bunker Hill) group. In addition to 11,845 tons of ore shipped to a smelter, 4,246 tons of gold and silver ore from the Bunker Hill mine were treated by concentration and the concentrates cyanided. The property was by far the largest producer of gold, silver, and copper in the district and ranked third in the State in output of silver and lead. The Tombstone Extension mine, the largest producer of lead in the district, was operated by the American Smelting & Refining Co. until June 20, 1934, when the property was turned over to the original owners (Tombstone Mining Co.). About 2,000 tons of oxidized silver-lead ore were shipped by the American Smelting & Refining Co., and 1,175 tons of similar ore were shipped by the Tombstone Mining Co. The remainder of the district output was largely silver ore from the Herschel, South Bonanza, and Silver Cloud mines; gold and silver ore from the Old Guard mine; and lead ore from the San Diego property.

Turquoise district (Courtland, Pearce, Gleeson).—Silver ore from the Commonwealth mine at Pearce, treated by cyanidation, was the chief output of the Turquoise district in 1934.

Warren district (Bisbee, Lowell, Warren, Don Luis).—The output of ore and the yield of gold, silver, and copper in the Warren district were considerably greater in 1934 than in 1933, due chiefly to the large increase in output of copper ore of smelting grade from the Copper Queen branch of the Phelps Dodge Corporation. The

company operated its mine at Bisbee and smelter at Douglas continuously in 1934 and was again the largest producer of gold, silver, and copper in the State. The output of the property was largely sulphide copper ore, containing gold and silver, smelted at Douglas. The annual printed report of the Phelps Dodge Corporation states that production from the company mines in 1934, together with metal produced from purchased ores treated at the Douglas smelter, was 68,889 ounces of gold, 3,247,718 ounces of silver, and 101,814,629 pounds of copper. The Copper Queen branch was operated throughout the year, and production came almost entirely from the Junction and Campbell divisions. Development comprised 26,106 feet of exploration and 5,940 feet of stope preparation, besides 10,418 feet of diamond drilling. Dividends paid in 1934 amounted to \$4,007,191.50. The property of the Shattuck Denn Mining Corporation was the only other important operation in the district in 1934. The company resumed operations at its Denn mine October 1 and shipped 7,053 tons of sulphide copper ore to a smelter. The Shattuck mine was operated by lessees who shipped 2,064 tons of gold and silver ore and 406 tons of oxidized lead ore for smelting; 104 tons of old mill clean-up material, containing chiefly gold, were also shipped to a smelter. There were several small producers of gold ore in the district.

Operations at a number of placer properties in the Warren district in 1934 resulted in the production of 245.55 ounces of gold, nearly all from claims in Gold Gulch.

GILA COUNTY

Banner district.—The output of the Banner district in 1934 was mainly oxidized lead ore of smelting grade from the "79" mine; gold ore of smelting grade from the Apex, J. K., and Standard properties; and placer gold and silver, chiefly from the Pearl (Bywater) claims.

Globe district (Miami, Inspiration).—The increase recorded in the ore output of the Globe district in 1934 was due entirely to the resumption of operations by the Miami Copper Co. July 1, 1934, after being idle since May 15, 1932. The company milled more than 356,000 tons of partly oxidized copper ore in 1934 and shipped concentrates and cement copper for smelting. The remainder of the district lode output consisted chiefly of gold ore from the Golden Eagle and Cedar Tree mines, oxidized lead ore from the Van Winkle mine, and gold and silver ore from the Shafer property. The district placer output valued at \$1,786 came almost entirely from the Inspiration, Three Johns, and Lost Gulch claims.

Green Valley district.—The largest producer in the Green Valley district in 1934 was the Tornado mine, which produced 2,320 tons of low-grade gold ore treated by amalgamation, cyanidation, and flotation concentration in a 50-ton mill. The remainder of the lode output was small lots of gold ore produced from several claims and treated in a custom milling plant. A little placer gold and silver were recovered from claims in Oxbow Gulch.

Pioneer district.—The Pioneer district lies largely in Pinal County but partly in Gila County. Two cars of sulphide lead ore rich in gold were shipped in 1934 from the Ashby mine in the Gila County section of the district.

GRAHAM COUNTY

Clark district.—One car of gold ore was shipped in 1934 from the Last Chance mine 26 miles west of Pima, and a small test lot of copper ore was marketed from a prospect.

Lone Star district.—Small lots of gold ore and of lead ore containing considerable gold were shipped in 1934 from claims near Safford.

GREENLEE COUNTY

Chase Creek district.—A small quantity of placer gold was recovered in 1934 from claims in Chase Creek.

Copper Mountain district (Morenci, Metcalf, Clifton).—Gold ore of smelting grade from the Stargo and Dover properties was the chief output of the Copper Mountain district in 1934. One car of silver ore from the Lakenan group and one car of oxidized copper ore from the Dannenhour property were shipped to the smelter at El Paso, Tex., and a little gold ore from unidentified claims was treated by amalgamation. A small placer output came from claims in Gold Gulch.

San Francisco River district.—The entire output of the San Francisco River district in 1934 was placer gold recovered by many operators along the river; nearly all of it was sold to bullion buyers in Clifton. The chief producer was the Smuggler property 5 miles below Clifton.

MARICOPA COUNTY

Big Horn district.—Gold ore from the Fortunate Fields property south of Aguila was treated in 1934 by amalgamation, and first-class gold ore was shipped from the Gold Hill mine. Small placer production came from the Eagle Nest group.

Camp Creek district.—One car of gold ore from the Fort Worth property 17 miles northeast of Cavecreek was treated in 1934 by amalgamation.

Cave Creek district.—The chief producing mine in the Cave Creek district in 1934 was the Steele (Golden Reef) group, where gold valued at about \$5,000 was recovered by amalgamation. Most of the remainder of the district lode output came from the Rackensack and other claims northeast of Phoenix. Three placer mines yielded 5.95 fine ounces of gold.

Ellsworth (Harqua Hala) district.—From the Golden and Aguila mines southwest of Aguila in the Harquahala Mountains gold ore was shipped in 1934 for smelting.

Gila Bend Mountains district.—The Gold Spot mine produced 50 tons of low-grade gold ore treated by amalgamation in 1934.

Magazine district.—The Red Rover mine north of Camp Creek was the only producing mine in the Magazine district in 1934 worthy of mention; about 250 tons of ore, containing chiefly silver and copper, were marketed.

Salt River Mountains district.—The Ace Mining & Development Co. operated the Delta mine 9 miles south of Phoenix and shipped 3,210 tons of gold ore of smelting grade in 1934; the company was the largest gold producer in Maricopa County and reported paying a small dividend. Three cars of gold ore were shipped from the Simpson prospect.

San Domingo district.—The output of the San Domingo district in 1934 was placer gold from the Red Bird claim and various small operations in San Domingo Wash 12 miles north of Morristown.

Vulture district.—At the Vulture property gold was recovered by amalgamation as a result of the work of the East Vulture Mining Co. on near-surface ore; gold was also recovered by lessees working the old tailings dump by cyanidation. About 8,000 tons of ore were treated by amalgamation and concentration and 30,200 tons of old tailings were treated by cyanidation. First-class gold ore (846 tons) was shipped from the Sunrise mine, and ore was treated locally by amalgamation. Gold ore was also shipped from the Hidden Treasure, Mariona, and other claims northwest of Wickenburg. The placer output was relatively small, consisting of dust and bullion sold at Wickenburg.

Winifred district.—The chief output of the Winifred district in 1934 was five cars of gold ore from the Jack White mine.

MOHAVE COUNTY

Bentley (Grand Gulch) district.—One car (16 tons) of copper ore was shipped in 1934 from Copper Mountain 70 miles south of St. George, Utah.

Bull Rush Canyon district.—One car of oxidized copper ore was shipped in 1934 from the Spotted Bull mine near Fredonia.

Cedar Valley district.—Ore containing chiefly chalcopyrite, wolframite, and scheelite was treated in 1934 by concentration at the Boriana property 23 miles east of Yucca. Copper concentrates made by flotation were shipped to local smelters, and tungsten concentrates separated by gravity concentration were shipped east.

Chemehuevis district.—The lode output of the Chemehuevis district in 1934 consisted of small lots of gold bullion recovered by amalgamation at the Black Eyed Susan, Citadel, and various claims south of Topock and one lot of lead ore shipped from the Moon prospect. The only placer producer worthy of note was the Chief claim worked by dry concentration.

Cottonwood district.—Several cars (278 tons) of first-class gold ore were shipped in 1934 from the Walkover mine southwest of Hackberry.

Gold Basin district.—The Cyclopic & San Juan group, the only important lode producer in the Gold Basin district in 1934, was worked most of the year by various lessees and from October 1 to November 15 by the Mayo Engineering Co. A 50-ton cyanide mill treated gold ore, and many improvements were made before the mill was closed on account of cold weather. The placer output was recovered chiefly by dry washing at the Gold Basin and Railroad claims 70 miles north of Kingman.

Indian Secret district.—One car of silver ore from the White Hills group was shipped to Utah in 1934 for smelting.

Lost Basin district.—The output of the Lost Basin district, all placer and largely from the Petty claim, decreased decidedly in 1934. The King Tut placer, productive in 1933, was idle.

Maynard district.—At the Gold King mine lead ore containing considerable gold and silver was treated in a 75-ton concentration plant during 4 months early in 1934.

Minnesota district.—One car of gold ore from the Expansion group and a small lot of similar material from the Skookum claims were shipped in 1934 for smelting.

Owens (McCracken and Potts Mountain) district.—One car of lead ore was shipped in 1934 from the Lead Pill, and small lots of gold ore were amalgamated at the Adela, Gold Leaf, Fairview, and Paddy Jane claims.

San Francisco (Oatman, Gold Road, Vivian, Katherine) district.—A marked increase in output (more than 17,900 ounces in gold) was shown in the San Francisco district (including the Katherine area) in 1934, due to resumption of milling February 13 at the Tom Reed custom plant (doubtless because of the increase in price of gold). The Tom Reed mine at Oatman was the largest gold producer in the district. Custom material from mines near Oatman came chiefly from the United American, Consolidated Gold, Amulet (Pioneer), Ruth Rattan, New York, Gold Road, Gold Dust, and United Eastern (tailings) mines. The Big Jim mine was worked throughout the year by the Big Jim Operating Co. and ranked second in the district as a gold producer. The 50-ton cyanide plant treated more than 16,000 tons of ore from the Big Jim mine and 362 tons from the Telluride. An important production (valued at about \$30,000) was made at the Ruth Rattan property. The gold output of the Lexington, Mossback, Amulet, Telluride, Gold Road, United Eastern, New York, Gold Dust, and Stoney Crane mines ranged between 200 and 400 ounces each. In the Katherine section south of Oatman the Gold Standard Mines Corporation operated the Arabian, Roadside, and Frisco mines; the ore was treated in the Katherine mill near the Colorado River. Custom ore was received from the Tyro mine. The Katherine mill treated nearly 39,000 tons of ore and recovered 6,095 ounces of gold. The remainder of the district output consisted of numerous shipments made by lessees to the Tom Reed custom plant.

Wallapai district (Cerbat, Chloride, Kingman, Mineral Park, Stockton Hill).—The ore output of the Wallapai district increased decidedly in 1934 as a result of small shipments from mines north of Kingman. The Alameda mine was worked 6 months and produced gold from low-grade ore treated by amalgamation. Some lead-zinc ore from the United States group 12 miles north of Kingman was treated by concentration, and two small lots of concentrates were sent to Midvale, Utah. Several cars of ore containing chiefly silver and gold were shipped from the Middle Golconda group to Superior, Ariz., and Midvale, Utah, for smelting. Shipments of one car each were made from the Cashier, Gold Bar, Jamison, Good Hope, Hillside, Mohawk, "98", and Scotty mines, and small lots of gold ore were treated by cyanidation.

Weaver district.—The Gold Bug Mining & Milling Co. produced 121 tons of first-class gold ore in 1934 from the Esther-Mary Lou-Blue Bird group northwest of Chloride. Gold was recovered by cyanidation at the Golden Door mine. Silver ore containing gold was shipped from the New Weaver and Weaver-Mutual mines.

PIMA COUNTY

Ajo district.—The Phelps Dodge Corporation resumed operations July 1, 1934, at its New Cornelia property, idle since April 23, 1932. The property was the only producer in the Ajo district in 1934 and the largest producer of gold, silver, and copper in Pima County; the output during the 6 months operated was 1,477,000 tons of copper ore, which was treated in the company 15,000-ton flotation concentrator. Because of the long shut-down period much work was required to prepare the open pit for mining and to build up a reserve of broken ore in advance of the shovels. Caterpillar mounts were substituted for the former railroad mounts of the shovels. Necessary repairs were made at the concentration plant and at the power plant.

Amole district.—The output of the Amole district in 1934 was nearly all gold and silver ore from the Tucson group and a claim near Tucson.

Arivaca district.—The chief output of the Arivaca district in 1934 was copper-tungsten ore from the Guijas mine, operated by the Ore, Metal & Engineering Corporation. About 1,700 tons of ore were treated in the company 25-ton concentration plant; the resulting tungsten concentrates were shipped east, and the copper concentrates were shipped to Superior for smelting. The remainder of the district lode output consisted chiefly of gold ore from the Ajax, Contact, Elzo, Mother Lode, Rosebud, Rebecca, and Buster properties; lead ore from the Rosebud and Silver Crown mines; and gold and silver ore from the Silver Crown and Buena Vista mines. Many small lots of gold ore from various prospects were sold to Hugo Miller's assay office at Nogales. The chief placer producer was the Arivaca Placer, Ltd., working claims on Arivaca Creek; about \$1,367 in gold and silver was recovered by sluicing operations. Other placer producers worthy of note were the Pena Blanco, Sanchez, and Keppler properties.

Baboquivari district.—Most of the ore produced in the Baboquivari district in 1934 was gold ore of smelting grade from the Gold King mine operated by the Gold King Mining & Development Co.; gold concentrates produced from ore from the lowana mine were marketed, and small lots of gold and silver ore from various prospects were sold to ore buyers in Tucson.

Cababi (Comobabi) district.—The output of the Cababi district in 1934 was chiefly gold ore, treated by amalgamation, from the Jaeger group and sulphide lead ore of smelting grade from the Copper Glance (Mildren) property. A little placer gold was recovered from a claim 7 miles northeast of Sells.

Casa Grande (Cimarron Mountains) district.—The Casa Grande district lies in both Pima and Pinal Counties. The only producer in the Pima County section in 1934 was the Monte Cristo mine, from which two cars of gold ore of smelting grade were shipped.

Empire district.—The output of the Empire district in 1934 consisted of one car of gold ore containing appreciable lead from the El La Plaza mine, one car of low-grade gold ore from a prospect, and some copper matte from the Last Chance group.

Greaterville district.—One car of gold ore containing considerable lead was produced in 1934 from the Golden Gate mine, a little silver-lead ore was marketed from the Juniper & Belmont group, and small lots of crude lead ore and of concentrates were sold from various prospects to an ore buyer in Tucson. The placer output (\$2,418 in

gold and silver) came chiefly from the McAnney Estate and the Richardson property.

Helvetia district.—The entire output of the Helvetia district in 1934 was copper ore, chiefly from the Atkins property.

Old Hat district.—The part of the Old Hat district that lies in Pima County produced placer gold in 1934, chiefly from claims in Alder Canyon.

Pima (Sierrita, Olive, San Xavier, Helmet Peak, Twin Buttes) district.—One car of silver ore was shipped in 1934 by the Aguinaldo Mining Co., a little gold ore and lead ore were produced from the Keystone claim, and small lots of silver ore and lead ore were marketed from various prospects in the Pima district.

Quijotoa district.—The chief output of the Quijotoa district in 1934 was gold ore treated by amalgamation and concentration from the Pack Rat-Hillside-Mocking Bird group; gold ore was also produced from the Morgan mine and from small prospects. Various placer operators produced \$716 in gold and silver.

Santa Rosa district.—The output in the Santa Rosa district in 1934 comprised small lots of ore from various prospects, the chief production coming from the El Dorado mine.

PINAL COUNTY

Big Butte district.—Gold ore from the Old Ironsides mine 16 miles northeast of Florence was treated in 1934 by amalgamation and concentration.

Blackwater district.—A small lot of gold ore of smelting grade was produced in 1934 from the Gold Bullion mine 20 miles west of Florence.

Bunker Hill district (Copper Creek).—The Bunker Hill and Clark properties each produced one car of sulphide copper-lead ore of smelting grade in 1934. The chief mineral output of the Bunker Hill district was molybdenum ore from the property of the Arizona Molybdenum Corporation, treated by flotation concentration.

Casa Grande district.—The Mammon, Golden Eagle, Copa de Oro, and Old Joner mines were the chief producers in the Pinal County section of the Casa Grande district in 1934; the output was gold ore of smelting grade.

Cottonwood district.—The Betty Jane and Elizabeth mines were the only producers in the Cottonwood district in 1934; the output was gold ore.

Goldfields district.—The small output of the Goldfields district in 1934 was gold ore from various prospects.

Mineral Creek district (Ray, Kelvin).—The output of the Mineral Creek district in 1934 was insignificant as the Ray property of the Nevada Consolidated Copper Corporation, a former large producer of copper ore, was idle the entire year. The Silver Queen Mines produced one car of silver ore and the Gold Butte mine a small lot of gold ore; a little gold bullion was marketed from a prospect.

Old Hat district (Oracle, Mammoth).—The output of the Pinal County section of the Old Hat district in 1934 was greater than for many years, due to the output of gold ore from the New Year-Mohawk group of the Molybdenum Gold Mining Co. near Mammoth. The company treated more than 25,000 tons of ore containing gold,

wulfenite, and vanadinite in its 100-ton concentration-cyanidation mill. The ore is treated by table concentration to recover the molybdenum and vanadium minerals, and the tailings are treated by cyanidation to recover the gold. The remainder of the district lode output was nearly all gold ore, from several prospects. The placer output valued at \$1,378 came chiefly from the Carolina Moon property 6 miles southeast of Oracle.

Pioneer district (Superior).—The production of gold in the Pinal County section of the Pioneer district in 1934 was more than double that in 1933 and there were decided increases in the production of silver and copper, all as a result of the increase in output of copper ore from the Magma mine and gold ore from the Lake Superior & Arizona property owned by the Magma Copper Co. The Magma mine was operated 273 days, the 450-ton smelter at Superior 314 days, and the 600-ton flotation and gravity concentration mill 318 days. According to the annual printed report of the Magma Copper Co. the Magma mine produced 264,094 tons of ore of all classes in 1934, averaging 6.54 percent copper, and 2.93 ounces of silver and 0.034 ounce of gold to the ton, compared with 145,425 tons of ore in 1933, averaging 7.92 percent copper, 3.62 ounces of silver, and 0.035 ounce (corrected figure) of gold. The metal production from the mine after deducting all losses, as reported by the smelter, was 31,646,576 pounds of copper, 713,712 ounces of silver, and 9,100.36 ounces of gold in 1934 compared with 19,628,135 pounds of copper, 473,384 ounces of silver, and 4,597.30 ounces of gold in 1933. Development in 1934 totaled 12,801 feet, chiefly in drifting. The Lake Superior & Arizona mine was again operated by lessees in 1934, and 19,136 tons of ore assaying 0.653 ounce of gold and 0.87 ounce of silver to the ton and 0.32 percent copper were shipped to the smelter at Superior; the metal yield was 12,490.94 ounces of gold, 16,466 ounces of silver, and 113,040 pounds of copper. The mine ranked second as a gold producer in Arizona in 1934. Lessees continued to operate the Belmont mine in 1934 and shipped 3,484 tons of gold and silver ore and gold ore containing 1,112 ounces of gold, 50,988 ounces of silver, and 35,784 pounds of copper. Operations at the Reymert, idle since March 1930, were resumed in February 1934; lessees shipped 1,117 tons of silver ore of smelting grade. The remainder of the district output was largely gold ore from the Queen Creek Copper property.

Ripsey district.—The chief output of the Ripsey district in 1934 was gold ore from the Old Ripsey mine 8 miles south of Wooley.

Riverside district.—The Mendoza property 5 miles south of Kelvin was operated by a lessee in 1934, and 88 tons of gold ore were shipped for smelting; one car of gold ore was shipped from the Arizona Gold group.

Saddle Mountain district.—The Collins Pacific Co. operated the old Adjust mine for a short time in 1934 and treated 805 tons of silver ore in a 50-ton flotation concentrator. The remainder of the Saddle Mountain district output was gold ore, chiefly from the Two Queens property near Winkelman.

Summit district.—The only output in the Summit district in 1934 was one car of copper-silver ore from the American mine 11 miles east of Superior.

SANTA CRUZ COUNTY

Nogales district.—The output of the Nogales district in 1934 consisted of small lots of gold ore from three prospects and a test lot of copper-lead ore. A little placer gold was produced by two operators.

Oro Blanco district.—Of the 36,297 tons of ore and old tailings produced in the Oro Blanco district in 1934, more than 35,000 tons was lead-zinc ore treated by flotation concentration from the property of the Eagle-Picher Mining & Smelting Co. at Ruby. The company resumed operations in April 1934 at its Montana and Ruf & Ready groups, idle since July 15, 1930, and again became the largest producer of lead and zinc in the State; it was also a large producer of gold and silver. The company 300-ton concentration plant started operations late in August; lead concentrates containing appreciable gold and silver were shipped to El Paso, Tex., and zinc concentrates to Amarillo, Tex. The Margarita Gold Mines Co. worked its property at Ruby 3 months and treated 836 tons of gold ore in a 25-ton cyanide plant. The remainder of the district lode output was largely gold ore from the Yellow Jacket, Dos Amigos, White Gold, and Gold Case & San Juan properties and from several prospects at Ruby; the Commodore mine produced four cars of silver ore and the Cramer group two cars of gold and silver ore. Three placer operators recovered gold and silver valued at \$392.

Pajarito district.—Small lots of lead ore and a little gold ore were produced in 1934 from three claims in the Pajarito district.

Palmetto district.—The Brown property 5 miles south of Patagonia produced one car of copper ore which was shipped in 1934 to El Paso, Tex.

Patagonia (Washington, Duquesne) district.—The output of the Patagonia district in 1934 was chiefly gold ore of smelting grade from the Kit Carson, Ala., and Bozo mines and first-class silver-lead ore from the Belmont claim. Placer gold was recovered from claims 12 miles southeast of Patagonia.

Tyndall district (Alto).—The Morning Star and Oak claims each produced one car of copper ore in 1934. Small lots of silver-lead ore and copper-lead ore were produced from prospects.

Wrightson district.—The chief output of the Wrightson district in 1934 was silver ore from the East Side mine and lead ore from the Lead King group.

YAVAPAI COUNTY

Ash Creek district.—Two cars of gold ore from the Gold Coin mine were shipped in 1934 by the Southwestern Gold Mining Corporation.

Big Bug district.—More than 87 percent of the ore produced in the Big Bug district in 1934 was gold ore from the Gladstone-McCabe property of the Harbud Mines Co. The company completed a new 150-ton flotation-concentration plant in March; milled 38,000 tons of ore; and shipped 1,437 tons of concentrates containing an average of 2.404 ounces of gold to the ton and a little silver, copper, and lead to El Paso, Tex., for smelting. The Arizona Consolidated Mining Co. worked the Union-Jessie group and treated about 2,000 tons of gold ore in a 75-ton flotation-concentration plant. The Southern Exploration Co. treated several hundred tons of gold ore from the Lelan-

Dividend group in a concentration plant. Gold ore from the Money Metals property of the Yavapai Gold & Silver Mining Co. was treated by amalgamation, and a few hundred tons of lead ore containing gold and silver were shipped to a smelter. The remainder of the district lode output consisted largely of lead ore of smelting grade from the Poland mine; gold ore of smelting grade from the Cleveland, Henrietta, Silverton, New Outlook, and Ophir properties; and copper ore of smelting grade from the Lottie and Boggs mines. The placer output, valued at \$18,711, came chiefly from the Savoy property on Big Bug Creek, which was worked most of the year by a dry-land dredge equipped with four Ainalay centrifugal bowls and which yielded more than \$15,000 in gold. Bullion buyers at Mayer, Prescott, and Phoenix purchased gold from placer miners working chiefly on Big Bug Creek.

Black Canyon district.—The output of ore and the production of gold and copper in the Black Canyon district in 1934 were more than doubled from 1933; there were also substantial increases in silver and lead. The largest producers were the Golden Turkey Mining Co. and the Golden Belt Mines, Inc., working properties near Cordes. The Golden Turkey Mining Co. completed the construction of a new 50-ton flotation-concentration plant in August and treated 6,807 tons of ore containing chiefly gold, silver, and lead; the company shipped several hundred tons of first-class gold ore for smelting. The Golden Belt Mines, Inc., treated several thousand tons of similar milling ore in its 50-ton flotation-concentration plant. The remainder of the district lode output consisted largely of gold ore from the Richinbar mine treated by amalgamation, sulphide lead ore of smelting grade from the Gold Crown (Silver Chord) property, and first-class gold ore of smelting grade from various prospects. Nearly all the placer output came from various claims near Bumble Bee and Canon and was sold to local bullion buyers; the largest producer was the Rock Springs claim at Canon.

Black Rock district.—Most of the output of the Black Rock district in 1934 was copper ore from the property of the Monte Cristo Gold Silver Co. Late in the year the company ran its 50-ton flotation-concentration plant and shipped two cars of concentrates containing chiefly copper, silver, and gold. The Golden Gate mine at Constellation was active in 1934, and several cars of gold ore containing appreciable copper were shipped to a smelter. Seven tons of exceptionally rich gold ore from the Gold Bar mine were shipped to a smelter, and a little gold ore was amalgamated. Gold ore from the Amazon and Homestake mines and from several prospects was amalgamated. A little placer bullion was recovered from claims along the Hassayampa River.

Blue Tank district.—About 48 tons of low-grade gold ore from the Big Copper prospect were treated by amalgamation in 1934.

Castle Creek district.—There was a substantial increase in production of gold in the Castle Creek district in 1934. Most of the output was first-class gold ore of smelting grade from the Golden Aster property and from two prospects; the old Whipsaw property, 10 miles northwest of Hot Springs, produced three cars of low-grade copper ore containing gold. A little placer gold was recovered from two claims on Buckhorn Creek.

Cherry Creek district.—The entire metal output of the Cherry Creek district in 1934 was from gold ore and from the treatment of gold old.

tailings. Several cars of rich gold ore from the Bunker property were shipped to a smelter; gold ore from the Lucky Bird mine was treated by amalgamation, and more than 200 tons of old tailings were treated by cyanidation; gold ore from the New Broom, Cross Cut, and Fox mines and from several prospects was amalgamated; and gold ore from the Swallow mine and from an unknown property was cyanided.

Copper Basin district.—The Skull Valley Mining & Reduction Co. constructed a 25-ton custom mill in the Copper Basin district in 1934 and treated 163 tons of gold ore from the Pioneer group by amalgamation and concentration; the operators of the Pioneer property also shipped one car of gold ore to a smelter. The remainder of the Copper Basin district lode output comprised a little gold ore from two prospects. The bulk of the placer output was sold to bullion buyers at Kirkland, Prescott, Phoenix, and Skull Valley; the chief placer producers were the Gold Star (Forback & Easton), Smith & Roby, and Spruce Canyon properties.

Eureka district.—The output of the Eureka district increased from 367 tons of ore in 1933 to 21,903 tons in 1934, due chiefly to the production of gold ore from the property of the Hillside Mines, Inc. The company constructed a 180-ton flotation-concentration plant, treated 20,793 tons of gold ore during the last 6 months of the year, and became a large producer of gold and silver; it also shipped gold ore for smelting. The Sultan Gold Mining & Milling Co. worked the Sultan mine, treated gold ore by amalgamation, and shipped several cars of first-class gold ore to a smelter; besides treating ore from the Sultan mine the company did a little custom work on gold ore. Lessees operating the old Crosby mine treated gold ore by amalgamation and concentration and shipped 127 tons of rich gold ore to a smelter. The remainder of the district lode output was largely gold ore of smelting grade from the Mammoth, Southern Cross, Cowboy, Gold Standard, Gold Star, Boomer No. 1, Rattlesnake, and Providencia mines and from two prospects. Placer gold valued at \$533 was recovered from claims on Burro Creek and Santa Maria River and from various gulches northwest of Hillside.

Hassayampa (Groom Creek, Hassayampa River, Senator, Prescott, Venezia) district.—More than half the ore, old tailings, etc., produced in the Hassayampa district in 1934 was gold and silver ore from the Davis-Dunkirk property treated by flotation concentration. The Davis-Dunkirk Mines, Inc., operated the property from January 1 to August 1 and treated about 6,400 tons of ore in its 100-ton mill. The Midnight Test mine and mill were operated the first 6 months of the year, and nearly 2,000 tons of gold ore from the mine were treated by amalgamation and concentration; 650 tons of gold ore from the Gold Charm property, about 650 tons of similar ore from the Gold Basis property, and 84 tons of low-grade gold ore from the Golden Eagle mine were also treated by amalgamation and concentration. A total of 1,015 tons of gold ore from the Alma, Pine Grove, Climax, Grosvenor, Storm Cloud, and Brown properties was treated by amalgamation. The remainder of the district lode output was largely gold ore of smelting grade from the Stivers, Senator, White Horse, Big Chief, and Dead Shot properties; copper ore of smelting grade from the Ratcliff, Grub, and Earl properties; and silver ore of smelting grade from the Monte Cristo and McCarthy mines. A

small lot of old tailings rich in gold was shipped from the Sonora Ellen property to a smelter. The placer output, sold to buyers at Prescott and Phoenix, came chiefly from claims along the Hassayampa River; the Philadelphia property was the largest producer.

Humbug district.—The output of the Humbug district was considerably greater in 1934 than in 1933 as a result of the output of gold ore from the Fogarty group, operated by the Humbug Gold Mines, Inc. The mine and 35-ton concentration mill were active until July 1, when the mill was closed on account of lack of water; during the first 6 months of the year the company treated about 2,000 tons of ore by gravity and flotation concentration and shipped 83.5 tons of concentrates rich in gold to El Paso, Tex. Numerous placer miners recovered gold from claims along Humbug, French, and Cow Creeks; nearly all of it was sold to bullion buyers at Phoenix, Wickenburg, and Prescott.

Kirkland district.—The output of the Kirkland district in 1934 comprised gold ore, chiefly from the Million Dollar and Dutchman properties, and a little placer gold recovered from claims on Kirkland Creek.

Lynx Creek district.—The production of gold (all placer) in the Lynx Creek district increased from 1,287.26 fine ounces in 1933 to 3,615.02 ounces in 1934 as a result of regular operations by the Lynx Creek Placer Mine Co. and the Phoenix Lynx Creek Placers. The Lynx Creek Placer Mine Co. operated a floating dredge at the Fitzmaurice property from April to December, and the Phoenix Lynx Creek Placers operated claims on Lynx Creek nearly all the year. Many placer miners recovered gold along Lynx Creek, and most of it was sold to bullion buyers at Prescott.

Martinez district.—The Illinois Mining Corporation treated several thousand tons of old tailings from the Congress dump in 1934 by concentration and during the last quarter of the year treated several thousand tons by cyanidation. The remainder of the Martinez district output was first-class gold ore of smelting grade from the Coronado, Blue Bird, Alaska, Bed Rock, and Hermsdorf properties.

Peck district.—The Gold Crown Silver Mining Co. was the only important producer in the Peck district in 1934. The property had been idle several years but was reopened in July; during the remainder of the year nearly 400 tons of ore averaging more than 100 ounces of silver to the ton were shipped to a smelter.

Pine Grove district.—The old Crown King property was worked in 1934; a few hundred tons of gold ore were treated in a 75-ton flotation-concentration plant, and three cars of rich gold ore were shipped to a smelter. A little gold ore from the Towers Mountain prospect was treated by amalgamation and concentration.

Silver Mountain district.—A little gold bullion was produced in 1934 from ore treated by amalgamation at the Logan, Comet, and Bradley prospects, and a small quantity of placer gold was recovered from the Silver Mountain claim by dry washing.

Squaw Peak district.—Ninety-three tons of low-grade gold ore from the Lucky Boy property were treated by amalgamation in 1934.

Thumb Butte district.—The Blue Eagle and Indiana claims produced a little gold ore treated in 1934 by amalgamation.

Tip Top district.—The output of the Tip Top district in 1934 was nearly all high-grade silver ore of smelting grade from the Tom Wade,

Museum, and Fourth of July mines and four unidentified properties; some of the ore averaged more than 300 ounces of silver to the ton. The Midway claim produced one car of gold ore.

Turkey Creek district.—One car of copper ore rich in silver was shipped from the Goodwin mine in 1934 by a lessee, a small lot of high-grade silver ore was marketed from a prospect, and a little placer gold was recovered from a claim on Turkey Creek.

Verde district (Jerome).—The United Verde Extension Mining Co. was the only producer in the Verde district in 1934; its ore output was 17 percent less than in 1933, resulting in substantial decreases in production of gold, silver, and copper. The company operated its mine and 200-ton flotation-concentration mill continuously and its 800-ton smelter 304 days; 54,299 tons of copper ore were treated in the mill, and 146,455 tons of copper ore were shipped crude to the smelter. According to the company's printed report for the year ended December 31, 1934, 26,136,368 net pounds of copper were produced from company ore compared with 33,197,118 pounds in 1933; development consisted of 3,502 feet of drifting and 1,118 feet of raising. The company ranked fourth in production of silver and copper in Arizona in 1934 and fifth in gold.

The United Verde Copper Co., formerly the largest producer of gold, silver, and copper in Arizona, has been idle since May 1931.

Walker district.—The output of the Walker district in 1934 consisted of 200 tons of low-grade gold ore from the Pine Mountain property, treated by amalgamation; 1 car of rich silver ore of smelting grade from the Sunset & Buzzard mine; 27 tons of old mill clean-up material from the Sheldon property; and placer gold and silver from the Federal claim on Slaughterhouse Gulch and from various small operations on upper Lynx Creek.

Walnut Grove district (Wagoner).—A little gold ore from the Golden Eagle mine was treated in 1934 by amalgamation, and placer bullion from the Glenn, Cole, and various prospects in French and Placeritas Gulches was sold to bullion buyers.

Weaver district.—The production of gold from lode mines in the Weaver district increased in 1934. Of the 3,610 tons of ore produced from 16 mines more than two thirds was gold ore from the Octave group, treated by flotation concentration. The American Smelting & Refining Co. completed the construction of a 75-ton flotation plant on this property in November, treated 2,636 tons of gold ore, and shipped 36 tons of rich gold concentrates to El Paso, Tex., for smelting. The remainder of the district lode output was chiefly gold ore treated by amalgamation from the Alvarado, Brush Heap, and Iron Cap properties and gold ore of smelting grade from the Last Chance, Brush Heap, Dixie, George Myers, "94", Powley, St. Elmo, and Leviathan properties. About 100 small placer operators worked in the district in 1934, but the yield of gold was less than in 1933; most of it was sold to bullion buyers at Congress, Wickenburg, Octave, and Prescott.

White Picacho district.—The Golden Slipper mine was again operated by lessees in 1934, and more than 800 tons of fairly rich gold ore were shipped to various smelters; several cars of gold ore were also shipped from an unidentified property, and a little gold ore from a prospect was treated by amalgamation. A small quantity of placer gold was recovered from Todos Santos Creek.

YUMA COUNTY

Castle Dome district.—Nearly all the output of the Castle Dome district in 1934 was small lots of gold ore from several prospects treated by amalgamation; a little rich gold ore from the Look Out mine was shipped for smelting.

Colorado River district.—Numerous operators along the Colorado River north of Yuma sold placer dust or bullion valued at \$3,868 to storekeepers in Yuma in 1934.

Dome (Gila City) district.—The old Gila City placers were worked again in 1934, and \$3,201 in gold and silver was recovered by transient operators.

Ellsworth district.—Of the total material produced in the Yuma County section of the Ellsworth district in 1934, more than 1,500 tons were old tailings from the Harqua Hala dump treated by cyanidation. The Bonanza mine was operated by two groups of lessees, and a total of 325 tons of gold ore was treated by amalgamation and concentration. Two cars of rich gold ore from the Golden Eagle mine were shipped to a smelter, and about 90 tons of gold ore were treated by amalgamation and concentration. The remainder of the district lode output consisted chiefly of gold ore from the Hercules, Why Not, Soccoro, Alaskan, Lizzie, Cary Nation, and Edna May properties treated by amalgamation and concentration; gold ore from a prospect treated by cyanidation; gold ore of smelting grade from the Worcester, Cowden, Why Not, and Yuma Gold properties; and gold ore from the Alta Gold mine treated by amalgamation. All the gold ore treated by amalgamation and concentration was milled in the custom milling plant owned by the Salome Mining & Milling Co. at Harrisburg. A little placer gold was produced from the Concepcion claim 8 miles south of Wenden.

Fortuna district.—The chief producer in the Fortuna district in 1934 was the old Fortuna mine 30 miles southeast of Yuma. Several lots of rich gold ore were shipped to a smelter by a lessee.

Kofa district.—The 100-ton mill on the property of the Sheeptanks Consolidated Mines Co. operated from February 1 to August 20, 1934, and treated 15,167 tons of gold ore by cyanidation; during this time the property became a large producer of gold. The Katy Ross group was worked by the Rob Roy Development Co., and several hundred tons of gold ore were treated in the company 50-ton amalgamation and concentration plant.

Laguna district.—The entire output of the Laguna district in 1934 was placer gold recovered from claims in the McPhaul, Las Flores, and Laguna Dam areas; many transient placer miners worked claims by dry washing during the period of cool weather.

La Paz district.—The Scott Lode No. 1, 12 miles southwest of Quartzsite, was worked in 1934 by the Scott Lode Mines, Inc.; the company treated 2,100 tons of low-grade gold ore in a 20-ton amalgamation and concentration mill. The placer output of the La Paz district was sold to storekeepers in Quartzsite, Ariz., and Blythe, Calif.

Muggins Mountains district.—The output of the Muggins Mountains district in 1934 was placer gold, largely from the Snooks claim 30 miles east of Yuma.

Planet (Harcuvar) district.—Small lots of rich gold ore were produced in 1934 from the Planet and Angelus properties 28 miles north of Bouse.

Plomosa district.—Although the chief output of the Plomosa district is placer gold, there was considerably more activity at lode mines in 1934 than in 1933. The Old Brown mine 6 miles northwest of Quartzsite was worked by the Rebecca Mines Co., and a few hundred tons of gold ore were treated by amalgamation and concentration. Gold ore was also produced from the Dutchman, Old Maid, and Great Bear mines and from miscellaneous properties and silver ore from the R. & A. group. The placer output of the district was valued at \$16,372, the larger part of which was sold to storekeepers in Blythe, Calif., and Quartzsite, Ariz.; the chief producers were the Yellow Dog, La Cholla (Happy Days), N. R. A., and Fool Mountain No. 2 properties. There are three definite placer areas in the Plomosa district—Plomosa, La Cholla, and Middlecamp; their production was about equal in 1934.

Silver district.—The Red Cloud mine 60 miles north of Yuma yielded a small lot of sulphide lead ore in 1934.

Trigo Mountains (Cibola) district.—A small quantity of exceptionally rich gold ore from the Grand Central mine was treated by amalgamation in 1934.

Wellton Hills district.—The entire output of the Wellton Hills district in 1934 was gold ore, largely from the Frazier property, treated by amalgamation. The Wellton Mining & Milling Co. treated a little gold ore in a 25-ton cyanidation plant.

COAL

(DETAILED STATISTICS)

SUMMARY OUTLINE

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Part 1.—BITUMINOUS COAL

By L. MANN, W. H. YOUNG, and F. G. TRYON

The urgent need for economy in public expenditure impels the Bureau of Mines to confine this report to presenting, through selected tables, the essential facts of the statistical record for the year. The reader is referred to the chapter on Coal in the Minerals Yearbook, 1935, pages 613 to 648, for a preliminary discussion of the developments in the coal industry in 1934.

ACKNOWLEDGMENTS

This report marks the fifty-fourth year of the continuous statistical record of coal production. Like its predecessors, the report is made possible by the voluntary cooperation of those interested in the coal industry; and it is a pleasure to acknowledge the generous support of the thousands of individual producers, distributors, and consumers who have supplied information. Detailed reports on production and mine operation have been made by about 6,200 commercial mines and on stocks and consumption by approximately 4,500 representative consumers.

Particularly valuable has been the help afforded by the traffic managers of the coal-originating railroads, who have furnished detailed records of shipments on their lines. For the weekly and daily information on cars of coal loaded, which forms the principal basis of the current estimates of weekly production, the Bureau is under obligation to J. J. Pelley, president, Association of American Railroads, and particularly to H. E. Ewin and G. Freeburg. Current records of shipments by waterways have been furnished by the United States Engineer Office.

Acknowledgment is made also of the generous help of the State mine inspectors, who have assisted in the collection of returns by furnishing information in their files, thereby increasing the accuracy of the statistics. Data have been given by W. B. Hillhouse, chief mine inspector, Birmingham, Ala.; Thomas Allen, chief inspector of coal mines, Denver, Colo.; Arthur Campbell, inspector of mines, Boise, Idaho; James McSherry, director, department of mines and minerals, Springfield, Ill.; A. G. Wilson, chief mine inspector, Indianapolis, Ind.; P. R. Clarkson, secretary to the mine inspectors, Des Moines, Iowa; William Glennon, State mine inspector, Pittsburg, Kans.; J. F. Daniel, chief inspector of mines, Lexington, Ky.; John J. Rutledge, chief mine engineer, Maryland Bureau of Mines, Baltimore, Md.; John Murray, coal-mine inspector, department of labor and industry, Saginaw, Mich.; Arnold Griffith, chief mine inspector, Jefferson City, Mo.; Edward Davies, State coal-mine inspector, Billings, Mont.; O. J. Olson, State coal-mine inspector, Bismarck, N. Dak.; James Wittenbrook, chief of division of labor statistics, Columbus, Ohio; James R. Ballard, department of mines, Oklahoma City, Okla.; Michael Hartneady, secretary of mines, department of mines, Harrisburg, Pa.; A. W. Evans, chief mine inspector, Nashville, Tenn.; J. E. Bergin, chief mine inspector, Seattle, Wash.; N. P. Rhinehart, chief, department of mines, Charleston, W. Va.; and Hugh McLeod, State inspector of coal mines, Rock Springs, Wyo.

The Bureau finds of especial value the cooperation of the secretaries of local associations of coal operators on account of their intimate knowledge of conditions in their several districts. Many of them have supplied current reports of production by fields or other valuable data. For information on 1934 the Bureau is indebted to Jonas Waffle, managing director, Coal Trade Association of Indiana, Terre Haute, Ind.; C. E. Reed, secretary, West Kentucky Coal Bureau, Louisville, Ky.; J. E. Johnson, secretary, Hazard Coal Operators' Exchange, Lexington, Ky.; George S. Ward, secretary, Harlan County Coal Operators' Association, Harlan, Ky.; A. R. Litts, secretary-treasurer,

Central New Mexico Coal Operators Association, Albuquerque, N. Mex.; R. F. Chumbly, statistician, Utah Coal Producers' Association, Salt Lake City, Utah; C. B. Neel, secretary, Virginia Coal Operators' Association, Norton, Va.; P. C. Graney, treasurer, Winding Gulf Operators' Association, Beckley, W. Va.; S. C. Higgins, secretary-traffic manager, New River Coal Operators' Association, Mount Hope, W. Va.; A. O. Wilson, statistician, Kanawha Coal Operators' Association, Charleston, W. Va.; D. F. Hurd, secretary, Eastern Ohio Coal Operators' Association, Cleveland, Ohio; Walter A. Jones, secretary, Central Pennsylvania Coal Producers' Association; W. E. E. Koepler, secretary, Pocahontas Operators' Association, Bluefield, W. Va.; and W. J. Colley, secretary, Logan Coal Operators' Association, Logan, W. Va. To these and many others who have supplied information, cordial acknowledgment is made.

STATISTICAL SUMMARY

TABLE 1.—*Salient statistics of the coal industry in 1934*

	Bituminous	Anthracite
Production.....net tons..	359,368,022	57,168,291
Value at mines.....	\$628,112,000	\$244,152,000
Average value per ton.....	\$1.75	\$4.27
Number of active mines of commercial size.....	1 6,258	(¹)
Stocks of commercial consumers:		
Jan. 1.....net tons..	32,840,000	(¹)
Dec. 31.....do....	34,476,000	(¹)
Net change during year.....do....	+1,636,000	(¹)
Exports.....do....	10,869,000	1,298,000
Imports.....do....	180,000	478,000
Consumption (calculated).....do....	347,043,000	55,500,000
Capacity of mines with present labor force (assuming 303.5 working days in the anthracite field and 308 working days in the bituminous field).....net tons..	622,000,000	84,000,000
Average number of days worked.....	178	207
Average days idle:		
All causes.....	130	96.5
Through strikes and lockouts.....	3	19.9
Other causes.....	127	76.6
Average number employed:		
Underground.....	384,947	83,137
Surface.....	73,064	25,913
Output per man:		
Per day.....net tons..	4.40	2.53
Per year.....do....	785	524
Number of cutting machines.....	11,905	169
Quantity cut by machines.....net tons..	284,676,715	1,981,088
Percent of output cut by machines.....	79.2	3.5
Number of power shovels in strip pits.....	458	349
Quantity mined by stripping.....net tons..	20,789,641	5,798,138
Quantity loaded by machines underground.....do....	41,433,000	9,284,486

¹ The 1934 figures of total number of mines are not fully comparable with preceding years because of more complete coverage of small trucking mines in some States made possible by cooperation of the N. R. A. divisional code authorities.

² Data not available.

³ Data not available. For changes in producers' stocks see table 2A, p. 309.

METHODS OF COLLECTING STATISTICS

The principal statistics for each State in 1934 are given in table 3. They are based upon written reports from the producers, most of them signed by responsible officers of the operating companies. It is believed that virtually complete returns are received for all mines, large and small, that ship by rail or water and for all those of commercial size that serve a purely local market. The figures, however, do not purport to cover the thousands of country banks and small wagon mines, from which less than 1,000 tons of coal a year are mined.

In the present report the standard unit of measurement is the net or short ton of 2,000 pounds.

In statistical reports of the Bureau of Mines the anthracite industry of Pennsylvania and the bituminous-coal industry are listed separately. The statistics of the bituminous-coal industry published in this and preceding reports include data for anthracite and semi-anthracite mined outside of Pennsylvania, as well as for lignite.

More detailed information on the methods of collecting the statistics appears in coal reports for previous years.

As given in this report, the total value is the amount received at the mine f. o. b. cars minus the selling expense. The average value per ton is the average amount received, obtained by dividing the total value by the number of tons sold or produced.

If an operator who is known to have produced coal during the year makes no report of the value of his product to the Bureau of Mines, an estimate of the value is included in the total to make it complete. Since the proportion of the total value actually reported in 1934 was in round numbers 95 percent, the results would seem to be thoroughly representative for the country as a whole. A detailed explanation of the method used in making the estimates and in calculating average values may be found in *Coal in 1930*, pages 645 and 646.

RELATIVE RATE OF GROWTH OF COAL, OIL, AND WATER POWER

The total supply of available energy in the form of coal, oil and natural gas, and water power in 1934 was 20,431 trillion B. t. u.

The figures are expressed in British thermal units because some common denominator is necessary for such unlike quantities as tons of coal, barrels of oil, and cubic feet of gas. Table 2 summarizes the British thermal unit equivalent of each of the fuels. Water power is represented by the equivalent of the fuel that would be required to perform the same work, assuming a low thermal efficiency.

It is important to note that the figures for "domestic oil" and "natural gas", as in earlier issues of this table, represent the entire production of crude petroleum and gas. Most of this production does not come into direct competition with coal. Much of the supply of both oil and gas is used in regions of the country (such as California and portions of the Southwest) where coal is available only at unusually high cost because of heavy transport charges. Nearly half of the natural gas is used in the field for drilling or operating oil and gas wells and pipe lines or for the manufacture of carbon black. More than half the oil is used in the form of gasoline, kerosene, and lubricants, for which purposes coal cannot well compete, except at much higher price levels. Even these refined products, however, involve a certain measure of indirect competition with coal, for the energy market of the country is becoming more fluid and competitive, and a demand that cannot be met by one source of supply tends to fall back on the others. The purpose of this table is to measure the total demand for energy.

TABLE 2.—Annual supply of energy from mineral fuels and water power in the United States, 1913, 1923, and 1930-34

[Figures represent trillions of British thermal units and, because of rounding, do not always add across exactly. In calculating thermal equivalents, the gross British thermal unit values are used. Water power is represented by the British thermal units of coal that would be required to produce the same amount of power, assuming a consumption of 4 pounds of coal per kilowatt-hour, the average performance of central electric stations in 1913. If the present average performance of 1.4 pounds per kilowatt-hour was assumed, the fuel equivalent of water power would be reduced correspondingly. Figures, except those for oil imports, represent production, and take no account of changes of stock. Corresponding data for earlier years will be found in Coal in 1930, p. 623]

Year	Anthracite	Bituminous coal	Total coal	Domestic oil (total crude, including that refined)	Natural gas (total production)	Imported oil (total crude, including that refined)	Total oil and gas	Total mineral fuels	Water power	Grand total including water power
1913.....	2,490	12,535	15,025	1,491	626	102	2,219	17,243	588	17,831
1923.....	2,539	14,791	17,330	4,394	1,082	492	5,968	23,298	1,136	24,434
1930.....	1,887	12,249	14,136	5,388	2,089	373	7,850	21,986	1,856	23,842
1931.....	1,622	10,011	11,633	5,106	1,813	284	7,203	18,536	1,721	20,257
1932.....	1,356	8,114	9,470	4,711	1,673	263	6,652	16,122	1,900	18,022
1933.....	1,348	8,741	10,089	5,434	1,672	191	7,297	17,386	1,931	19,317
1934.....	1,555	9,415	10,970	5,448	1,904	213	7,565	18,535	1,896	20,431

PRODUCTION

TABLE 3.—Summary of coal produced, value, men employed, days operated, and output per man per day, by States, in 1934 (exclusive of wagon mines producing less than 1,000 tons a year)¹

State	Net tons						Value		Number of employees			Average number of days mines operated	Average tons per man per day ²	
	Loaded at mines for shipment	Commercial sales by truck or wagon	Other sales to local trade, or used by employees, or taken by locomotives at tippie	Used at mines for power and heat	Made into coke at mines	Total quantity	Total	Average per ton	Surface		Total			
									In strip pits	All others				
Alabama.....	8,779,450	206,433	104,488	51,746	-----	9,142,117	\$18,838,000	\$2.06	16,119	140	2,592	18,851	185	2.62
Alaska.....	101,060	-----	5,370	1,078	-----	107,508	451,000	4.20	56	-----	37	93	217	5.33
Arizona.....	-----	3,558	5,500	-----	-----	9,058	45,000	4.97	16	-----	3	19	296	1.61
Arkansas.....	832,588	8,211	807	14,826	-----	856,432	2,564,000	2.99	2,926	52	437	3,415	102	2.46
California, Idaho, and Oregon..	17,050	7,349	1,739	3,000	-----	29,138	98,000	3.36	57	-----	19	76	162	2.36
Colorado.....	3,976,652	982,316	62,971	130,983	58,011	5,210,933	12,309,000	2.36	6,722	22	1,350	8,094	158	4.08
Georgia.....	32,394	-----	322	-----	-----	32,716	80,000	2.45	93	-----	20	113	185	1.56
Illinois.....	35,023,844	4,781,525	774,651	692,364	-----	41,272,384	64,238,000	1.56	37,612	1,731	6,724	46,067	160	5.62
Indiana.....	13,307,212	771,011	499,549	215,871	-----	14,793,643	21,838,000	1.48	7,425	1,736	2,012	11,173	171	7.75
Iowa.....	2,011,749	1,263,483	50,384	41,376	-----	3,366,992	7,862,000	2.34	6,687	281	753	7,721	156	2.80
Kansas.....	2,256,220	233,628	6,579	11,827	-----	2,508,254	4,619,000	1.84	2,402	954	388	3,744	151	4.45
Kentucky.....	37,283,960	601,631	384,371	255,273	-----	38,525,285	60,548,000	1.57	42,195	-----	7,314	49,509	180	4.33
Maryland.....	1,403,154	137,764	137,160	8,034	-----	1,627,112	3,089,000	1.90	2,617	-----	359	2,976	176	3.12
Michigan.....	324,509	260,640	10,830	25,762	-----	621,741	1,940,000	3.12	1,274	57	225	1,556	157	2.54
Missouri.....	2,738,697	558,818	31,291	23,477	-----	3,352,283	6,278,000	1.87	4,070	780	690	5,640	141	4.29
Montana.....	2,411,093	133,972	13,031	7,606	-----	2,565,702	3,997,000	1.56	1,158	50	382	1,590	166	9.73
New Mexico.....	1,150,825	40,656	28,029	39,813	-----	1,259,323	3,402,000	2.70	1,856	-----	487	2,342	164	3.29
North Carolina.....	100	2,290	-----	750	-----	3,140	9,000	2.87	12	-----	6	18	221	.79
North Dakota.....	1,281,830	347,306	64,193	60,559	-----	1,753,888	2,363,000	1.35	728	437	353	1,518	174	6.65
Ohio.....	17,813,518	2,239,110	511,840	126,396	-----	20,690,564	34,774,000	1.63	24,811	776	3,660	29,247	167	4.23
Oklahoma.....	1,138,599	42,738	9,946	17,006	-----	1,208,289	2,846,000	2.36	2,518	239	468	3,225	124	3.02
Pennsylvania.....	80,696,259	4,493,554	2,796,698	702,377	1,136,987	89,825,875	165,371,000	1.84	110,568	260	15,251	126,079	179	3.98
South Dakota.....	16,785	25,225	347	50	-----	42,407	76,000	1.79	5,992	41	29	6,062	152	3.07
Tennessee.....	3,866,802	156,541	49,038	50,907	12,502	4,135,790	7,514,000	1.82	5,992	-----	1,316	7,308	185	3.05
Texas.....	720,807	27,883	101	10,498	-----	759,289	1,145,000	1.51	667	35	103	805	173	5.30
Utah.....	2,293,892	63,038	17,728	6,322	25,153	2,406,183	4,746,000	1.97	2,115	-----	692	2,807	171	5.00
Virginia.....	9,058,264	78,530	79,836	28,776	-----	9,376,681	16,375,000	1.75	10,119	-----	2,088	12,207	200	3.84
Washington.....	1,059,695	288,371	17,967	14,272	2,686	1,382,991	4,002,000	2.89	1,719	-----	442	2,161	193	3.32

West Virginia.....	94,775,558	880,344	1,716,415	500,885	281,191	98,134,393	167,104,000	1.70	89,457	36	16,413	105,906	196	4.73
Wyoming.....	4,059,131	123,345	52,584	132,901	-----	4,367,961	9,591,000	2.20	2,936	25	799	3,760	188	6.17
Total bituminous, 1934.....	328,431,697	18,739,320	7,374,143	3,175,057	1,647,805	359,368,022	628,112,000	1.75	384,947	7,652	65,412	468,011	178	4.40
Total bituminous, 1933.....	306,279,665	15,462,739	7,589,672	2,857,721	1,440,736	333,630,533	445,788,000	1.34	352,866	7,075	58,762	418,703	167	4.78
Anthracite, 1934.....	50,756,322	(^b)	3,285,936	3,126,033	-----	57,168,291	244,152,000	4.27	83,137	4,304	21,609	109,050	207	2.53
Anthracite, 1933.....	43,335,409	(^b)	3,249,552	2,956,383	-----	49,541,344	206,718,000	4.17	79,701	3,383	21,549	104,633	182	2.60
Grand total, 1934.....	379,188,019	18,739,320	10,660,079	6,301,090	1,647,805	416,536,313	872,264,000	2.09	468,084	11,956	87,021	567,061	184	3.99
Grand total, 1933.....	349,615,074	15,462,739	10,839,224	5,814,104	1,440,736	383,171,877	652,506,000	1.70	432,567	10,458	80,311	523,336	170	4.31

¹ The figures relate only to active bituminous-coal mines of commercial size that produced coal in 1934, excluding wagon mines producing less than 1,000 tons.

² Based upon (1) the "reported" number of man-shifts where the operator keeps a record thereof; otherwise upon (2) the "calculated" number of man-shifts obtained by multiplying the average number of men employed underground and on the surface at each mine by the number of days worked by the mine and tippie, respectively. Using throughout the "calculated" man-shifts as developed before the year 1932, namely, the product of the total number of men employed at each mine times the tippie days, the average output per man per day for the bituminous mines of the country as a whole was 4.42 tons, a figure which is strictly comparable with 5.06 in 1930, previously published.

³ No data available on commercial sales of anthracite by truck or wagon. Tonnages moving by truck included under shipments and other sales to local trade.

TOTAL PRODUCTION SINCE BEGINNING OF MINING

TABLE 4.—Coal produced, by States, 1933-34, with cumulative production from the earliest record to the end of 1934, in thousands of net tons

State	1933	1934	Total production from earliest record to end of 1934	State	1933	1934	Total production from earliest record to end of 1934
Alabama.....	8,760	9,142	594,792	Oklahoma.....	1,238	1,208	124,661
Arkansas.....	883	857	68,077	Oregon.....	(¹)	(¹)	² 2,380
Colorado.....	5,230	5,211	371,349	Pennsylvania bituminous.....	79,296	89,826	5,575,892
Georgia.....	41	33	10,870	Tennessee.....	3,775	4,136	235,738
Illinois.....	37,413	41,272	2,258,837	Texas.....	822	759	54,852
Indiana.....	13,761	14,794	669,749	Utah.....	2,675	2,406	121,600
Iowa.....	3,195	3,367	297,491	Virginia.....	8,179	9,377	313,950
Kansas.....	2,218	2,508	220,541	Washington.....	1,394	1,383	119,738
Kentucky.....	36,100	38,525	1,074,600	West Virginia.....	94,344	98,134	2,914,580
Maryland.....	1,531	1,627	235,016	Wyoming.....	4,013	4,368	258,780
Michigan.....	407	622	42,100	Other States.....	173	188	46,588
Missouri.....	3,432	3,352	200,564	Total bituminous.....	333,631	359,368	17,316,697
Montana.....	2,152	2,566	106,356	Pennsylvania anthracite.....	49,541	57,168	4,077,763
New Mexico.....	1,226	1,259	100,069	Grand total.....	383,172	416,536	21,394,460
North Carolina.....	2	3	1,020				
North Dakota.....	1,782	1,754	31,401				
Ohio.....	19,589	20,691	1,265,106				

¹ Included under "Other States."² Total through 1920.

PRODUCTION, BY FIELDS

TABLE 5.—*Bituminous coal produced, number of mines active, men employed, days operated, and output per man per day in the several fields adopted by the United States Coal Commission, 1933-34*

[The definitions of these fields are given in detail on pp. 2034-2052, pt. IV, of the report of the U. S. Coal Commission]

U. S. Coal Commission field no.	State	General name of field	1933				1934					
			Number of mines	Production (net tons)	Number of men	Average number of days mines operated	Average tons per man per day	Number of mines	Production (net tons)	Number of men	Average number of days mines operated	Average tons per man per day
1	Pennsylvania	Pittsburgh	164	20,710,000	27,893	174	4.27	218	24,257,000	30,114	192	4.20
2	do.	Connellsville	96	11,389,000	18,530	131	4.68	108	13,659,000	19,281	155	4.58
3	do.	Westmoreland-Ligonier	68	5,942,000	8,138	154	4.75	75	6,151,000	8,400	170	4.31
4a	do.	Freeport (thick and thin)	62	6,877,000	7,812	170	5.10	74	8,616,000	9,339	190	4.85
5	do.	Butler-Mercer	51	957,000	2,074	161	2.86	59	1,155,000	2,441	179	2.65
6	do.	Blossburg	20	244,000	650	149	2.52	23	278,000	738	178	2.12
7	do.	Broad Top	42	1,110,000	1,990	180	3.09	47	1,097,000	2,019	189	2.88
8	do.	Somerset	83	3,402,000	4,998	164	4.14	84	3,635,000	5,257	202	3.43
9a	do.	Central Pennsylvania, western.	55	1,852,000	2,973	167	3.74	69	1,937,000	3,591	162	3.34
9b	do.	Central Pennsylvania, middle.	77	6,579,000	9,103	165	4.37	93	7,470,000	10,640	181	3.87
9c	do.	Central Pennsylvania, eastern.	430	20,234,000	31,192	166	3.90	481	21,571,000	34,259	178	3.54
10	Maryland-West Virginia	Maryland-Potomac	109	2,396,000	4,427	164	3.29	123	2,686,000	4,645	180	3.22
11	West Virginia	Fairmont	108	14,933,000	12,749	189	6.21	108	15,091,000	15,250	170	5.81
12	Ohio-West Virginia	Panhandle-Pittsburgh No. 8.	129	14,485,000	14,771	202	4.86	139	14,448,000	16,754	188	4.60
13	do.	Pomeroy	27	338,000	687	162	3.03	25	444,000	827	164	3.28
14	West Virginia	Putnam County	3	429,000	580	164	4.52	3	358,000	623	163	3.63
15	Kentucky-West Virginia	Kenova	14	1,819,000	1,739	175	5.97	16	1,768,000	2,028	183	4.77
16	Kentucky-Virginia-West Virginia	Thacker	42	5,055,000	5,704	175	5.05	42	5,629,000	6,357	176	4.93
17	West Virginia	Tug River	34	5,286,000	6,103	196	4.42	32	5,789,000	7,250	201	3.97
18	Virginia-West Virginia	Pocahontas	70	15,263,000	14,473	185	5.71	73	16,339,000	17,191	202	4.69
19	West Virginia	Winding Gulf	51	8,848,000	7,976	226	4.90	54	8,895,000	9,247	213	4.52
20	do.	New River	91	11,001,000	11,508	211	4.53	100	11,640,000	13,033	210	4.26
21	do.	Kanawha	86	12,728,000	13,597	201	4.65	89	14,782,000	15,575	215	4.42
22	do.	Coal River	5	1,130,000	916	176	6.99	5	1,054,000	1,120	174	5.40
23	do.	Logan	56	13,001,000	9,787	200	6.63	57	12,761,000	11,049	195	5.92
24a	do.	Coal and Coke	11	693,000	927	223	3.35	12	747,000	817	219	4.18
24b	do.	Preston County	31	451,000	984	143	3.21	34	543,000	1,175	137	3.86

TABLE 5.—*Bituminous coal produced, number of mines active, men employed, days operated, and output per man per day in the several fields adopted by the United States Coal Commission, 1933-34—Continued*

[The definitions of these fields are given in detail on pp. 2034-2052, pt. IV, of the report of the U. S. Coal Commission]

U. S. Coal Commission field no.	State	General name of field	1933					1934				
			Number of mines	Production (net tons)	Number of men	Average number of days mines operated	Average tons per man per day	Number of mines	Production (net tons)	Number of men	Average number of days mines operated	Average tons per man per day
24c	West Virginia.....	Taylor County, Junior, Philippi, and Gauley.	82	3,444,000	3,955	172	5.07	85	3,384,000	4,772	158	4.48
25	Virginia.....	Southwestern Virginia.....	51	5,050,000	5,862	184	4.69	51	5,180,000	6,668	201	3.86
26	do.....	Clinch Valley.....	15	1,472,000	1,988	171	4.34	16	1,708,000	2,243	214	3.55
27	do.....	Virginia "anthracite".....	6	165,000	678	160	1.62	8	202,000	722	148	1.89
28	do.....	Richmond Basin.....										
29	Ohio.....	Massillon-Palmyra-Lisbon.....	125	1,798,000	2,641	194	3.52	127	1,688,000	2,848	181	3.28
30	do.....	Coshocton-Goshen.....	138	1,604,000	2,281	175	3.76	172	1,889,000	2,780	169	4.03
31	do.....	Cambridge.....	35	1,641,000	2,012	170	4.49	38	1,557,000	2,201	175	4.03
32	do.....	Crooksville.....	59	944,000	1,102	206	4.17	60	966,000	1,441	179	3.74
33	do.....	Hocking.....	90	2,793,000	5,619	121	4.12	106	3,165,000	6,217	130	3.91
34	do.....	Jackson and Ironton.....	48	332,000	946	111	3.15	66	643,000	1,232	148	3.52
36	Kentucky.....	Northeast Kentucky ¹	76	8,753,000	10,713	185	4.42	91	10,044,000	12,232	205	4.01
37	do.....	Hazard ²	56	4,761,000	5,868	174	4.66	60	4,285,000	6,186	159	4.35
38	do.....	Harlan.....	62	8,916,000	9,094	183	5.35	54	9,664,000	10,817	206	4.34
39	Kentucky-Tennessee.....	Southern Appalachian.....	108	4,353,000	7,306	165	3.62	165	4,742,000	8,123	173	3.38
40	do.....	Jellico.....	16	322,000	901	105	3.42	22	477,000	1,112	144	2.97
41	Kentucky.....	Western Kentucky.....	120	7,834,000	10,187	137	5.61	169	8,215,000	11,060	145	5.11
42	Tennessee.....	Rockwood-Soddy.....	39	1,481,000	2,863	165	3.14	60	1,498,000	3,122	188	2.55
43	do.....	Fentress.....	7	196,000	379	194	2.66	7	307,000	436	214	3.29
44	Alabama.....	Big Seam group.....	28	3,537,000	6,031	172	3.41	28	3,762,000	6,726	212	2.63
45	Alabama-Georgia.....	Cahaba group.....	86	2,991,000	6,462	142	3.25	85	2,979,000	7,006	178	2.39
46	Alabama.....	Pratt group.....	45	2,274,000	5,837	130	3.01	39	2,434,000	5,232	160	2.91
47	Indiana.....	Indiana.....	157	13,302,000	10,801	163	7.55	156	14,167,000	10,707	171	7.75
48	do.....	Brazil Block.....	21	459,000	398	170	6.78	21	627,000	466	177	7.61
49	Illinois.....	Northern Illinois.....	51	1,697,000	2,104	178	4.54	85	1,691,000	2,464	162	4.23
50	do.....	Fulton-Peoria.....	180	4,148,000	4,676	178	4.97	229	4,729,000	5,322	177	5.02
51	do.....	Danville.....	62	2,044,000	3,009	130	5.21	84	1,960,000	2,994	143	4.43
52	do.....	Central Illinois.....	78	10,441,000	11,982	159	5.49	95	11,359,000	11,632	181	5.39
53	do.....	Belleville.....	97	5,108,000	5,685	133	6.77	110	5,605,000	6,054	155	5.96
54	do.....	Murphysboro.....	9	312,000	186	132	12.71	10	270,000	195	126	11.02
55	do.....	Southern Illinois.....	137	13,664,000	16,503	119	6.98	171	15,658,000	17,406	143	6.28
56	Michigan.....	Michigan.....	13	407,000	1,186	130	2.64	24	622,000	1,556	157	2.54
57	Arkansas.....	Sebastian.....	20	469,000	1,555	102	2.96	24	375,000	1,445	91	2.85
58	do.....	Excelsior-Logan.....	25	281,000	1,001	115	2.43	22	342,000	1,186	129	2.23

59	do	Arkansas "anthracite"	12	134,000	1,115	63	1.91	10	140,000	784	80	2.23
60	Colorado	Colorado "domestic"	149	1,997,000	3,624	138	4.01	145	2,070,000	3,701	152	3.67
61	do	Trinidad	33	857,000	1,720	132	3.79	29	865,000	1,676	139	3.70
62	do	Northern Colorado	53	2,376,000	2,564	175	5.29	61	2,276,000	2,717	177	4.74
63	Iowa	Marion-Monroe-Polk	160	2,401,000	4,926	163	3.19	168	2,424,000	4,916	165	3.00
64	do	Appanoose	82	794,000	2,769	112	2.57	85	943,000	2,805	141	2.39
65	Kansas	Pittsburg	125	2,066,000	2,874	111	6.45	114	2,333,000	2,725	126	6.81
66	do	Lightning Creek										
67	do	Osage	34	70,000	434	109	1.45	43	86,000	522	115	1.43
68	do	Leavenworth *	3	111,000	680	278	.59	5	121,000	686	269	.66
69	Missouri	Southern Missouri	102	2,597,000	2,360	170	6.46	94	2,584,000	2,060	167	7.52
70	do	Lafayette	102	806,000	3,151	137	1.87	123	737,000	3,291	126	1.78
71	do	Grundy	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
72	do	Platte	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)
73	Montana	Montana	61	2,152,000	1,324	166	9.80	83	2,566,000	1,590	166	9.73
74	New Mexico	Gallup	16	557,000	1,124	172	2.87	17	538,000	1,157	155	3.00
75	do	Cerrillos and Carthage	7	121,000	390	227	1.36	7	107,000	346	189	1.63
76	do	Raton	9	525,000	772	130	5.24	10	584,000	777	161	4.66
76a	do	Monero	9	23,000	54	193	2.20	10	31,000	62	215	2.32
77	North Dakota	Southern North Dakota	89	1,006,000	876	164	7.01	92	988,000	983	161	6.25
78	do	Northern North Dakota	49	776,000	425	191	9.57	65	766,000	535	198	7.25
79	Oklahoma	McAlester Vein	8	154,000	430	155	2.31	10	134,000	475	143	1.97
80	do	Oklahoma, eastern	74	1,084,000	2,544	123	3.47	95	1,074,000	2,750	121	3.24
81	Texas	Texas (bituminous)	5	37,000	258	107	1.34	4	31,000	260	166	.72
82	do	Texas (lignite)	15	785,000	545	138	7.66	14	728,000	545	184	7.26
83	Utah	Utah	48	2,675,000	2,906	176	5.23	43	2,408,000	2,807	171	5.00
84	Washington	Kititas County	13	490,000	986	127	3.98	13	566,000	705	210	3.82
85	do	Pierce-King (bituminous)	21	367,000	651	213	2.65	17	328,000	640	203	2.63
86	do	Subbituminous	23	528,000	918	180	3.19	26	489,000	816	171	3.51
87	Wyoming	Wyoming	65	4,013,000	3,753	170	6.29	65	4,368,000	3,760	188	6.17
88	South Dakota	South Dakota	19	59,000	147	100	4.01	21	42,000	91	152	3.04
89	Oregon	Oregon	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
90	California	California †	7	7,000	58	79	1.54	9	29,000	76	162	2.35
91	Nevada	Nevada										
92	North Carolina	North Carolina	1	2,000	10	175	1.14	1	3,000	18	221	.75
	Unclassified		9	107,000	123	212	4.11	6	117,000	112	230	4.54
			5,555	333,631,000	418,703	167	4.78	* 6,258	350,368,000	458,011	178	4.40

¹ Northeastern Kentucky field includes McRoberts district.

² Hazard field includes Whitesburg district.

³ Leavenworth field, Kansas, includes Grundy field, Missouri (no. 71), and Platte field, Missouri (no. 72).

⁴ California includes Idaho and Oregon.

* The 1934 figures of total number of mines are not comparable with preceding years in a number of States because of more complete coverage of small trucking mines made possible by cooperation of the N. R. A. Divisional Code Authorities.

PRODUCTION, BY WEEKS AND MONTHS

The following tables summarize the statistics of weekly and monthly production of bituminous coal first published in the Bureau of Mines weekly coal reports. The figures are estimates based upon daily and weekly statements of cars of coal and beehive coke loaded by the principal railroads and of shipments over the Monongahela, Allegheny, Ohio, and Kanawha Rivers. The estimates are revised afterward to agree with the results of the annual statistical reports from the coal producers; therefore the figures given here differ slightly from the estimates originally issued in the weekly reports.

For the method used in counting holidays see Coal in 1930, page 631.

TABLE 6.—Estimated weekly production of bituminous coal in 1934

Week ended—	Production (net tons)	Number of work- ing days	Average production per working day (net tons)	Week ended—	Production (net tons)	Number of work- ing days	Average production per working day (net tons)
Jan. 6.....	7,100,000	5.1	1,392,000	July 14.....	5,809,000	6.0	968,000
Jan. 13.....	7,507,000	6.0	1,251,000	July 21.....	5,743,000	6.0	957,000
Jan. 20.....	7,365,000	6.0	1,228,000	July 28.....	5,947,000	6.0	991,000
Jan. 27.....	7,259,000	6.0	1,210,000	Aug. 4.....	5,786,000	6.0	964,000
Feb. 3.....	7,648,000	6.0	1,275,000	Aug. 11.....	5,782,000	6.0	964,000
Feb. 10.....	7,880,000	6.0	1,313,000	Aug. 18.....	5,794,000	6.0	966,000
Feb. 17.....	8,169,000	6.0	1,362,000	Aug. 25.....	6,226,000	6.0	1,038,000
Feb. 24.....	8,518,000	6.0	1,420,000	Sept. 1.....	6,769,000	6.0	1,128,000
Mar. 3.....	8,385,000	6.0	1,398,000	Sept. 8.....	6,033,000	5.0	1,207,000
Mar. 10.....	8,355,000	6.0	1,393,000	Sept. 15.....	7,008,000	6.0	1,168,000
Mar. 17.....	8,563,000	6.0	1,427,000	Sept. 22.....	7,003,000	6.0	1,167,000
Mar. 24.....	8,646,000	6.0	1,441,000	Sept. 29.....	7,344,000	6.0	1,224,000
Mar. 31.....	9,199,000	6.0	1,533,000	Oct. 6.....	7,127,000	6.0	1,188,000
Apr. 7.....	5,414,000	5.2	1,041,000	Oct. 13.....	7,124,000	6.0	1,187,000
Apr. 14.....	5,838,000	6.0	973,000	Oct. 20.....	7,205,000	6.0	1,201,000
Apr. 21.....	5,829,000	6.0	972,000	Oct. 27.....	7,209,000	6.0	1,202,000
Apr. 28.....	6,336,000	6.0	1,056,000	Nov. 3.....	7,471,000	6.0	1,245,000
May 5.....	6,185,000	6.0	1,031,000	Nov. 10.....	7,537,000	6.0	1,256,000
May 12.....	6,099,000	6.0	1,017,000	Nov. 17.....	7,366,000	5.7	1,292,000
May 19.....	6,093,000	6.0	1,016,000	Nov. 24.....	7,329,000	6.0	1,222,000
May 26.....	6,212,000	6.0	1,035,000	Dec. 1.....	6,343,000	5.0	1,269,000
June 2.....	5,712,000	5.4	1,058,000	Dec. 8.....	7,403,000	6.0	1,234,000
June 9.....	6,091,000	6.0	1,015,000	Dec. 15.....	8,174,000	6.0	1,362,000
June 16.....	5,989,000	6.0	998,000	Dec. 22.....	8,391,000	6.0	1,399,000
June 23.....	6,058,000	6.0	1,010,000	Dec. 29.....	6,432,000	5.0	1,286,000
June 30.....	6,148,000	6.0	1,025,000	Dec. 31.....	¹ 1,400,000	¹ 1.0	² 1,446,000
July 7.....	5,015,000	5.0	1,003,000	Total.....	359,368,000	306.4	1,173,000

¹ Figures represent output and number of working days in that part of the week included in the calendar year shown. Total production for the week of Jan. 5, 1935 was 7,377,000 net tons.

² Average daily production for the entire week.

TABLE 7.—Estimated monthly production of coal, by States, in 1934, in thousands of net tons

State	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alaska.....	6	9	11	9	8	7	9	11	11	10	10	7	108
Alabama.....	893	949	872	397	947	796	699	702	648	767	700	772	9,142
Arkansas.....	98	78	57	6	3	10	44	75	136	114	99	136	856
Colorado.....	541	458	436	291	252	193	215	330	578	636	583	698	5,211
Illinois.....	4,395	4,195	4,536	2,496	2,257	2,248	2,360	2,948	3,459	3,882	3,753	4,743	41,272
Indiana.....	1,541	1,451	1,719	1,000	856	781	836	1,070	1,137	1,403	1,392	1,608	14,794
Iowa.....	368	329	330	176	174	192	202	247	271	318	334	426	3,367
Kansas.....	244	223	253	160	71	128	144	180	241	285	242	337	2,508
Kentucky:													
Eastern.....	2,417	2,608	3,135	2,344	2,455	2,291	2,260	2,588	2,488	2,771	2,563	2,391	30,311
Western.....	866	869	955	508	508	419	440	575	666	726	733	950	8,215
Maryland.....	176	178	198	96	92	86	104	110	123	149	148	167	1,627
Michigan.....	83	66	73	39	26	25	23	27	59	61	69	71	622
Missouri.....	418	358	341	188	156	190	188	229	242	327	326	389	3,352
Montana.....	303	202	195	147	130	127	134	181	234	267	328	318	2,566
New Mexico.....	144	108	102	98	78	72	84	98	110	125	116	124	1,259
North Dakota.....	306	174	127	72	54	42	44	84	179	239	205	228	1,754
Ohio.....	1,995	2,104	2,411	1,301	1,371	1,408	1,456	1,522	1,445	1,868	1,823	1,987	20,691
Oklahoma.....	144	110	76	31	38	48	53	100	149	150	127	182	1,208
Pennsylvania bituminous.....	7,959	7,687	10,132	7,118	7,479	7,231	6,429	6,941	6,508	7,746	7,352	7,244	89,826
Tennessee.....	365	398	465	223	365	286	268	325	312	366	373	390	4,136
Texas.....	67	67	62	58	58	59	58	66	65	68	66	65	759
Utah.....	264	152	159	120	109	108	119	162	239	367	274	333	2,406
Virginia.....	798	830	975	754	873	758	608	670	662	862	794	793	9,377
Washington.....	156	110	109	79	80	76	84	115	110	147	162	155	1,383
West Virginia.....	8,505	8,620	10,377	6,651	8,746	8,068	7,722	7,806	7,377	8,815	7,925	7,522	98,134
Wyoming.....	383	315	357	293	253	245	264	334	450	528	468	478	4,368
Other States.....	24	12	12	6	6	4	4	4	9	11	12	12	116
Total bituminous.....	33,459	32,680	38,475	24,661	27,445	25,898	24,851	27,500	27,908	33,008	30,977	32,526	359,368
Pennsylvania anthracite.....	6,102	5,930	6,394	4,819	5,230	4,168	3,430	3,570	3,962	4,711	4,165	4,687	57,168
Grand total.....	39,561	38,590	44,869	29,480	32,675	30,066	28,281	31,070	31,870	37,719	35,142	37,213	416,536

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COAL

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NUMBER AND SIZE OF MINES

TABLE 8.—Number and production of commercial bituminous-coal mines, by size classes, in each State, in 1934¹

[No canvass of wagon mines producing less than 1,000 tons was made]

State	Class 1A (more than 500,000 tons)					Class 1B (200,000 to 500,000 tons)					Class 2 (100,000 to 200,000 tons)					Class 3 (50,000 to 100,000 tons)				
	Mines		Production			Mines		Production			Mines		Production			Mines		Production		
	Number	Percent	Total (net tons)	Average per mine (net tons)	Percent	Number	Percent	Total (net tons)	Average per mine (net tons)	Percent	Number	Percent	Total (net tons)	Average per mine (net tons)	Percent	Number	Percent	Total (net tons)	Average per mine (net tons)	Percent
Alabama.....	2	1.3	1,093,321	546,661	12.0	16	10.6	3,601,076	225,067	39.4	17	11.3	2,254,138	132,596	24.6	19	12.6	1,404,383	73,915	15.4
Arkansas.....											1	1.8	113,914	113,914	13.3	1	1.8	55,239	55,239	6.4
Colorado.....						3	1.3	673,586	224,529	12.9	12	5.1	1,671,324	139,277	32.1	19	8.1	1,454,182	76,536	27.9
Georgia.....																				
Illinois.....	24	3.1	19,288,164	803,674	46.7	38	4.8	12,570,185	330,794	30.5	21	2.7	3,111,252	148,155	7.5	36	4.6	2,638,676	70,519	6.2
Indiana.....	5	2.8	3,011,131	602,226	20.4	22	12.4	6,395,391	290,700	43.2	20	11.3	2,841,305	142,065	19.2	18	10.2	1,322,084	73,449	8.9
Iowa.....						2	.8	534,603	267,302	15.9	5	2.1	684,216	136,842	20.3	11	4.5	715,197	65,018	21.2
Kansas.....						2	1.3	511,396	255,698	20.4	8	5.0	1,080,936	135,117	43.1	2	1.3	156,877	78,439	6.3
Kentucky:																				
Eastern.....	8	2.2	5,380,238	672,530	17.7	36	9.9	11,024,304	306,231	36.4	56	15.4	8,035,301	143,488	26.5	48	13.2	3,453,061	71,939	11.4
Western.....						13	7.7	3,664,321	281,871	44.6	20	11.8	2,702,532	135,127	32.9	16	9.5	1,197,814	74,863	14.6
Maryland.....											3	3.2	439,914	146,638	27.0	11	11.8	748,651	68,059	46.0
Michigan.....											2	8.3	259,350	129,675	41.7	2	8.3	134,995	67,498	21.7
Missouri.....	1	.5	563,311	563,311	16.8	4	1.8	1,023,715	255,929	30.5	1	1.5	158,466	158,466	4.7	8	3.6	567,961	70,995	16.9
Montana.....	1	1.2	1,112,157	1,112,157	43.4	3	3.6	925,915	308,638	36.1	1	1.2	136,834	136,834	5.3	2	2.4	141,891	70,946	5.5
New Mexico.....						2	4.6	490,571	245,286	39.0	2	4.6	271,328	135,664	21.5	2	4.5	150,518	75,259	11.9
North Carolina.....																				
North Dakota.....						2	1.3	508,285	254,143	29.0	4	2.6	640,998	160,250	36.6	1	.6	65,236	65,236	3.7
Ohio.....	7	1.0	4,600,681	657,240	22.2	23	3.4	7,074,720	307,597	34.2	28	4.1	4,118,590	147,093	19.9	28	4.1	2,012,560	71,877	9.7
Oklahoma.....											1	.9	131,107	131,107	10.8	2	1.9	138,047	69,024	11.4
Pennsylvania.....	45	3.4	33,275,520	739,456	37.0	84	6.3	26,113,072	310,870	29.1	100	7.5	13,484,471	134,845	15.0	113	8.5	7,975,295	70,578	8.9
South Dakota.....																				
Tennessee.....						3	2.6	753,473	251,158	18.2	15	13.1	2,078,401	138,560	50.3	6	5.3	448,581	74,764	10.9
Texas.....						1	5.6	385,773	385,773	50.8						2	11.1	190,358	95,170	25.1
Utah.....						2	4.7	456,125	228,063	18.9	8	18.6	1,166,887	145,861	48.5	6	13.9	444,285	74,048	18.5
Virginia.....	4	4.6	2,213,246	553,312	23.6	14	16.3	3,691,013	263,644	39.4	11	12.8	1,629,451	148,132	17.4	17	19.8	1,205,581	70,917	12.9
Washington.....						1	1.8	203,036	203,036	14.7	3	5.4	448,794	149,598	32.5	5	8.9	374,853	74,971	27.1
West Virginia.....	32	4.2	23,283,313	727,604	23.7	142	18.6	43,161,632	303,955	44.0	137	17.9	20,216,063	147,563	20.6	101	13.2	7,307,668	72,353	7.4
Wyoming.....						9	13.9	2,589,874	287,764	59.3	9	13.8	1,256,110	139,568	28.7	2	3.1	123,602	61,801	2.8
Other States ²															1	6.7	66,234	66,234	45.5	
Total.....	129	2.1	93,821,082	727,295	26.1	422	6.7	126,352,066	299,412	35.2	485	7.7	68,931,676	142,127	19.2	479	7.7	34,393,829	71,803	9.6

State	Class 4 (10,000 to 50,000 tons)					Class 5 (less than 10,000 tons)					Total		
	Mines		Production			Mines		Production			Mines ¹	Production (net tons)	
	Number	Percent	Total (net tons)	Average per mine (net tons)	Percent	Number ¹	Percent	Total (net tons)	Average per mine (net tons)	Percent		Total	Average per mine
Alabama.....	21	13.9	602,552	28,693	6.6	76	50.3	186,647	2,456	2.0	151	9,142,117	60,544
Arkansas.....	24	42.8	566,456	23,602	66.2	30	53.6	120,823	4,027	14.1	56	856,432	15,293
Colorado.....	40	17.0	992,725	24,818	19.1	161	68.5	419,116	2,603	8.0	235	5,210,933	22,174
Georgia.....	1	100.0	32,716	32,716	100.0						1	32,716	32,716
Illinois.....	98	12.5	2,382,102	24,307	5.8	567	72.3	1,382,005	2,437	3.3	784	41,272,384	52,643
Indiana.....	42	23.7	961,429	22,891	6.5	70	39.6	262,303	3,747	1.8	177	14,793,643	83,580
Iowa.....	40	16.5	914,539	22,863	27.2	185	76.1	518,443	2,802	15.4	243	3,366,992	13,856
Kansas.....	21	13.0	497,845	23,707	19.8	127	79.4	261,200	2,057	10.4	160	2,598,254	15,677
Kentucky:													
Eastern.....	67	18.4	2,140,224	31,944	7.1	149	40.9	277,328	1,861	.9	364	30,310,466	83,270
Western.....	20	11.8	423,704	21,185	5.1	100	59.2	226,408	2,264	2.8	169	8,214,779	48,608
Maryland.....	13	14.0	263,759	20,289	16.2	66	71.0	174,788	2,648	10.8	93	1,627,112	17,496
Michigan.....	8	33.4	201,547	25,193	32.4	12	50.0	25,849	2,154	4.2	24	621,741	25,906
Missouri.....	33	15.1	618,364	18,738	18.5	172	78.5	420,466	2,445	12.6	219	3,352,283	15,307
Montana.....	5	6.0	105,408	21,082	4.1	71	85.6	143,497	2,021	5.6	83	2,565,702	30,912
New Mexico.....	10	22.7	279,173	27,917	22.2	28	63.6	67,733	2,419	5.4	44	1,269,323	28,621
North Carolina.....						1	100.0	3,140	3,140	100.0	1	3,140	3,140
North Dakota.....	11	7.0	214,570	19,506	12.2	139	88.5	324,799	2,337	18.5	157	1,763,888	11,171
Ohio.....	73	10.8	1,561,791	21,394	7.6	520	76.6	1,322,222	2,543	6.4	679	20,690,564	30,472
Oklahoma.....	32	30.5	759,683	23,740	62.9	70	66.7	179,452	2,564	14.9	105	1,208,289	11,508
Pennsylvania.....	281	21.1	6,491,970	23,103	7.2	708	53.2	2,485,547	3,511	2.8	1,331	89,825,875	67,488
South Dakota.....	1	4.8	22,200	22,200	52.3	20	95.2	20,207	1,010	47.7	21	42,407	2,019
Tennessee.....	32	28.1	745,988	23,312	18.0	58	50.9	109,347	1,885	2.6	114	4,135,790	36,279
Texas.....	7	38.9	146,595	20,942	19.3	8	44.4	36,563	4,570	4.8	18	759,289	42,183
Utah.....	14	32.6	315,572	22,541	13.1	13	30.2	23,314	1,793	1.0	43	2,406,183	55,958
Virginia.....	23	26.7	604,966	26,303	6.4	17	19.8	32,424	1,907	.3	86	9,376,681	109,031
Washington.....	13	23.2	261,767	20,136	18.9	34	60.7	94,541	2,781	6.8	56	1,382,991	24,696
West Virginia.....	129	16.9	3,507,639	27,191	3.6	223	29.2	658,078	2,951	.7	764	98,134,393	128,448
Wyoming.....	11	16.9	312,816	28,438	7.2	34	52.3	85,559	2,516	2.0	65	4,367,961	67,199
Other States ²	2	13.3	62,530	31,265	42.9	12	80.0	16,940	1,412	11.6	15	145,704	9,714
Total.....	1,072	17.1	25,990,630	24,245	7.2	1,367	58.7	9,878,739	2,691	2.7	1,628	359,368,022	57,425

¹ The 1934 figures of total number of mines and of number in class 5 (less than 10,000 tons) are not comparable with preceding years in a number of States because of more complete coverage of small trucking mines made possible by cooperation of the N. R. A. Divisional Code Authorities.

² Includes Alaska, Arizona, California, Idaho, and Oregon.

LABOR STATISTICS

MEN EMPLOYED

The method of collecting employment statistics is explained in detail in Coal in 1929, pages 738 to 740. These statistics are believed to represent the most accurate returns obtainable under present conditions, both as to the records generally available in mine offices and as to the funds allotted to the Bureau of Mines for collecting data.

For a detailed explanation of the classification of mine employees see Coal in 1930, page 651. Table 3, page 248, shows the number of men employed underground and on the surface, by States, during 1934. Data for previous years may be found in Coal in 1930, page 653; 1931, page 426; 1932 (Statistical Appendix), page 376; and 1933 (Statistical Appendix), page 286.

LENGTH OF WORKING DAY

TABLE 9.—Number of bituminous-coal mines in the United States reporting established working day of certain length and number of men employed therein as of December 1934.

[Effective Apr. 1, 1934, the N. R. A. Bituminous-Coal Code was amended to limit hours of labor to a maximum of 7 per day at the usual working place, exclusive of the lunch period, for all nonsupervisory employees "excepting that number of workers whose daily work includes the handling of man-trips and those required to remain on duty while men are entering and leaving the mine." Certain exceptions for other classes of labor were provided. (National Recovery Administration Amendment No. 1 to Code of Fair Competition for the Bituminous-Coal Industry, art. III, par. 2.)

The reports furnished by operators, which are summarized below, do not purport to represent the actual time worked by the men but rather the length of the operating day at the mine or tippie. The reports of more than 7 hours undoubtedly consist chiefly of (1) cases where the operator has included the time when the men are entering and leaving the mine, or (2) cases where work is staggered and 2 crews of men overlap, or (3) cases where the question was misunderstood, rather than of violations of the terms of the code. It will be noted that the mines reporting more than 7 hours employed a very small proportion of the men; most of them consisted of small local mines.

The 1934 figures of total number of mines are not comparable with preceding years in a number of States because of more complete coverage of small trucking mines made possible by cooperation of the N. R. A. Divisional Code Authorities.]

State	7 hours		8 hours		9 hours		10 hours		All others and not reported ¹		Total	
	Mines	Men	Mines	Men	Mines	Men	Mines	Men	Mines	Men	Mines ²	Men ²
Alabama.....	132	16,633	5	35	-----	-----	-----	-----	6	24	143	16,692
Alaska.....	-----	-----	5	91	-----	-----	-----	-----	1	2	4	93
Arizona, California, Idaho, and Oregon.....	3	55	5	31	-----	-----	-----	-----	2	6	10	92
Arkansas.....	50	3,078	2	117	-----	-----	-----	-----	3	190	55	3,885
Colorado.....	149	6,719	43	933	-----	-----	-----	-----	31	197	223	7,849
Georgia.....	1	113	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Illinois.....	458	42,735	69	918	1	7	-----	-----	244	1,452	772	45,112
Indiana.....	140	9,955	6	218	-----	-----	-----	-----	20	614	166	10,787
Iowa.....	150	6,774	60	724	2	14	-----	-----	20	126	232	7,638
Kansas.....	88	3,262	21	182	-----	-----	-----	-----	47	274	156	3,718
Kentucky.....	361	46,694	27	419	-----	-----	-----	-----	128	1,684	516	48,777
Maryland.....	72	2,843	5	33	-----	-----	-----	-----	12	39	89	2,915
Michigan.....	17	1,465	1	32	-----	-----	-----	-----	5	29	23	1,526
Missouri.....	126	3,987	43	961	3	13	-----	-----	37	240	209	5,201
Montana.....	55	1,396	13	102	4	19	1	5	6	17	79	1,539
New Mexico.....	24	2,217	15	75	-----	-----	-----	-----	4	47	43	2,339
North Carolina.....	-----	-----	-----	-----	1	18	-----	-----	-----	-----	1	18
North Dakota.....	66	919	42	287	5	34	-----	-----	35	187	148	1,427

¹ Includes mines in which the established working day was changed between April and December, where the day was irregular, or which failed to answer the inquiry.

² Represents mines that were active in December. In addition, there were 280 mines, employing 13,632 men, that operated at some time earlier in the year.

TABLE 9.—Number of bituminous-coal mines in the United States reporting established working day of certain length and number of men employed therein as of December 1934—Continued

State	7 hours		8 hours		9 hours		10 hours		All others and not reported ¹		Total	
	Mines	Men	Mines	Men	Mines	Men	Mines	Men	Mines	Men	Mines ²	Men ²
Ohio.....	430	25,724	61	536	---	---	1	9	159	2,319	651	28,588
Oklahoma.....	62	2,336	23	643	1	12	---	---	7	28	93	3,024
Pennsylvania.....	1,107	114,441	77	712	---	---	---	---	77	6,556	1,261	121,709
South Dakota.....	6	53	4	11	1	2	---	---	10	25	21	91
Tennessee.....	91	6,565	6	480	---	---	---	---	12	55	109	7,100
Texas.....	3	39	10	447	4	310	---	---	---	---	17	796
Utah.....	31	2,529	1	5	---	---	---	---	9	163	41	2,697
Virginia ³	67	10,340	³ 12	³ 1,773	---	---	---	---	6	29	85	12,142
Washington.....	46	1,950	---	---	---	---	---	---	9	204	55	2,154
West Virginia.....	650	100,670	29	1,380	---	---	---	---	36	1,196	715	103,246
Wyoming.....	42	3,515	4	14	---	---	---	---	14	82	60	3,611
Total.....	4,427	417,007	587	11,164	22	429	2	14	940	15,765	25,978	244,439

¹ Includes mines in which the established working day was changed between April and December, where the day was irregular, or which failed to answer the inquiry.
² Represents mines that were active in December. In addition, there were 280 mines, employing 13,632 men, that operated at some time earlier in the year.
³ In September 1934, mines in the "Virginia anthracite" field in Montgomery and Pulaski Counties were held not to come under the provisions of the Bituminous-Coal Code and thereafter operated on the 8-hour day prevailing in the Pennsylvania anthracite region.

TABLE 10.—Percentage of men employed in bituminous-coal mines that had established working days of 7, 8, 9, and 10 hours, 1913, 1923, and 1929-34 ¹

Year	Percent of total employees in—				Weighted average working day (hours)
	7-hour mines	8-hour mines	9-hour mines	10-hour mines	
1913.....	---	---	15.2	22.9	8.60
1923.....	---	---	4.2	1.1	8.06
1929.....	---	---	6.7	.8	8.08
1930.....	---	---	6.6	1.0	8.09
1931.....	---	---	6.1	.9	8.08
1932.....	---	---	6.2	1.9	8.10
1933:	---	---	---	---	---
Before Oct. 2.....	---	---	92.6	4.9	8.10
After Oct. 2.....	---	---	99.8	.1	8.00
Average for year.....	---	---	94.4	3.7	8.07
1934:	---	---	---	---	---
Before Apr. 1 ²	---	---	99.8	.1	8.00
After Apr. 1 ³	---	---	97.3	2.6	7.03
Average for year ⁴	---	---	73.0	26.9	7.27

¹ Calculated on basis of total number of men in mines definitely reported as having 7-, 8-, 9-, or 10-hour day. A small number of mines that work more than 10 hours or less than 7 hours (8 prior to Apr. 1, 1934) have been excluded, as have also all mines for which the reports were defective.
² Data as reported for 1933 "after Oct. 2."
³ Data as reported for December 1934.
⁴ Less than 0.05 of 1 percent.
⁵ In computing the average for the year the percentages for "before Apr. 1" have been weighted by 3 months and percentages "after Apr. 1" by 9 months.

OUTPUT PER MAN

TABLE 11.—*Bituminous coal produced underground per man employed underground, by States, in 1934*

State	Total mined underground (net tons)	Total number of underground men	Average number of days mines operated	Average per underground man (net tons)	
				Per year	Per day ¹
Alabama.....	9,086,883	16,119	186	564	3.03
Alaska.....	107,508	56	221	1,920	8.67
Arizona.....	9,058	16	296	566	1.91
Arkansas.....	831,628	2,926	103	284	2.76
Colorado.....	5,186,609	6,722	156	772	4.95
Georgia.....	32,716	93	185	352	1.90
Illinois.....	35,112,301	37,612	157	934	5.95
Indiana.....	8,793,030	7,425	173	1,184	6.86
Iowa.....	3,118,529	6,687	157	466	2.97
Kansas.....	761,144	2,402	151	317	2.10
Kentucky.....	38,525,235	42,195	179	913	5.09
Maryland.....	1,627,112	2,617	178	622	3.50
Michigan.....	603,219	1,274	157	473	3.02
Missouri.....	1,162,227	4,070	134	286	2.13
Montana.....	1,451,611	1,158	161	1,254	7.79
New Mexico.....	1,259,323	1,855	160	679	4.24
North Carolina.....	3,140	12	221	262	1.18
North Dakota.....	677,376	728	174	930	5.36
Ohio.....	19,489,148	24,811	166	786	4.72
Oklahoma.....	903,352	2,518	118	359	3.04
Pennsylvania.....	89,483,777	110,568	179	809	4.53
South Dakota.....	6,257	21	104	298	2.86
Tennessee.....	4,135,790	5,992	186	690	3.72
Texas.....	662,908	667	185	994	5.36
Utah.....	2,406,183	2,115	163	1,138	6.97
Virginia.....	9,376,681	10,119	200	927	4.63
Washington.....	1,382,991	1,719	184	805	4.37
West Virginia.....	98,104,860	89,457	196	1,097	5.61
Wyoming.....	4,248,647	2,936	185	1,447	7.83
Other States.....	29,138	57	163	511	3.13
Total.....	338,578,381	384,947	178	880	4.94

¹ Based upon (1) the "reported" number of man-shifts where the operator keeps a record thereof; otherwise upon (2) the "calculated" number of man-shifts obtained by multiplying the average number of men employed underground at each mine by the number of days worked by the mine. Using a "calculated" method throughout, the average output per man per day for the country as a whole was 4.92 tons in 1934, a figure that is strictly comparable with 5.61 in 1930, previously published.

STRIKES, SUSPENSIONS, AND LOCKOUTS

TABLE 12.—*Strikes, suspensions, and lockouts in coal mines, by States, in 1934*

State	Total number of men employed	Number of men on strike	Man-days idle on account of strike	Average number of days lost on account of strike	
				Per man employed	Per man on strike
Alabama.....	18,851	13,395	321,891	17	24
Alaska.....	93				
Arizona.....	19				
Arkansas.....	3,415	79	948	(1)	12
California, Idaho, and Oregon.....	76				
Colorado.....	8,094	118	538	(1)	5
Georgia.....	113	130	2,600	23	20
Illinois.....	46,067	2,680	47,639	1	18
Indiana.....	11,173	90	300	(1)	3
Iowa.....	7,721	3,007	38,900	5	13
Kansas.....	3,744	1,067	61,905	17	58
Kentucky.....	49,509	5,665	62,723	1	11
Maryland.....	2,976	359	2,831	1	8
Michigan.....	1,556				
Missouri.....	5,540	1,029	76,806	14	75
Montana.....	1,590				
New Mexico.....	2,342	170	1,190	(1)	7
North Carolina.....	18				
North Dakota.....	1,518				
Ohio.....	29,247	4,062	44,408	2	11
Oklahoma.....	3,225	156	8,118	3	52
Pennsylvania bituminous.....	126,079	27,359	309,905	2	11
South Dakota.....	91				
Tennessee.....	7,308	500	9,360	1	19
Texas.....	805				
Utah.....	2,807	95	4,180	1	44
Virginia.....	12,207	3,701	30,783	3	8
Washington.....	2,161	877	17,800	8	20
West Virginia.....	105,906	27,539	338,272	3	12
Wyoming.....	3,760				
Total bituminous.....	458,011	92,078	1,381,097	3	15
Pennsylvania anthracite.....	109,050	38,994	774,856	7	20
Grand total.....	567,061	131,072	2,155,953	4	16

¹ One-half day or less.

² Does not include men laid idle at certain mines through labor factional trouble due to jurisdictional claims of a rival union, which was reported by the operator as responsible for heavy tonnage losses.

EQUIPMENT AND METHODS OF MINING AND PREPARATION

METHODS OF RECOVERY

TABLE 13.—*Bituminous coal mined by different methods, by States, in 1934*

State	Mined by hand		Shot off the solid		Cut by machines		From strip pits		Not specified		Total production (net tons)
	Net tons	Percent	Net tons	Percent	Net tons	Percent	Net tons	Percent	Net tons	Percent	
Alabama.....	483,407	5.3	1,405,468	15.4	7,189,424	78.6	55,234	0.6	8,584	0.1	9,142,117
Alaska.....	10,750	10.0	96,758	90.0							107,508
Arizona.....			9,058	100.0							9,058
Arkansas.....	476		199,579	23.3	630,173	73.6	24,804	2.9	1,400	.2	856,432
Colorado.....	1,218,566	23.4	248,024	4.7	3,697,872	71.0	24,324	.5	22,147	.4	5,210,933
Georgia.....			32,716	100.0							32,716
Illinois.....	1,268,765	3.1	3,664,821	8.9	30,110,349	72.9	6,160,083	14.9	68,366	.2	41,272,384
Indiana.....	105,387	.7	807,223	5.5	7,877,420	53.2	6,000,613	40.6	3,000		14,793,643
Iowa.....	323,187	9.6	1,754,173	52.1	1,025,712	30.5	248,463	7.4	15,457	.4	3,366,992
Kansas.....	134,791	5.4	381,706	15.2	210,245	8.3	1,747,110	69.7	34,402	1.4	2,508,254
Kentucky:											
Eastern.....	1,169,196	3.9	283,703	.9	28,821,990	95.1			35,567	.1	30,310,456
Western.....	62,590	.8	245,978	3.0	7,884,797	96.0			21,414	.2	8,214,779
Maryland.....	1,183,922	72.8			435,243	26.7			7,947	.5	1,627,112
Michigan.....	2,260	.4	19,377	3.1	581,582	93.5	18,522	3.0			621,741
Missouri.....	288,771	8.6	105,112	3.1	740,046	22.1	2,190,056	65.3	28,298	.9	3,352,283
Montana.....	51,784	2.0	53,293	2.1	1,336,339	52.1	1,114,091	43.4	10,195	.4	2,565,702
New Mexico.....	500,211	39.7	416,872	33.1	338,995	26.9			3,245	.3	1,259,323
North Carolina.....	3,140	100.0									3,140
North Dakota.....	17,319	1.0	225,592	12.9	422,947	24.1	1,076,512	61.4	11,518	.6	1,753,888
Ohio.....	578,119	2.8	107,182	.5	18,714,567	90.5	1,201,416	5.8	89,280	.4	20,690,564
Oklahoma.....	28,955	2.4	164,611	13.6	704,831	53.4	304,937	25.2	4,905	.4	1,208,289
Pennsylvania.....	19,486,773	21.7	2,449,787	2.7	67,510,761	75.2	342,098	.4	36,456		89,825,875
South Dakota.....	4,573	10.8			484	1.2	36,150	85.2	1,200	2.8	42,407
Tennessee.....	531,783	12.8	1,772,482	18.7	2,823,946	68.3			7,579	.2	4,135,790
Texas.....	102,541	13.5	560,367	73.8			96,381	12.7			759,289
Utah.....	75,345	3.1	1,308,960	12.9	2,021,878	84.0					2,406,183
Virginia.....	34,293	.4	874,982	9.3	8,466,596	90.3			810		9,376,681
Washington.....	672,017	48.6	367,281	26.6	343,000	24.8			693		1,382,991
West Virginia.....	7,725,090	7.9	11,434,586	1.5	88,929,965	90.6	29,533		15,219		98,134,393
Wyoming.....	38,229	.9	352,915	8.1	3,857,503	88.3	119,314	2.7			4,367,991
Other States.....	1,463	5.0	27,625	94.8					50	.2	29,138
Total.....	36,103,703	10.1	17,370,231	4.8	284,676,715	79.2	20,789,641	5.8	427,732	.1	359,368,022

¹ Includes some tonnage reported by the companies as "pillar coal", the method of mining which, of course, differs materially from solid shooting in rooms or entries.

UNDERCUTTING MACHINES

TABLE 14.—Number of coal-cutting machines in bituminous-coal mines, average output per machine, and percent of total product of underground mines cut by machines, by States, in 1934

State	Number of coal-cutting machines in use			Average output per machine (net tons)	Percent of total product of underground mines cut by machines
	"Permissible"	All others	Total		
Alabama.....	101	229	330	21,786	79.1
Arkansas.....	59	58	117	5,386	75.8
Colorado.....	152	260	412	8,975	71.3
Illinois.....	373	962	1,335	22,555	85.8
Indiana.....	79	230	309	25,493	89.6
Iowa.....	60	29	89	11,525	32.9
Kansas.....	17	16	33	6,371	27.6
Kentucky.....	517	919	1,436	25,562	95.3
Maryland.....	15	19	34	12,801	26.7
Michigan.....	13	40	53	10,973	96.4
Missouri.....	47	53	100	7,400	63.7
Montana.....	8	61	69	19,367	92.1
New Mexico.....	30	13	43	7,884	26.9
North Dakota.....	19	7	26	16,267	62.4
Ohio.....	339	651	990	18,904	96.0
Oklahoma.....	67	38	105	6,713	78.0
Pennsylvania.....	2,168	1,328	3,496	19,311	75.4
Tennessee.....	23	94	117	24,136	68.3
Utah.....	43	73	116	17,430	84.0
Virginia.....	54	164	218	38,838	90.3
Washington.....	23	4	27	12,704	24.8
West Virginia.....	966	1,243	2,209	40,258	90.6
Wyoming.....	45	195	240	16,073	90.8
Other States.....	.....	1	1	484	.6
Total.....	5,218	16,687	11,905	23,912	84.1

¹ Probably includes some "permissible" machines not so specified by the operators.

STRIPPING OPERATIONS

TABLE 15.—Stripping operations of all types in the bituminous-coal fields, by States and counties, in 1934

[Returns for mines that recover coal both by stripping and by underground operations do not permit separating men engaged in stripping from those engaged in other work. For this reason the figures of men employed represent all persons working at these mines, including those underground. The total tons produced by both methods at these same mines are also shown]

State and county	Number of strip pits	Number of power shovels			Coal produced (net tons)		Total value at same mines	Average value per ton	Number of employees			Average number of days worked	Percent of county or State total mined by stripping	Man-days	Average tons per man per day			
		Steam	Elec- tric	All others	Mined by stripping	Total at same mines			Under- ground	Surface						Total		
										In strip pits	All others							
Alabama: Blount, Walker, and Winston.....	5	8	-----	-----	55,234	57,264	\$112,000	\$1.96	-----	3	140	27	170	91	2.5	15,480	3.70	
Illinois:	7	1	11	3	1,135,697	1,135,697	1,577,000	1.39	-----	-----	193	161	354	228	68.5	80,539	14.10	
Fulton.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Grundy, Hancock, Henry, Jackson, Jefferson, Knox, McDonough, Madison, Peoria, Saline, Schuyler, and Will.....	16	4	19	10	2,427,244	2,427,244	4,058,000	1.67	-----	-----	593	285	878	203	25.4	178,524	13.59	
La Salle.....	12	-----	1	8	32,160	32,160	77,000	2.39	-----	-----	90	15	105	94	10.3	9,920	3.24	
Livingston.....	8	-----	-----	3	5,034	5,034	14,000	2.78	-----	-----	31	8	39	86	21.2	3,336	1.51	
Ferry.....	6	5	13	4	2,330,848	2,330,848	3,005,000	1.29	-----	-----	553	90	643	216	77.1	138,807	16.79	
St. Clair.....	4	4	2	4	57,737	57,737	76,000	1.32	-----	-----	72	5	77	86	2.3	6,660	8.67	
Vermilion.....	4	-----	-----	1	37,192	37,192	63,000	1.69	-----	-----	60	10	100	41	1.9	4,122	9.02	
Williamson.....	11	3	3	4	134,171	134,171	185,000	1.38	-----	-----	109	20	129	120	6.5	15,520	8.65	
Total, Illinois.....	70	17	49	37	6,160,083	6,160,083	9,055,000	1.47	-----	-----	1,731	594	2,325	188	14.9	437,428	14.08	
Indiana:	15	17	4	12	823,858	823,858	1,282,000	1.56	-----	-----	338	139	477	179	89.9	85,202	9.67	
Clay.....	10	11	4	4	957,360	957,360	1,419,000	1.48	-----	-----	275	94	369	138	59.3	50,889	18.81	
Greene.....	5	8	7	-----	1,046,173	1,046,173	1,466,000	1.40	-----	-----	277	84	361	159	26.6	57,461	18.21	
Owen, Vermillion, and Vigo.....	8	4	11	5	2,165,142	2,165,142	2,489,000	1.15	-----	-----	530	219	749	166	88.7	124,602	17.38	
Pike.....	4	-----	-----	2	895,749	895,749	1,069,000	1.59	-----	-----	147	88	435	201	17.3	87,414	7.67	
Sullivan.....	7	2	4	6	612,331	612,331	754,000	1.23	-----	-----	169	126	295	179	69.3	52,850	11.59	
Warrick.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Total, Indiana.....	49	42	32	32	6,000,613	6,275,412	8,479,000	1.35	-----	-----	200	1,736	750	2,686	171	40.6	458,418	13.69

Iowa:																
Boone, Greene, Hamilton, Keokuk, Wapello, and Warren	9		3	8	111,705	111,705	285,000	2.37		114	20	134	154	14.8	20,573	5.43
Mahaska	8			7	45,048	45,048	79,000	1.75		22	23	45	128	50.0	5,742	7.85
Marion	5			8	78,734	78,734	143,000	1.82		122	2	124	157	29.3	19,506	4.04
Webster	3	2		2	12,976	12,976	41,000	3.16		23	11	34	121	29.2	4,130	3.14
Total, Iowa	25	2	3	25	248,463	248,463	528,000	2.13		281	56	337	148	¹ 21.5	49,951	4.97
Kansas:																
Bourbon	4	3			30,406	30,406	53,000	1.74		23	2	25	104	100.0	4,849	6.27
Cherokee	8	1	1	1	204,903	204,903	382,000	1.86		160	7	167	94	76.0	15,637	13.10
Coffey	4				2,450	2,450	8,000	3.27		19	4	23	73	100.0	1,685	1.45
Crawford	24	15	6	2	1,492,366	1,492,366	2,502,000	1.68		711	62	773	145	73.9	111,955	13.33
Labette and Linn	4	2		2	14,085	14,085	31,000	2.20		21	4	25	171	49.4	4,274	3.30
Osage	4				2,900	2,900	9,000	3.10		20	4	24	86	5.0	2,070	1.40
Total, Kansas	48	21	7	5	1,747,110	1,747,110	2,985,000	1.71		954	83	1,037	135	69.7	140,470	12.44
Missouri:																
Barton	6	5	6		612,274	612,274	972,000	1.59		230	40	270	139	99.9	37,424	16.36
Bates	4	3	4		679,060	679,060	1,087,000	1.60		213	4	217	188	97.4	40,818	16.64
Boone, Callaway, Jasper, Johnson, Randolph, and Vernon	7	7	2	1	373,900	373,900	688,000	1.84		166	12	178	186	64.9	33,160	11.28
Henry	4	2	4		524,822	524,822	911,000	1.74		171	40	211	222	97.6	46,895	11.19
Total, Missouri	21	17	16	1	2,190,056	2,190,056	3,658,000	1.67		780	96	876	181	65.3	158,297	13.84
Montana: Rosebud and Valley	2		2	1	1,114,091	1,114,091	1,670,000	1.50		50	12	62	289	¹ 99.9	17,900	62.24
North Dakota:																
Adams, Bowman, Burleigh, Divide, Mercer, Morton, Mountrail, Oliver, Stark, and Williams	15	5	3	3	516,166	516,166	691,000	1.34		152	73	225	179	49.9	40,225	12.83
Burke	6	3	1	3	158,387	158,387	226,000	1.43		69	31	100	215	100.0	21,523	7.36
Grant	4			1	18,866	18,866	27,000	1.43		14	3	17	191	68.6	3,240	5.82
Hettinger	10				10,177	10,177	12,000	1.18		25	5	30	91	84.0	2,734	3.72
McLean	7	1		5	87,356	87,356	116,000	1.32	2	98	14	114	114	63.2	13,000	6.74
Ward	4		2	3	285,560	285,560	361,000	1.26		79	24	103	230	73.8	23,710	12.04
Total, North Dakota	46	9	6	15	1,076,512	1,076,512	1,433,000	1.33	2	437	150	589	177	61.4	104,432	10.31

¹ Percent of county totals, not State.

COAL

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TABLE 15.—Stripping operations of all types in the bituminous-coal fields, by States and counties, in 1934—Continued

State and county	Number of strip pits	Number of power shovels			Coal produced (net tons)		Total value at same mines	Average value per ton	Number of employees				Average number of days worked	Percent of county or State total mined by stripping	Man-days	Average tons per man per day
		Steam	Elec- tric	All others	Mined by stripping	Total at same mines			Under-ground	Surface		Total				
										In strip pits	All others					
Ohio:																
Columbiana, Coshocton, Holmes, Jackson, Medina, Muskingum, Perry, Portage, and Vinton.....	14	10	3	11	446,152	446,152	779,000	1.75	-----	277	58	335	184	20.9	61,626	7.24
Harrison.....	5	18	-----	-----	601,583	601,583	895,000	1.49	-----	358	7	365	172	26.7	62,779	9.58
Jefferson.....	3	6	-----	-----	91,673	91,673	100,000	1.09	-----	93	13	106	157	2.8	16,613	5.52
Stark.....	4	3	-----	7	49,607	49,607	97,000	1.96	-----	18	2	20	165	10.9	3,295	15.06
Tuscarawas.....	8	2	-----	5	12,401	15,882	27,000	1.70	6	30	6	42	95	1.2	3,987	3.98
Total, Ohio.....	34	39	3	23	1,201,416	1,204,897	1,901,000	1.58	6	776	86	868	171	13.1	148,300	8.12
Oklahoma: Haskell, McIntosh, Muskogee, Okmulgee, Rogers, Tulsa, and Wagoner.....																
	9	10	-----	-----	304,937	304,937	549,000	1.80	-----	239	-----	239	194	25.2	46,433	6.57
Pennsylvania:																
Allegheny, Cambria, Clarion, Clearfield, Clinton, Fayette, Somerset, and Washington.....	10	13	-----	2	293,021	501,131	859,000	1.71	233	216	74	523	185	.5	96,777	5.18
Westmoreland.....	4	3	-----	3	49,077	141,897	229,000	1.61	140	44	28	212	142	.5	30,179	4.70
Total, Pennsylvania.....	14	16	-----	5	342,098	643,028	1,088,000	1.69	373	260	102	735	173	1.5	126,956	5.06
South Dakota:																
Corson, Harding, and Ziebach.....	3	-----	-----	-----	3,410	3,410	7,000	2.05	-----	5	2	7	123	72.6	860	3.97
Dewey.....	4	-----	-----	3	30,375	30,375	50,000	1.84	-----	29	24	53	176	100.0	9,312	3.26
Perkins.....	3	-----	-----	-----	2,365	2,365	3,000	1.27	-----	7	1	8	144	40.2	1,155	2.05
Total, South Dakota.....	10	-----	-----	3	36,150	36,150	66,000	1.83	-----	41	27	68	167	85.2	11,327	3.19
Wyoming: Campbell and Converse.....																
	3	-----	2	-----	119,314	110,314	139,000	1.16	-----	25	9	34	273	97.4	9,266	12.88
Other States ².....																
	9	7	1	2	193,564	242,940	330,000	1.35	54	202	51	307	142	1.8	43,445	5.61
Total, United States.....	344	188	121	149	20,789,641	21,420,557	31,993,000	1.49	638	7,652	2,043	10,333	171	5.8	1,768,103	12.11

¹ Percent of county totals, not State.² Arkansas, Colorado, Michigan, Texas, and West Virginia.

TABLE 16.—Summary of operations of power strip pits proper in the bituminous-coal fields, by States, in 1934

State	Number of strip pits	Number of power shovels			Amount mined by stripping ¹ (net tons)	Average value per ton ²	Number of men employed ³	Average number of days mines operated ⁴	Average tons per man per day ⁵
		Steam	Electric	All others					
Power strip pits proper:									
Alabama.....	4	7			49,234	\$1.96	156	77	4.11
Illinois.....	50	17	49	37	6,135,039	1.47	2,226	192	14.34
Indiana.....	48	42	32	31	5,985,051	1.34	2,384	167	15.06
Iowa.....	22	2	3	25	246,273	2.12	330	149	5.02
Kansas.....	29	21	7	5	1,721,107	1.70	926	140	13.24
Missouri.....	21	17	16	1	2,190,056	1.67	876	181	13.84
Montana.....	2		2	1	1,114,091	1.50	62	289	62.24
North Dakota.....	15	9	6	15	1,033,335	1.34	477	194	11.15
Ohio.....	31	38	3	23	1,199,075	1.58	850	172	8.19
Oklahoma.....	6	10			304,132	1.80	235	196	6.60
Pennsylvania.....	7	10		4	192,907	1.75	214	127	7.09
South Dakota.....	3			3	28,025	1.86	49	177	3.23
Other States ²	5	4	3		270,646	1.17	178	158	9.61
Total.....	243	177	121	145	20,468,971	1.49	8,963	172	13.28
Horse stripping operations.....	89				115,778	1.68	354	103	3.18
Mines combining stripping and underground methods in same operation ⁴	12	11		4	204,892	1.64	1,016	187	4.40
Grand total.....	344	188	121	149	20,789,641	1.49	10,333	171	12.11

¹ Exclusive of coal produced by underground mining in the same operation.

² Items in these columns include underground mining conducted in the same operation.

³ Includes Arkansas, Colorado, Michigan, Texas, and Wyoming.

⁴ Includes operations in Alabama, Arkansas, Indiana, Michigan, North Dakota, Ohio, Pennsylvania, and West Virginia, in which the output was obtained by both methods. In addition to the 204,892 tons produced by stripping, this group of 12 mines obtained 630,916 tons by underground methods, its total production by both methods being 835,808 tons.

LOADING MACHINES AND CONVEYORS

These figures refer only to mechanical devices designed to reduce the labor of hand shoveling into mine cars, although in a larger sense the introduction of any machine, such as a cutting machine or haulage locomotive, is a form of mechanization.

The figures are based upon complete reports courteously furnished by coal operators to the Bureau of Mines.¹

TABLE 17.—Relative rate of growth of mechanical loading, hand loading, and stripping in bituminous-coal mines, 1927-34

[Mechanical loading includes coal handled on pit-car loaders and hand-loaded face conveyors]

Year	Mechanical loading underground	Stripping	Hand loading	Year	Mechanical loading underground	Stripping	Hand loading
Thousand net tons:				Index numbers:			
1927.....	1 16,500	18,378	482,885	1927.....	100	100	100
1928.....	21,559	19,789	459,397	1928.....	131	108	95
1929.....	37,862	20,268	476,859	1929.....	230	110	99
1930.....	46,982	19,842	400,702	1930.....	285	108	83
1931.....	47,562	18,932	315,595	1931.....	288	103	65
1932.....	35,817	19,641	254,252	1932.....	217	107	53
1933.....	37,820	18,270	277,541	1933.....	229	99	57
1934.....	41,433	20,789	297,146	1934.....	251	113	62

¹ Complete returns were not collected in 1927, but the total has been estimated from the complete surveys made in 1926 and 1928.

² Revised figures.

³ The Bureau appreciates the cooperation of the manufacturers of loading equipment and of the Pennsylvania Department of Mines, the Illinois Department of Mines and Minerals, the State coal-mine inspector of Wyoming, and Jonas Waffle of Indiana in furnishing information used in the compilation.

TABLE 18.—Tonnage of bituminous coal loaded mechanically underground in 1934

	Net tons	Percent
Loaded by machine:		
Mobile loading machines.....	20,749,534	87.1
Scraper loaders.....	1,004,480	4.2
Duckbills and other self-loading conveyors.....	2,082,046	8.7
Total loaded by machine.....	23,836,060	100.0
Handled by conveyors:		
Duckbills and other self-loading conveyors.....	2,082,046	10.6
Pit-car loaders.....	11,088,919	56.3
Other hand-loaded conveyors.....	6,507,756	33.1
Total handled by conveyors.....	19,678,721	100.0
Recapitulation, less duplications:		
Mobile loading machines.....	20,749,534	50.1
Scraper loaders.....	1,004,480	2.4
Pit-car loaders.....	11,088,919	26.8
Other conveyors, including duckbills.....	8,589,802	20.7
Grand total, loaded mechanically.....	41,432,735	100.0

TABLE 19.—Increase or decrease in tonnage loaded mechanically underground, 1933-34

State	1933 (net tons)	1934 (net tons)	Increase (+) or decrease (-), 1934	
			Net tons	Percent
Illinois.....	17,121,626	18,482,347	+1,360,721	+7.9
Indiana.....	4,222,355	5,402,686	+1,180,331	+28.0
Wyoming.....	2,969,920	3,571,604	+601,684	+20.3
West Virginia.....	794,280	1,364,936	+570,656	+71.8
Ohio.....	1,028,668	1,136,398	+107,730	+10.5
Washington.....	270,858	340,685	+69,827	+25.8
Montana.....	1,087,328	1,148,428	+61,100	+5.6
Utah.....	551,172	599,493	+48,321	+8.8
Virginia.....	370,305	384,956	+14,651	+4.0
Colorado.....	70,967	65,076	-5,891	-8.3
Kentucky.....	789,755	743,629	-46,126	-5.8
Pennsylvania.....	6,682,468	6,547,978	-134,490	-2.0
Alabama.....	1,389,308	1,071,286	-318,022	-22.9
Other States ¹	471,451	573,233	+101,782	
Total.....	37,820,461	41,432,735	+3,612,274	+9.6

¹ Includes Arkansas, Iowa, Maryland, Michigan, Missouri, New Mexico, and Tennessee in 1933. Includes Arkansas, Maryland, Missouri, New Mexico, North Dakota, Oklahoma, and Tennessee in 1934.

TABLE 20.—Comparative change in tonnage loaded by principal types of machines, 1933-34

	1933 (net tons)	1934 (net tons)	Increase (+) or decrease (-), 1934	
			Net tons	Percent
Mobile loading machines.....	17,865,075	20,749,534	+2,884,459	+16.1
Scraper loaders.....	990,631	1,004,480	+13,849	+1.4
Duckbills and other self-loading conveyors.....	1,655,815	2,082,046	+426,231	+25.7
Total, loaded by machines.....	20,511,521	23,836,060	+3,324,539	+16.2
Pit-car loaders.....	11,412,833	11,088,919	-323,914	-2.8
Other hand-loaded conveyors.....	6,896,107	6,507,756	-388,351	-5.6
Grand total.....	37,820,461	41,432,735	+3,612,274	+9.6

TABLE 21.—Total tonnage loaded by machines, pit-car loaders, and other hand-loaded conveyors in 1934, by States

State	Loaded by machine	Handled on pit-car loaders and other hand-loaded conveyors	Total mechanically loaded
Illinois.....	11,643,841	6,838,506	18,482,347
Pennsylvania.....	1,385,791	5,162,187	6,547,978
Indiana.....	4,199,727	1,202,959	5,402,686
Wyoming.....	2,956,704	614,900	3,571,604
West Virginia.....	691,071	673,865	1,364,936
Montana.....	876,837	271,591	1,148,428
Ohio.....	1,136,398	-----	1,136,398
Alabama.....	142,505	928,781	1,071,286
Kentucky.....	(1)	(1)	743,629
Utah.....	565,385	34,108	599,493
Virginia.....	-----	384,956	384,956
Washington.....	(1)	(1)	340,685
Colorado.....	(1)	(1)	65,076
Other States ²	184,961	388,272	573,233
Total.....	23,836,060	17,596,675	41,432,735

¹ Separation not made here.

² Arkansas, Maryland, Missouri, New Mexico, North Dakota, Oklahoma, and Tennessee.

TABLE 22.—Percent of total bituminous deep-mined output mechanically loaded 1933-34

[Figures show proportion of the total production from underground mines that was loaded by machine or handled on pit-car loaders and other hand-loaded conveyors]

State	Percent of State total mined mechanically			State	Percent of State total mined mechanically		
	1933 ¹	1934	Change (in points)		1933 ¹	1934	Change (in points)
Wyoming.....	75.8	84.1	+8.3	Pennsylvania.....	8.5	7.3	-1.2
Montana.....	79.5	79.1	-.4	Ohio.....	5.5	5.8	+.3
Indiana.....	48.6	61.4	+12.8	Virginia.....	4.5	4.1	-.4
Illinois.....	53.9	52.6	-1.3	Kentucky.....	2.2	1.9	-.3
Utah.....	20.6	24.9	+4.3	West Virginia.....	.8	1.4	+.6
Washington.....	19.4	24.6	+5.2	United States..	12.0	12.2	+.2
Alabama.....	16.0	11.8	-4.2				

¹ Revised figures.

TABLE 23.—Mechanical loading underground in bituminous-coal mines, by States, in 1934

State	Number of mines				Number of machines					Production mechanically loaded (net tons)			Total production of mechanized mines (net tons)			
	Using loading machines only (including scrapers, duckbills, etc.)	Using conveyors only (that is, pit-car loaders and other hand-loaded conveyors)	Using both loading machines and conveyors	Total	Mobile loading machines	Scrapers	Duck-bills and other self-loading conveyors	Pit-car loaders	Installations of hand-loaded conveyors ¹	Loaded by machines	Handled by pit-car loaders and other hand-loaded conveyors	Total	Mines using loading machines only (including scrapers, duckbills, etc.)	Mines using conveyors only (that is, pit-car loaders and other hand-loaded conveyors)	Mines using both loading machines and conveyors	Total
Alabama	5	13	3	21		23	(?)	143	11	142,505	928,781	1,071,286	(?)	2,098,325	(?)	3,232,446
Arkansas	3	5	2	8		(?)	(?)		5	(?)	(?)	(?)	(?)	(?)	(?)	208,826
Colorado		1	2	3	(?)		(?)	(?)	3	(?)	(?)	65,076	(?)	(?)	(?)	215,660
Illinois	13	19	16	48	281			1,336	1	11,643,841	6,838,506	18,482,347	6,179,997	6,838,121	8,621,609	21,639,727
Indiana	10	9	9	28	96			165	2	4,199,727	1,202,959	5,402,686	3,182,488	963,385	1,912,004	6,057,877
Kentucky		7	1	8		(?)		90	4	(?)	(?)	(?)	(?)	(?)	(?)	2,702,084
Maryland		2		2					2	(?)	(?)	(?)	(?)	(?)	(?)	(?)
Missouri		2		2					2	(?)	(?)	(?)	(?)	(?)	(?)	(?)
Montana	2	1	5	8	29		(?)	44	1	876,837	271,591	1,148,423	(?)	(?)	775,377	1,270,360
New Mexico	2			2		(?)				(?)	(?)	(?)	(?)	(?)	(?)	(?)
North Dakota	1			1	(?)					(?)	(?)	(?)	(?)	(?)	(?)	(?)
Ohio	6			6	19	(?)				1,136,398		1,136,398	2,222,033			2,222,033
Oklahoma	1			1		(?)				(?)	(?)	(?)	(?)	(?)	(?)	(?)
Pennsylvania	8	46	8	62	32	53	(?)	(?)	43	1,385,791	5,162,187	6,547,978	2,651,754	13,086,403	3,461,647	19,199,804
Tennessee		1	1	2	(?)				2	(?)	(?)	(?)	(?)	(?)	(?)	(?)
Utah	9	2	1	12	36			(?)	2	565,385	34,108	599,493	1,379,625	(?)	(?)	1,519,375
Virginia		3		3					3	(?)	384,956	384,956	(?)	625,131	(?)	625,131
Washington	1	4		5			(?)		4	(?)	340,685	340,685	(?)	(?)	(?)	390,796
West Virginia	9	22	3	34	14	(?)	3	(?)	25	691,071	673,865	1,364,936	1,790,992	4,163,879	1,013,646	6,968,517
Wyoming	11	7	6	24	21	(?)	128	76	4	2,956,704	614,900	3,571,604	1,897,909	(?)	(?)	3,997,022
Undistributed		7		7	6	43		26		237,801	1,484,822	364,407	3,160,892	3,214,758	3,265,261	1,255,578
Total	81	144	55	280	534	119	157	2,288	114	23,836,060	17,596,675	41,432,735	21,465,690	30,990,002	19,049,544	71,505,236

¹ Number of mines in which hand-loaded conveyors (other than pit-car loaders) were used.² Included under "Undistributed" to avoid disclosing individual operations.

MECHANICAL CLEANING

Tables 24 to 28, inclusive, trace the growth of mechanical cleaning of bituminous coal by wet and by pneumatic methods. They are based on a special study by a member of the Bureau, to which the reader is referred for further details. (Statistical Analysis of the Progress of Mechanical Cleaning of Bituminous Coal from 1927 to 1934, by L. N. Plein; paper submitted to the Coal Division, American Institute of Mining and Metallurgical Engineers, February 1936 meeting. See also Weekly Coal Report 930, May 11, 1935, pp. 3 to 7.)

The figures of mechanical cleaning are based on reports furnished by coal operators. The manufacturers of cleaning equipment have also cooperated.

TABLE 24.—*Bituminous coal mechanically cleaned by wet and pneumatic methods, 1929-34, in net tons of clean coal*

	1929	1930	1931	1932	1933	1934
By wet methods:						
At the mines.....	¹ 26,427,971	27,794,648	25,063,165	20,818,509	22,992,590	27,555,730
At central washeries operated by consumers...	4,527,170	3,109,862	2,594,570	2,920,770	3,991,782	3,972,845
Total wet.....	¹ 30,955,141	30,904,510	27,657,735	23,739,279	26,984,372	31,528,575
By pneumatic methods.....	5,843,979	7,895,109	8,514,638	6,539,090	7,573,839	8,297,984
Grand total.....	¹ 36,799,120	38,799,619	36,172,373	30,278,369	34,558,211	39,826,559

¹ Revised figures.

TABLE 25.—Classification by types of equipment used in cleaning bituminous coal, 1927-34

[Coal cleaned at central washeries operated by consumers in Colorado and Pennsylvania is included]

	NET TONS OF CLEAN COAL							
	1927 ¹	1928	1929	1930	1931	1932	1933	1934
Wet methods:								
Jigs.....	18,700,000	17,927,569	² 18,914,604	17,723,985	13,957,072	9,963,205	11,895,301	14,062,058
Concentrating tables.....	3,200,000	3,411,676	² 3,532,378	2,272,162	1,550,863	821,201	1,118,900	1,116,154
Jigs in combination with concentrating tables.....	300,000	1,055,576	² 1,214,265	1,028,366	926,073	805,667	693,295	1,177,413
Launders and upward-current classifiers.....	1,000,000	2,445,988	7,103,086	9,818,018	11,212,955	12,139,694	13,271,876	15,167,450
Unspecified.....	800,000	156,045	190,808	61,979	10,772	9,422	5,000	5,500
Total wet.....	24,041,463	24,996,854	² 30,955,141	30,904,510	27,657,735	23,739,279	26,984,372	31,523,575
Pneumatic methods.....	3,650,584	3,786,185	5,843,979	7,895,109	8,514,638	6,539,090	7,573,839	8,297,984
Grand total.....	27,692,047	28,783,039	² 36,799,120	38,799,619	36,172,373	30,278,369	34,558,211	39,826,559
	PERCENT CLEANED BY EACH TYPE							
Wet methods:								
Jigs.....	67.6	62.3	² 51.4	45.6	38.6	32.8	34.4	35.3
Concentrating tables.....	11.6	11.8	² 9.6	5.9	4.3	2.7	3.2	2.8
Jigs in combination with concentrating tables.....	1.1	3.7	² 3.3	2.7	2.6	2.7	2.0	3.0
Launders and upward-current classifiers.....	3.6	8.5	² 19.3	25.3	31.0	40.2	38.5	38.1
Unspecified.....	2.9	.5	.5	.2	0	0	0	0
Total wet.....	86.8	86.8	² 84.1	79.7	76.5	78.4	78.1	79.2
Pneumatic methods.....	13.2	13.2	² 15.9	20.3	23.5	21.6	21.9	20.8
Grand total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

¹ Exact tonnages cleaned by each type are not available for 1927.² Revised figures.

TABLE 26.—Total production of all coal at mines with cleaning plants, 1927-34, in net tons

[Does not include any estimate for mines that may ship to consumer-operated plants]

	1927	1928	1929	1930	1931	1932	1933	1934
Wet methods:								
Jigs.....	(1)	(1)	29,375,304	27,570,657	24,164,923	19,645,713	23,194,845	29,884,972
Concentrating tables.....	(1)	(1)	2,011,462	1,561,419	2,322,729	1,862,038	1,768,940	1,868,541
Jigs in combination with concentrating tables.....	(1)	(1)	1,610,396	1,446,340	1,240,099	1,037,848	1,502,180	1,408,754
Launders and upward current classifiers.....	(1)	(1)	21,481,489	25,254,450	29,572,575	25,605,110	27,012,210	31,440,627
Unspecified.....	(1)	(1)	311,994	346,133	57,898	47,488	26,170	33,853
Total wet.....	(1)	(1)	54,790,645	56,178,999	57,367,224	48,246,197	53,503,845	64,696,747
Pneumatic methods.....	6,364,125	9,175,559	15,732,139	18,619,242	20,531,306	15,841,190	19,295,613	20,080,018
Total.....	(1)	(1)	70,522,784	74,798,241	77,898,530	64,087,387	72,799,458	84,776,765
Less duplication ¹.....	(1)	(1)	4,535,552	8,288,685	8,059,687	7,215,181	8,003,578	8,467,603
Net total.....	(1)	(1)	65,987,232	66,509,556	69,838,843	56,872,206	64,795,880	76,309,162
United States production of bituminous coal.....	(1)	(1)	534,988,593	467,526,299	382,089,396	309,709,872	333,630,533	359,368,022
Percent produced at mines with cleaning plants.....	(1)	(1)	12.3	14.2	18.3	18.3	19.4	21.2

¹ Not available.

² Mines using both wet and pneumatic methods.

TABLE 27.—*Cleaning plants, classified by types, in actual operation, 1927-34*

	1927	1928	1929	1930	1931	1932	1933	1934
Wet types:								
Jigs.....	(1)	148	148	149	142	141	130	130
Concentrating tables.....	(1)	13	13	10	11	10	10	10
Jigs in combination with concentrating tables.....	(1)	10	12	12	11	13	13	12
Launders and upward-current classifiers.....	(1)	28	55	71	90	88	84	86
Unspecified.....	(1)	5	9	4	2	3	1	1
Total wet.....	(1)	204	237	246	256	255	238	239
Pneumatic types.....		26	43	51	56	54	52	53
Total all types.....	(1)	236	280	297	312	309	290	292
Number of plants using both wet and pneumatic types.....	(1)	(1)	12	20	25	25	24	24

¹ Information not available.

TABLE 28.—*Bituminous coal mechanically cleaned by wet and pneumatic methods, by States, 1927-34*

[Central washeries operated by consumers in Colorado and Pennsylvania are included]

State	Clean coal, in net tons								Percent of State output mechanically cleaned							
	1927	1928	1929	1930	1931	1932	1933	1934	1927	1928	1929	1930	1931	1932	1933	1934
Alabama.....	13, 153, 643	13, 064, 095	13, 585, 632	11, 760, 020	9, 303, 386	5, 842, 039	6, 729, 913	7, 150, 888	66.5	74.1	75.7	75.5	77.5	74.4	76.8	78.2
Arkansas.....	9, 250	6, 893	9, 839	(1)	(1)	(1)	(1)	(1)	.6	.4	.6					
Colorado.....	1, 362, 998	1, 276, 764	1, 270, 985	888, 005	542, 265	284, 749	361, 870	417, 295	14.0	13.0	12.8	10.8	8.2	5.1	6.9	8.0
Illinois.....	560, 642	442, 054	526, 551	2 1, 152, 817	2 1, 546, 459	2 1, 640, 221	2 1, 756, 812	2 2, 323, 242	1.2	.6	.9	2 1.6	2 2.6	2 3.5	2 3.4	2 4.1
Indiana.....	250, 282	245, 522	498, 415	(2)	(2)	(2)	(2)	(2)	1.4	1.5	2.7	(2)	(2)	(2)	(2)	(2)
Kansas.....							(1)	(2)							(2)	(2)
Kentucky.....	309, 262	541, 975	4 457, 655	290, 780	341, 954	331, 416	233, 238	308, 735	.4	.9	4.8	.6	.9	.9	.6	.8
Maryland.....				(1)	(1)	(1)	(1)	(1)								
Michigan.....	155, 190	111, 469	157, 369	(2)	(2)	(2)	(2)	(2)	20.5	18.1	19.6	(2)	(2)	(2)	(2)	(2)
Missouri.....				(1)	(1)	(1)	3 454, 911	3 813, 488							3 8.1	3 13.9
Montana.....	142, 802	101, 586	73, 293	(1)				(1)	4.5	3.1	2.2					
New Mexico.....							(1)	(1)								
Ohio.....	7, 278		204, 543	6 719, 646	5 816, 906	5 854, 123	5 1, 123, 115	5 1, 260, 654			.9	3 3.1	3 3.9	5 5.9	5 5.6	5 5.9
Oklahoma.....	5, 646				(1)	(1)	(1)	(1)								
Pennsylvania.....	5, 625, 092	6, 905, 546	11, 100, 193	13, 496, 934	12, 657, 958	10, 799, 082	12, 722, 812	15, 652, 268	4.2	5.3	7.7	10.8	13.0	14.4	16.0	17.4
Tennessee.....	344, 562	326, 903	308, 449	297, 768	249, 453	247, 650	308, 778	341, 530	6.0	5.8	5.7	5.8	5.3	7.0	8.2	8.3
Virginia.....	1, 239, 496	269, 271	(2)	(2)	(2)	(2)	(2)	(2)	10.0	2.3	(2)	(2)	(2)	(2)	(2)	(2)
Washington.....	820, 481	892, 498	967, 098	819, 662	603, 497	485, 610	519, 417	400, 336	31.1	35.4	38.4	35.6	32.7	30.5	37.3	28.9
West Virginia.....	3, 655, 423	4, 598, 463	6 7, 639, 098	6 9, 227, 968	6 9, 715, 433	6 9, 323, 094	6 10, 267, 905	6 11, 002, 766	2.5	3.5	5.5	6 7.0	6 8.7	6 10.0	6 10.0	6 10.2
Other States.....				146, 019	395, 062	470, 385	79, 440	155, 367								
Total.....	27, 692, 047	28, 783, 039	36, 799, 120	38, 799, 619	36, 172, 373	30, 278, 369	34, 558, 211	39, 826, 559	5.3	5.7	6 6.9	8.3	9.5	9.8	10.4	11.1

- 1 Included with "Other States."
- 2 Illinois includes Indiana.
- 3 Missouri includes Kansas.
- 4 Revised figures.
- 5 Ohio includes Michigan.
- 6 West Virginia includes Virginia.

COAL

CONSUMPTION, STOCKS, AND DISTRIBUTION

CONSUMPTION

TABLE 29.—Consumption of bituminous coal by uses in 1929—a year of peak industrial activity

Item	Bituminous coal consumed (net tons)	Percent of total
Railroad fuel (all steam roads):¹		
Locomotive fuel.....	118,600,000	22.83
All other (shops, stations, etc.).....	12,500,000	2.40
Total, railroad fuel.....	131,100,000	25.23
Coke ovens:²		
Byproduct.....	76,759,000	14.77
Beehive.....	10,028,000	1.93
Total, coke ovens.....	86,787,000	16.70
Electric power utilities³	42,785,000	8.24
Steel works and blast furnaces, gas and steam coal⁴	23,031,000	4.43
General manufacturing industries:⁵		
1. Food and kindred products.....	12,144,000	2.34
2. Textiles and their products.....	7,643,000	1.47
3. Forest products.....	2,968,000	.57
4. Paper and allied products.....	10,247,000	1.97
5. Printing, publishing, and allied industries.....	403,000	.08
6. Chemicals and allied products.....	10,440,000	2.01
7. Products of petroleum and coal (other than coke and gas) ⁶	3,466,000	.67
8. Rubber products.....	2,306,000	.44
9. Leather and its manufactures.....	1,434,000	.28
10. Stone, clay, and glass products.....	22,046,000	4.24
11. Miscellaneous iron and steel products, not including blast furnaces, steel works, and machinery ⁷	3,120,000	.60
12. Nonferrous metals and their products.....	3,517,000	.68
13. Machinery, not including transportation equipment.....	5,990,000	1.15
14. Transportation equipment, air, land, and water.....	3,991,000	.77
15. Miscellaneous manufacturing industries ⁸	1,810,000	.35
Total, general manufacturing.....	91,525,000	17.62
Coal-gas and water-gas plants⁹	5,274,000	1.02
Coal-mine fuel¹⁰	4,662,000	.90
Mines and quarries other than coal¹¹	4,272,000	.82
Bunker:¹²		
Foreign.....	4,287,000	.82
Domestic (incomplete).....	3,407,000	.66
Total, bunker.....	7,694,000	1.48
Domestic and all other uses not elsewhere accounted for¹³	122,425,000	23.56
Grand total consumed.....	519,555,000	100.00

¹ Based on records of Interstate Commerce Commission covering class I roads (Statistics of Railways Statement 49A). Includes allowances for classes II and III, switching, and terminal companies.

² U. S. Bureau of Mines, Coke in 1929, p. 574.

³ U. S. Geological Survey, Division of Power Resources.

⁴ Consumption by iron blast furnaces and steel works and rolling mills, as shown by Census of Manufactures, 1929. Does not include coal used in coke ovens.

⁵ Census of Manufactures: 1929, vol. 1, p. 161, deducting industries included elsewhere as noted.

⁶ Excluding coal used in coke ovens and in manufactured-gas plants.

⁷ Excluding coal used in iron blast furnaces, steel works, and rolling mills. See note 4.

⁸ Includes 77,534 tons consumed in electric-railroad repair shops. Note that steam-railroad repair shops are included under railroad fuel above.

⁹ Bituminous coal used for gas-making and for boiler, retort, and bench fuel, not including that charged in byproduct ovens operated by city gas companies.

¹⁰ U. S. Bureau of Mines, Coal in 1929, p. 687.

¹¹ Census of Mines and Quarries, 1929, p. 52.

¹² Bureau of Foreign and Domestic Commerce, Monthly Summary of Foreign Commerce.

¹³ Includes heating large buildings other than factories, such as hotels, apartments, stores, offices, theaters, garages, and service stations; also a number of other items that cannot be separated, such as waterworks, construction industry, threshing, public institutions, central heating plants, laundries, and very small industrial consumers not covered by the Census of Manufactures. Note that this item is obtained by the difference between the observed total consumption (production minus exports plus imports plus or minus changes in consumers' stocks) and the known consumption reported for other items. It thus includes any tonnages omitted in the enumeration of the other items. For these reasons the total for this group is not directly comparable with estimates of consumption for "domestic use" hitherto published.

TABLE 30.—Changes in the United States consumption of bituminous coal by such classes of consumers as report currently, and by all other consumers, 1929-34, in thousands of net tons

[Information on several other classes of consumers is available for certain years. The items shown in this table are selected because they are available in strictly comparable form for each year]

Year	Consumed in the United States							Exported		Total of consumption and exports ⁷	
	Colliery fuel	Electric public utilities ¹	Bunkers, foreign trade ²	Locomotive fuel, class I roads ³	Coke beehive ovens ⁴	Coke by-product ovens ⁴	All other uses ⁵	Total consumption ⁶	To Canada and Mexico ²		To all other countries ²
1929-----	4, 663	44, 937	4, 287	113, 894	10, 023	76, 759	264, 987	519, 555	14, 727	2, 702	536, 984
1930-----	3, 993	42, 898	3, 497	98, 400	4, 284	65, 521	236, 397	454, 990	13, 667	2, 210	470, 867
1931-----	3, 205	38, 735	2, 195	81, 725	1, 767	46, 846	197, 396	371, 869	10, 647	1, 479	383, 995
1932-----	2, 781	30, 290	1, 350	66, 498	1, 030	30, 887	174, 081	306, 917	8, 429	385	315, 731
1933-----	2, 858	30, 575	1, 316	66, 198	⁸ 1, 461	38, 631	⁸ 180, 659	321, 748	8, 500	497	330, 785
1934-----	3, 175	33, 555	1, 321	70, 496	1, 635	44, 343	192, 518	347, 043	10, 213	656	357, 912

¹ U. S. Geological Survey. Includes a small amount of anthracite.

² Bureau of Foreign and Domestic Commerce.

³ Interstate Commerce Commission. Note that consumption in shops, roundhouses, and stations is excluded, also the entire consumption of class II and III roads.

⁴ U. S. Bureau of Mines.

⁵ Obtained by subtracting the known items from the total consumption. Includes general manufacturing, domestic, and many miscellaneous uses. From other sources it is known that consumption in steel works and general manufacturing is decreasing and that consumption for domestic uses is increasing.

⁶ Production plus imports minus exports, plus or minus changes in consumers' stocks.

⁷ Note that consumption includes the small amount imported.

⁸ Revised figures.

FUEL ECONOMY

TABLE 31.—Indicators of the effect of fuel economy on consumption of coal per unit of performance since the World War

	Pounds	Reduction (percent)
Steam railroads:		
Pounds per 1,000 gross ton-miles freight service:		
Average, 1919-20-----	170	
Average, 1934-----	122	28.2
Pounds per passenger-train car-mile:		
Average, 1919-20-----	18.5	
Average, 1934-----	15.2	17.8
Electric-public-utility power plants:		
Pounds per kilowatt-hour, 1919-----	3.2	
Pounds per kilowatt-hour, 1934-----	1.5	53.1
Iron and steel—pounds coking coal per ton of pig: ¹		
1919-----	3, 577	
1934-----	2, 927	18.2
Coke manufacture: Savings of heat values through recovery of gas, tar, light oils, and breeze by extension of byproduct in place of beehive coking, 1913-34, expressed as percent of coal used for all coke in 1934 ² -----		19.4

¹ Includes only savings through higher yields of merchantable coke per ton of coal charged and lower consumption of coke per ton of iron. Excludes economies through recovery of byproducts, which are treated in next item.

² These byproducts are used in part for boiler fuel, in part for metallurgical purposes, in part for domestic heating and cooking, and to a small extent for automotive fuel.

STOCKS OF COAL HELD BY CONSUMERS

TABLE 32.—Stocks of bituminous coal in hands of commercial consumers and stocks of anthracite and bituminous coal in retail dealers' yards in 1934

Date	Total stock of bituminous coal, estimated (net tons)	Days' supply at current rate of consumption on date of stock taking								
		By-product coke plants	Steel plants	Other industrials	Coal-gas plants	Electric utilities	Retail yards, bituminous	Railroads	Total bituminous	Retail yards, anthracite
Jan. 1.....	32,840,000	53	33	32	72	61	21	24	32	34
Feb. 1.....	31,023,000	49	33	29	65	61	16	21	27	29
Mar. 1.....	27,100,000	37	25	22	53	53	11	18	21	14
Apr. 1.....	28,371,000	36	25	24	57	60	12	24	24	17
May 1.....	27,711,000	33	26	28	56	70	22	23	29	44
June 1.....	28,490,000	32	25	33	60	64	51	23	35	59
July 1.....	29,493,000	36	26	34	66	59	55	24	37	61
Aug. 1.....	30,387,000	50	43	36	76	57	57	27	42	65
Sept. 1.....	31,441,000	54	44	36	74	57	54	26	41	79
Oct. 1.....	33,077,000	54	44	39	73	63	51	25	44	80
Nov. 1.....	35,810,000	55	37	35	77	63	45	24	40	54
Dec. 1.....	36,356,000	56	32	32	77	66	41	25	38	60
Dec. 31.....	34,476,000	49	27	30	70	63	27	22	32	36

DISTRIBUTION

Tables showing the movement of coal to the Great Lakes, to tide-water, and to New England and certain other major currents of distribution have been included in earlier reports of this series (see Coal in 1928, pp. 512-527) and are this year published in the Monthly Coal Distribution Report of the Bureau of Mines. Table 33 records one feature of the distribution of bituminous coal that bears closely on the statistics of production.

BITUMINOUS COAL LOADED FOR SHIPMENT BY INDIVIDUAL RAILROADS AND WATERWAYS, AS REPORTED BY OPERATORS

The table shows the quantity so originated on each railroad and waterway, as reported by mine operators in answer to the following inquiry:

Railroads or waterways on which product was first loaded for shipment:

Name of road or waterway.....

(Give shipments over each road separately)

Tons

As these statistics include nonrevenue railroad fuel they may differ from statistics compiled by the railroad companies, which often show only revenue freight and include coal received from connecting lines or coal shipped off the Lake docks, as well as that originating at mines on the lines reporting.

Where the road serving the district is a subsidiary of a larger road some operators may report their coal as loaded on the subsidiary and others as loaded on the parent system (a few subsidiaries have been consolidated under the name of the parent road).

In general, the figures are given under the name reported by the operator; and the Bureau of Mines does not attempt to combine them under the name of the larger system, believing that such combina-

tion can best be made by those using the figures, as they are probably familiar with coal-traffic problems. If such combination is made, the total will usually be found to check reasonably well with the statistics issued by railroads that keep records of total coal originated.

TABLE 33.—*Bituminous coal loaded for shipment in 1934 by individual railroads and waterways, as reported by operators, in net tons*

Route	State	Quantity	
		By State	Total for route
RAILROADS			
Alabama Central.....	Alabama.....	44, 145	44, 145
Alabama Great Southern.....	do.....	142, 296	142, 296
Alaska.....	Alaska.....	101, 060	101, 060
Algiers, Winslow & Western.....	Indiana.....	1, 220, 758	1, 220, 758
Alton.....	Illinois.....	629, 945	683, 626
Artemus-Jellico.....	Missouri.....	53, 681	
	Kentucky.....	319, 011	319, 011
	Colorado.....	119, 241	
	Illinois.....	738, 525	2, 438, 532
Atchison, Topeka & Santa Fe.....	Kansas.....	553, 754	
	Missouri.....	151, 923	
	New Mexico.....	875, 089	
	Illinois.....	472, 222	
	Indiana.....	440, 833	24, 672, 031
Baltimore & Ohio.....	Maryland.....	13, 911	
	Ohio.....	3, 631, 215	
	Pennsylvania.....	10, 135, 431	
	West Virginia.....	9, 978, 419	2, 618, 796
Bessemer & Lake Erie.....	Pennsylvania.....	2, 618, 796	
Bevier & Southern.....	Missouri.....	22, 572	22, 572
Buffalo Creek & Gauley.....	West Virginia.....	640, 277	640, 277
Cambria & Indiana.....	Pennsylvania.....	2, 718, 606	2, 718, 606
Campbell's Creek.....	West Virginia.....	784, 250	784, 250
Carbon County.....	Utah.....	217, 969	217, 969
Caseyville.....	Illinois.....	112, 689	112, 689
Central of Georgia.....	Alabama.....	633, 681	666, 075
	Georgia.....	32, 394	
	Kentucky.....	7, 950, 934	
Chesapeake & Ohio.....	Ohio.....	1, 114, 134	43, 354, 696
	West Virginia.....	34, 289, 628	
Cheswick & Harmar.....	Pennsylvania.....	666, 861	666, 861
Chicago & Eastern Illinois.....	Illinois.....	1, 659, 808	4, 015, 679
	Indiana.....	2, 355, 871	
Chicago & Illinois Midland.....	Illinois.....	3, 399, 363	3, 399, 363
	do.....	2, 112, 187	2, 252, 608
Chicago & North Western.....	Iowa.....	117, 087	
	Wyoming.....	23, 334	
	Colorado.....	250, 930	6, 675, 244
Chicago, Burlington & Quincy.....	Illinois.....	5, 547, 121	
	Iowa.....	170, 276	22, 711
Chicago Great Western.....	Missouri.....	49, 459	
Chicago, Indianapolis & Louisville.....	Wyoming.....	657, 458	
	Iowa.....	22, 711	1, 055, 667
	Indiana.....	1, 055, 667	
	Illinois.....	26, 519	5, 086, 936
Chicago, Milwaukee, St. Paul & Pacific.....	Indiana.....	3, 796, 981	
	Iowa.....	558, 124	
	Missouri.....	41, 376	1, 551, 673
	Montana.....	627, 283	
	North Dakota.....	16, 329	
	South Dakota.....	16, 785	
	Washington.....	3, 539	
	Illinois.....	552, 166	
	Iowa.....	681, 872	
Chicago, Rock Island & Pacific.....	Missouri.....	167, 392	355, 052
	Oklahoma.....	150, 243	
Chicago, Springfield & St. Louis.....	Illinois.....	355, 052	3, 907, 152
	do.....	2, 807, 226	
Cleveland, Cincinnati, Chicago & St. Louis.....	Indiana.....	1, 099, 926	1, 868, 067
	Kentucky.....	61, 904	
Clinchfield.....	Virginia.....	1, 806, 163	170, 204
Colorado & Southeastern.....	Colorado.....	170, 204	
Colorado & Southern.....	do.....	667, 909	238, 777
Colorado & Wyoming.....	do.....	238, 777	
Conemaugh & Black Lick.....	Pennsylvania.....	7, 806	7, 806
Crystal River & San Juan.....	Colorado.....	939	939
Cumberland & Pennsylvania.....	Maryland.....	749, 984	749, 984
Dardanelle & Russellville.....	Arkansas.....	44, 189	44, 189
Dents Run.....	Pennsylvania.....	5, 126	5, 126
Denver & Intermountain.....	Colorado.....	114, 956	114, 956

TABLE 33.—*Bituminous coal loaded for shipment in 1934 by individual railroads and waterways, as reported by operators, in net tons—Continued*

Route	State	Quantity	
		By State	Total for route
RAILROADS—continued			
Denver & Rio Grande Western.....	Colorado.....	1,029,571	2,356,420
	New Mexico.....	22,695	
	Utah.....	1,304,154	
Denver & Salt Lake.....	Colorado.....	440,391	440,391
Des Moines & Central Iowa.....	Iowa.....	142,008	142,008
Detroit, Toledo & Ironton.....	Ohio.....	30,648	30,648
East Broad Top Railroad & Coal Co.....	Pennsylvania.....	557,746	557,746
Eastern Railway & Lumber Co.....	Washington.....	8,227	8,227
Erie.....	Ohio.....	162	1,152,063
	Pennsylvania.....	1,151,901	
Evansville & Ohio Valley.....	Indiana.....	14,341	14,341
Evansville, Indianapolis & Terre Haute.....	do.....	113,961	113,961
Evansville, Suburban & Newburgh.....	do.....	128,624	128,624
Fort Dodge, Des Moines & Southern.....	Iowa.....	18,861	18,861
Fort Smith & Western.....	Oklahoma.....	73,446	73,446
Fort Smith, Subiaco & Rock Island.....	Arkansas.....	2,872	2,872
Great Northern.....	Montana.....	372,169	756,013
	North Dakota.....	310,107	
	Washington.....	73,737	
Huntingdon & Broad Top Mountain Railroad & Coal Co.....	Pennsylvania.....	222,318	222,318
Illinois Central.....	Alabama.....	242,134	12,593,011
	Illinois.....	7,110,139	
	Indiana.....	213,645	
	Kentucky.....	5,027,093	
	Texas.....	30,440	
Illinois Terminal.....	Illinois.....	733,689	733,689
International-Great Northern.....	Texas.....	30,440	30,440
Interstate.....	Kentucky.....	43,448	1,629,286
	Virginia.....	1,585,838	
Iowa Southern Utilities Co.....	Iowa.....	191,585	191,585
Johnstown & Stony Creek.....	Pennsylvania.....	111,683	111,683
Joplin-Pittsburg.....	Kansas.....	295,377	295,377
Kanawha Central.....	West Virginia.....	191,966	191,966
Kanawha, Glen Jean & Eastern.....	do.....	428,856	428,856
	Arkansas.....	1,664	
Kansas City Southern.....	Kansas.....	65,773	685,779
	Missouri.....	582,599	
	Oklahoma.....	35,743	
	do.....	14,849	
Kansas, Oklahoma & Gulf.....	West Virginia.....	529,769	529,769
Kelley's Creek & Northwestern.....	Kentucky.....	547,869	547,869
Kentucky & Tennessee.....	Pennsylvania.....	105,054	105,054
Lake Erie, Franklin & Clarion.....	Colorado.....	19,561	19,561
Laramie, North Park & Western.....	Illinois.....	231	231
LaSalle & Bureau County R. R.....	Pennsylvania.....	161,241	161,241
Ligonier Valley.....	Illinois.....	563,203	563,203
Litchfield & Madison.....	Alabama.....	1,881,745	21,627,261
	Illinois.....	60,155	
	Kentucky.....	18,844,707	
	Tennessee.....	684,904	
	Virginia.....	155,750	
Mary Lee.....	Alabama.....	710,897	710,897
	Michigan.....	110,987	
Michigan Central.....	Arkansas.....	123,346	390,424
	Oklahoma.....	267,078	
Midland Valley.....	Illinois.....	739,324	761,174
	Iowa.....	21,850	
Minneapolis & St. Louis.....	North Dakota.....	466,826	466,826
Minneapolis, St. Paul & Sault Ste. Marie.....	Illinois.....	76,521	76,521
	Kansas.....	197,139	
	Missouri.....	67,859	
	Oklahoma.....	199,380	
	Texas.....	55,350	
Missouri-Kansas-Texas.....	Arkansas.....	574,867	519,728
	Illinois.....	3,255,698	
	Kansas.....	802,549	
	Missouri.....	728,638	
	Alabama.....	66,743	
Missouri Pacific.....	Illinois.....	247,438	314,181
	Pennsylvania.....	66,743	
Mobile & Ohio.....	West Virginia.....	3,230,977	3,230,977
Monongahela.....	Arkansas.....	6,969,258	6,969,258
Montana.....	Arkansas.....	14,173	14,173
Montana, Wyoming & Southern.....	Montana.....	296,310	296,310
Montour.....	Pennsylvania.....	4,730,123	4,730,123

TABLE 33.—Bituminous coal loaded for shipment in 1934 by individual railroads and waterways, as reported by operators, in net tons—Continued

Route	State	Quantity	
		By State	Total for route
RAILROADS—continued			
Nashville & Atlantic.....	Tennessee.....	3,324	3,324
Nashville, Chattanooga & St. Louis.....	do.....	802,731	802,731
New Haven & Dunbar.....	Pennsylvania.....	4,095	4,095
New York Central (includes some coal shipped over subsidiary roads: Kanawha & Michigan, Toledo & Ohio Central, and Zanesville & Western).	Illinois.....	1,205	10,302,557
	Ohio.....	5,142,344	
	Pennsylvania.....	3,882,418	
	West Virginia.....	1,276,590	
	do.....	1,684,053	
Nicholas, Fayette & Greenbrier.....	Kentucky.....	3,415,147	1,684,053
Norfolk & Western.....	Virginia.....	3,877,337	
	West Virginia.....	23,420,784	
	North Carolina.....	100	100
Norfolk & Southern.....	Kansas.....	9,923	9,923
Northeast Oklahoma.....	Alabama.....	205,452	205,452
Northern Alabama.....	Montana.....	1,115,331	2,352,712
Northern Pacific.....	North Dakota.....	488,568	
	Washington.....	748,813	
	Oklahoma.....	31,679		31,679
	Oneida & Western.....	Tennessee.....	42,837	42,837
Oregon Short Line.....	Wyoming.....	311,609	311,609
Oregon-Washington Railroad & Navigation Co.....	Washington.....	26,363	26,363
Pacific Coast.....	do.....	198,820	198,820
Pennsylvania (includes Pittsburgh, Cincinnati, Chicago & St. Louis)	Illinois.....	345,919	36,368,984
	Indiana.....	1,670,510	
	Ohio.....	4,443,542	
	Pennsylvania.....	29,036,466	
	West Virginia.....	872,547	
	Illinois.....	129,619		129,619
Peoria & Pekin Union.....	do.....	1,015,599	1,015,599
Peoria Terminal.....	Michigan.....	213,522	213,522
Pere Marquette.....	Pennsylvania.....	964,994	964,994
Pittsburg & Shawmut.....	Oklahoma.....	25,856	25,856
Pittsburg County.....	Pennsylvania.....	404,480	404,480
Pittsburg, Shawmut & Northern.....	do.....	3,991,276	3,991,276
Pittsburg & Lake Erie.....	Ohio.....	184,652	2,271,741
Pittsburg & West Virginia.....	Pennsylvania.....	2,025,204	
	West Virginia.....	61,885	
	Pittsburg, Chartiers & Youghiogeny.....	Pennsylvania.....	1,587	1,587
Pittsburg, Lisbon & Western.....	Ohio.....	4,855	6,948
	Pennsylvania.....	2,093	
Preston.....	West Virginia.....	211,204	211,204
Quincy, Omaha & Kansas City.....	Missouri.....	77,302	77,302
Rio Grande & Eagle Pass.....	Texas.....	15,641	15,641
Rio Grande Southern.....	Colorado.....	6,771	6,771
Rockdale, Sandow & Southern.....	Texas.....	95,179	95,179
Rutland, Toluca & Northern.....	Illinois.....	32,546	32,546
St. Louis & Belleville Electric.....	do.....	5,370	5,370
St. Louis & Hannibal.....	Missouri.....	5,116	5,116
St. Louis & O'Fallon.....	Illinois.....	391,914	391,914
St. Louis-San Francisco.....	Alabama.....	1,008,861	2,176,416
	Arkansas.....	71,477	
	Kansas.....	318,705	
	Missouri.....	437,048	
	Oklahoma.....	340,325	
St. Louis Southwestern of Texas.....	Texas.....	482,320	482,320
San Antonio Southern.....	do.....	6,000	6,000
Seaboard Air Line.....	Alabama.....	34,409	34,409
Southern.....	do.....	1,503,746	6,795,827
	Illinois.....	198,299	
	Indiana.....	1,194,976	
	Kentucky.....	747,637	
	Tennessee.....	1,589,844	
	Virginia.....	1,561,325	
Southern Pacific.....	California.....	13,000	266,041
	New Mexico.....	253,041	
	Illinois.....	293,519		293,519
Springfield Terminal.....	Pennsylvania.....	18,711	18,711
Susquehanna & New York.....	Tennessee.....	491,197	491,197
Tennessee.....	do.....	251,965	251,965
Tennessee Central.....	Alabama.....	1,255,612	1,255,612
Tennessee Coal, Iron & Railroad Co.....	Texas.....	8,926	8,926
Texas & Pacific.....	do.....	26,951	26,951
Texas Short Line.....	Alabama.....	553,816	553,816
Thomas & Sayreton.....	Illinois.....	59,496	59,496
Toledo, Peoria & Western.....	Washington.....	196	196
Twin City Electric.....			

TABLE 33.—Bituminous coal loaded for shipment in 1934 by individual railroads and waterways, as reported by operators, in net tons—Continued

Route	State	Quantity	
		By State	Total for route
RAILROADS—continued			
Utah.....	Colorado.....	5,655	5,655
Union.....	Pennsylvania.....	32,317	32,317
	Colorado.....	911,747	4,025,157
	Idaho.....	4,050	
Union Pacific.....	Kansas.....	13,000	
	Utah.....	29,630	
	Wyoming.....	3,066,730	
Unity.....	Pennsylvania.....	711,856	711,856
Utah.....	Utah.....	742,139	742,139
Virginian.....	Virginia.....	71,851	8,401,459
	West Virginia.....	8,329,608	
	Illinois.....	1,351,137	1,792,244
Wabash.....	Iowa.....	87,375	
	Missouri.....	353,732	
Western Allegheny.....	Pennsylvania.....	166,032	166,032
	Maryland.....	639,269	4,185,028
Western Maryland.....	Pennsylvania.....	573,653	
	West Virginia.....	2,972,116	
West Virginia Northern.....	do.....	188,568	188,568
Wheeling & Lake Erie.....	Ohio.....	2,874,378	2,874,378
Winfield.....	Pennsylvania.....	11,684	11,684
Winfrede.....	West Virginia.....	50,416	50,416
Woodward Iron Co.....	Alabama.....	414,612	414,612
Youngstown & Suburban.....	Ohio.....	9,338	9,338
Total railroad shipments.....		313,303,729	313,303,729
WATERWAYS			
Allegheny River.....	Pennsylvania.....	951,542	951,542
Black Warrior River.....	Alabama.....	81,301	81,301
Green River.....	Kentucky.....	95,420	95,420
Kanawha River.....	West Virginia.....	741,002	741,002
Monongahela River.....	Pennsylvania.....	11,374,653	11,509,877
	West Virginia.....	135,224	
Muskingum River.....	Ohio.....	373,250	373,250
	Indiana.....	1,119	1,256,347
Ohio River.....	Kentucky.....	230,790	
	Ohio.....	5,000	
	Pennsylvania.....	300	
Youghiogheny River.....	West Virginia.....	1,019,138	119,229
	Pennsylvania.....	119,229	
Total waterway shipments.....		15,127,968	15,127,968
Grand total, loaded at mines for shipment by railroads and waterways.....		328,431,697	328,431,697
Commercial sales by truck or wagon.....		18,739,320	18,739,320
Other sales to local trade, or used by employees, or taken by locomotives at tippie.....		7,374,143	7,374,143
Used at mines for power and heat.....		3,175,057	3,175,057
Made into coke at mines.....		1,647,805	1,647,805
Total production.....		359,368,022	359,368,022

IMPORTS AND EXPORTS

IMPORTS

TABLE 34.—*Bituminous coal imported, by countries and districts, 1933-34, in net tons*

[Compiled from records of the Bureau of Foreign and Domestic Commerce]

Country and district	1933 ¹	1934	Country and district	1933 ¹	1934
COUNTRY			DISTRICT OF ENTRY—contd.		
North America:			Dakota.....	5,155	4,407
Canada.....	145,265	133,382	Duluth-Superior.....	370	206
Mexico.....	17	64	Maine and New Hampshire.....	62,928	44,057
Europe:			Massachusetts.....	40,748	45,835
Italy.....		3	Michigan.....	861	336
United Kingdom.....	52,147	45,834	Montana-Idaho.....	45,218	47,563
Asia:			New York.....	623	
Japan.....		378	Oregon.....		3
Total.....	197,429	179,661	Puerto Rico.....	5,224	
DISTRICT OF ENTRY			St. Lawrence.....	26	56
Alaska.....	14,009	13,797	San Antonio.....	15	64
Buffalo.....	14,714	12,605	Vermont.....	55	141
			Washington.....	7,483	10,591
			Total.....	197,429	179,661

¹ Revised figures.

EXPORTS

TABLE 35.—*Exports of bituminous coal to (1) Canada and Mexico, (2) the West Indies and Central America, and (3) "overseas" destinations, 1929-34, in thousands of net tons*

[Compiled from records of the Bureau of Foreign and Domestic Commerce]

Year	(1) Canada and Mexico	(2) West Indies and Central America ¹	(3) "Overseas" (all other countries)							Grand total
			New- found- land, Mique- lon, and Ber- mudas	South Amer- ica	Europe	Asia	Africa	Oceania	Total "over- seas"	
1929.....	14,727	1,500	211	332	567	8	84		1,202	17,429
1930.....	13,667	1,180	95	353	469	14	97	2	1,030	15,877
1931.....	10,647	755	98	306	246	18	56		724	12,126
1932.....	8,429	235	6	108	3	8	25	(²)	150	8,814
1933.....	8,600	223	21	174	7	6	6		214	9,037
1934.....	10,213	410	40	203		3			246	10,859

¹ Includes Bahamas, Virgin Islands, and Panama.

² 2 tons.

TABLE 36.—*Bituminous coal exported, by countries, 1933-34, in net tons*¹

[Compiled from records of the Bureau of Foreign and Domestic Commerce]

Country	1933	1934	Country	1933	1934
North America:			South America:		
Bermuda.....	1,498	4,624	Argentina.....	48,661	35,093
British Honduras.....	129	274	Bolivia.....	2,226	.....
Canada.....	8,598,807	10,210,070	Brazil.....	94,442	136,231
Central America:			Colombia.....	71	91
Costa Rica.....	2,788	.....	Ecuador.....	50	23
Guatemala.....	665	1,210	Gulana:		
Honduras.....	430	1,269	British.....	108	460
Nicaragua.....	95	47	Surinam (Nether-	1,784	2,119
Panama.....	47,066	44,864	land).....	.....	13
Salvador.....	17	32	Peru.....	26,984	29,139
Mexico.....	972	2,215	Uruguay.....	52	95
Miquelon and St. Pierre			Venezuela.....	.....	.....
Islands.....	11,840	14,564		174,378	203,269
Newfoundland and Lab-					
rador.....	7,884	21,245	Europe:		
West Indies:			Italy.....	7,170	.....
British:				7,170	.....
Jamaica.....	10,679	18,217			
Trinidad and To-			Asia:		
bago.....	5,420	5,164	East Indies: Netherland:		
Other British.....	34	7,698	Java and Madura.....	6,248	1,766
Cuba.....	118,647	289,987	Philippine Islands.....	7	1,681
Dominican Republic.....	109	102		6,255	3,447
French.....	17,138	12,239	Africa:		
Haiti.....	28	13	Egypt.....	6,231	.....
Netherland.....	3,088	2,162			
Virgin Islands of the			Grand total.....	9,036,947	10,868,552
United States.....	15,549	25,840			
	8,842,913	10,661,836			

¹ Amounts stated do not include fuel or bunker coal loaded on vessels engaged in the foreign trade, which aggregated 1,343,837 tons in 1932, 1,315,592 tons in 1933, and 1,320,623 tons in 1934.

TABLE 37.—*Bituminous coal exported, by districts and ports, 1933-34, in net tons*

[Compiled from records of the Bureau of Foreign and Domestic Commerce]

Customs district	1933	1934	Customs district	1933	1934
North Atlantic:			Rail gateways on Canadian		
New York.....	470	347	border:		
Philadelphia.....	12,365	23,307	Eastern:		
Maryland.....	15,962	38,263	Maine and New		
Virginia.....	378,964	550,236	Hampshire.....	206	162
South Atlantic:			Vermont.....	325	478
South Carolina.....	26,751	55,469	Massachusetts.....	.....	1
Florida.....	933	1,740	St. Lawrence.....	303,251	455,059
Mobile.....	8,337	1,251	Rochester ¹	677,622	788,546
New Orleans.....	5,036	3,581	Buffalo.....	1,732,864	1,773,241
Mexican border:			Michigan.....	900,338	1,115,162
Arizona.....	152	422	Western:		
El Paso.....	371	1,445	Duluth-Superior and		
San Antonio.....	195	28	International Falls.....	3,993	12,010
Pacific coast:			Dakota.....	11,476	7,431
Washington ¹	7,942	4,428	Montana-Idaho.....	270	10
Los Angeles.....	.....	16	Miscellaneous:		
San Francisco.....	154	164	Alaska.....	1,412	177
San Diego.....	19	20	Puerto Rico.....	97	99
Lake Erie ports: Ohio ²	4,947,442	6,035,459	Total.....	9,036,947	10,868,552

¹ Both rail to Canada and by tide to foreign ports.

² Lower lake docks as follows: Toledo, Sandusky, Huron, Lorain, Cleveland, Fairport, Ashtabula, Conneaut, and Erie.

³ Rail, car ferry, and Lake Ontario.

AVERAGE EXPORT PRICES

TABLE 38.—Average value per net ton of bituminous coal exported from the United States to Canada and to all other destinations, by months, 1931-34

[Computed from records of Bureau of Foreign and Domestic Commerce. Figures represent value at port, including transportation, and are therefore affected by changes in freight rates as well as f. o. b. mine prices. They include, of course, both spot and contract shipments. Data for 1902 to 1925 were published in Coal in 1923, pp. 624-625. Data for 1925 to 1930 were published in Coal in 1932, p. 648]

	1931		1932		1933		1934	
	Canada	All other	Canada	All other	Canada	All other	Canada	All other
January.....	\$3.80	\$3.99	\$4.15	\$3.86	\$3.94	\$3.62	\$4.29	\$3.95
February.....	4.42	3.90	4.11	3.77	3.78	3.41	4.35	3.84
March.....	4.25	3.85	4.22	3.57	3.74	3.30	4.30	3.89
April.....	3.92	3.84	3.80	3.88	3.21	3.28	3.44	4.03
May.....	3.68	3.78	3.53	3.70	2.78	3.36	2.80	4.10
June.....	3.47	3.87	3.20	3.38	3.26	3.50	3.61	4.00
July.....	3.35	3.86	3.29	3.52	2.80	3.36	3.50	4.07
August.....	3.28	3.73	2.96	3.68	3.07	3.71	3.53	4.08
September.....	3.25	3.72	3.13	3.11	3.00	3.75	3.65	4.12
October.....	3.29	3.98	3.04	3.63	3.05	4.00	3.61	3.90
November.....	3.07	3.78	2.95	3.73	3.11	3.99	3.71	4.10
December.....	4.10	3.96	3.67	3.96	3.47	3.88	3.88	3.71
Average.....	3.54	3.86	3.36	3.66	3.14	3.57	3.70	3.98

SHIPMENTS TO ALASKA, HAWAII, AND PUERTO RICO

In addition to the export trade proper, the United States supplies a small tonnage of anthracite and bituminous coal to the Territories of Alaska, Hawaii, and Puerto Rico. In 1934, 28,317 tons were shipped to Alaska, 3,330 tons to Hawaii, and 23,184 tons to Puerto Rico.

WORLD PRODUCTION OF COAL

TABLE 39.—Coal and lignite produced in the principal countries of the world in the calendar years 1930-34, in thousand metric tons

[Compiled by R. B. Miller, of the Bureau of Mines]

Country	1930	1931	1932	1933	1934
North America:					
Canada:					
Coal.....	10,367	8,466	7,507	8,533	12,528
Lignite.....	3,133	2,640	3,142	3,370	
Greenland.....	5	5	5	5	5
Mexico.....	1,294	922	687	647	782
United States:					
Anthracite.....	62,945	54,109	45,228	44,943	51,862
Bituminous and lignite.....	424,131	346,624	280,963	302,663	326,011
South America:					
Argentina.....	(1)	(1)	(1)	(1)	(1)
Brazil.....	365	461	450	570	622
Chile.....	1,442	1,100	1,080	1,538	1,623
Colombia.....	(1)	(1)	(1)	(1)	(1)
Peru.....	200	141	26	30	35
Venezuela.....	9	3	5	5	6
Europe:					
Albania: Lignite.....	4	3	3	3	(1)
Austria:					
Coal.....	216	228	221	239	251
Lignite.....	3,063	2,932	3,104	3,014	2,851
Belgium.....	27,415	27,042	21,424	25,300	26,389
Bulgaria:					
Coal.....	71	86	98	80	76
Lignite.....	1,522	1,437	1,663	1,493	1,561
Czechoslovakia:					
Coal.....	14,435	13,103	10,961	10,532	10,687
Lignite.....	19,194	17,932	15,858	15,063	15,172

See footnotes at end of table.

TABLE 39.—Coal and lignite produced in the principal countries of the world in the calendar years 1930-34, in thousand metric tons—Continued

Country	1930	1931	1932	1933	1934
Europe—Continued.					
France:					
Coal.....	53,884	50,011	46,267	46,887	47,607
Lignite.....	1,143	1,035	1,012	1,093	1,031
Germany:					
Coal.....	142,699	118,640	104,741	109,692	124,910
Lignite.....	146,010	133,311	122,647	126,794	135,995
Saar ⁴	13,236	11,367	10,438	10,561	11,318
Greece: Lignite.....	130	105	138	99	(1)
Hungary:					
Coal.....	812	776	895	800	756
Lignite.....	6,176	6,111	5,931	5,907	6,199
Irish Free State.....	(1)	93	82	107	113
Italy:					
Coal.....	231	236	255	334	295
Lignite.....	577	364	376	383	409
Netherlands:					
Coal.....	12,211	12,901	12,756	12,574	12,341
Lignite.....	144	122	124	97	92
Poland:					
Coal.....	37,506	38,265	28,835	27,356	29,233
Lignite.....	55	41	33	33	26
Portugal:					
Coal.....	212	201	241	208	203
Lignite.....	34	26	17	11	15
Rumania:					
Coal.....	299	287	188	195	
Lignite.....	2,071	1,632	1,404	1,314	1,851
Spain:					
Coal.....	7,120	7,091	6,854	5,999	5,932
Lignite.....	358	341	336	301	299
Svalbard (Spitsbergen).....	188	243	266	370	495
Sweden.....	398	343	333	349	415
Switzerland ²	4	4	4	4	3
United Kingdom:					
Great Britain.....	247,796	222,981	212,083	210,436	224,269
Northern Ireland.....					1
U. S. S. R. (Russia):					
Coal.....	*39,952	50,400	53,600	66,000	71,268
Lignite.....					
Yugoslavia:					
Coal.....	366	406	368	379	387
Lignite.....	4,910	4,580	4,107	3,777	3,926
Asia:					
British Borneo.....	74	48	(1)	(1)	(1)
China.....	26,455	27,682	*28,000	(1)	(1)
Chosen.....	884	936	1,104	1,307	1,689
Federated Malay States.....	575	409	282	222	327
India, British.....	24,185	22,065	20,477	20,107	20,429
Indo-China:					
Coal.....	1,937	1,704	1,691	1,591	1,592
Lignite.....	29	23	23		
Iran.....	(1)	(1)	(1)	*9	*9
Iraq ⁷	(1)	(1)	(1)	(1)	(1)
Japan:					
Japan proper:					
Coal.....	31,200	27,807	27,774	32,153	35,500
Lignite.....	129	118	109	116	125
Karafuto.....	655	648	688	889	1,192
Taiwan.....	1,598	1,422	1,355	1,533	(1)
Netherland India.....	1,871	1,404	1,050	1,035	1,032
Philippine Islands.....	21	19	18	16	(1)
Syria: Lignite.....	(1)	(1)	(1)	(1)	(1)
Turkey:					
Coal.....	1,595	1,574	1,594	1,860	1,652
Lignite.....	8	8	14	30	51
U. S. S. R. (Russia):					
Coal.....					
Lignite.....	*6,504	8,200	10,400	10,700	20,763
Sakhalin: Coal.....					
Africa:					
Algeria.....	17	26	25	30	34
Belgian Congo: Coal.....	134	86	17	20	5
Morocco, French.....	1	6	15	27	31
Nigeria.....	353	333	257	239	275
Portuguese East Africa.....	(1)	(1)	20	16	22
Southern Rhodesia.....	939	587	438	484	643
Union of South Africa.....	12,223	10,881	9,921	10,714	12,195

See footnotes at end of table.

TABLE 39.—Coal and lignite produced in the principal countries of the world in the calendar years 1930-34, in thousand metric tons—Continued

Country	1930	1931	1932	1933	1934
Oceania:					
Australia:					
New South Wales.....	7,207	6,536	6,893	7,233	8,000
Queensland.....	1,112	855	855	890	972
Tasmania.....	141	126	114	118	115
Victoria:					
Coal.....	715	581	439	531	363
Lignite.....	1,861	2,230	2,654	2,621	2,660
Western Australia.....	509	439	422	466	508
New Caledonia.....	10				
New Zealand:					
Coal.....	1,405	995	943	857	845
Lignite.....	1,179	1,197	928	993	1,248
Total, all grades.....	1,414,000	1,258,000	1,125,000	1,174,000	1,273,000
Lignite (total of items shown above).....	198,000	183,000	171,000	175,000	187,000
Bituminous and anthracite (by subtraction).....	1,216,000	1,075,000	954,000	999,000	1,086,000

- 1 Estimate included in total.
- 2 Approximate production.
- 3 Includes a small quantity of asphaltite.
- 4 Exclusive of mines in the Saar under French control.
- 5 Mines under French control.
- 6 Figures for fiscal year ended Sept. 30; figures for calendar year in subsequent years.
- 7 Year ended Mar. 31 of year following that stated.

DETAILED STATISTICS OF BITUMINOUS COAL, BY STATES AND COUNTIES

TABLES OF PRODUCTION, VALUE, MEN EMPLOYED, DAYS WORKED, AND OUTPUT PER MAN IN 1934

Table 40 presents detailed statistics for each coal-producing county from which three or more operators reported production. If less than three reports were received, the figures for two or more counties have been combined to avoid disclosing individual returns, unless permission to publish has been granted by the producers.

The series gives the details of total value of product, average value per ton, men employed above and below ground, average number of days worked by the mines, and output per man per day. The figures include stripping operations as well as deep mines. Separate particulars for the stripping operations in each county are given in table 15. If the reader will deduct the stripping figures as given in that table from the totals for all mines in the following table he will find that the remainder represents the operations of the deep mines. By this means figures can be obtained for the deep mines separately in any State or county desired. This has been done for the States in table 11.

In response to many requests for data on the amount of coal shipped from mine to consumer by motor truck, the Bureau of Mines in 1932 for the first time asked the mine operators to supply the information for that year and again for 1933 and 1934. In the two latter years this tonnage has been shown as "Commercial sales by truck or wagon" (see column 2 of table 40 for 1934).

Because of a change in the method of reporting, the statistics of average production per man per day in 1932, 1933, and 1934 are not precisely comparable with those for earlier years. Before 1932 they were based on the calculated number of man-shifts, obtained by multiplying the average number of men employed at each mine by the

number of days worked at the mine. In 1932, 1933, and 1934, operators were asked to make a special report of the number of man-shifts actually worked wherever the necessary record was kept. The number of operators able to furnish this information was small, except in certain Far Western States. The "reported" man-shifts were utilized wherever possible to improve the accuracy of the record. Otherwise, the man-shifts were calculated by multiplying the number employed underground and on the surface by the number of days worked by the mine and tipple, respectively.

To facilitate comparisons with former years, the Bureau has also computed the output per man per day for 1934, using the "calculated" method throughout. The result for Alabama was 2.76 tons; Alaska, 5.33; Arizona, 1.61; Arkansas, 2.47; California, Idaho, and Oregon, 2.36; Colorado, 4.35; Georgia, 1.56; Illinois, 5.74; Indiana, 7.92; Iowa, 2.83; Kansas, 4.54; Kentucky, 4.35; Maryland, 3.13; Michigan, 2.54; Missouri, 4.35; Montana, 10.24; New Mexico, 3.42; North Carolina, 0.79; North Dakota, 6.64; Ohio, 4.25; Oklahoma, 3.18; Pennsylvania, bituminous, 3.94; South Dakota, 3.07; Tennessee, 3.11; Texas, 5.49; Utah, 6.38, Virginia, 3.81; Washington, 3.66; West Virginia, 4.68; and Wyoming, 6.85.

In this form, the 1934 figures are precisely comparable with those for the years prior to 1932.

TABLE 40.—Production, value, men employed, days operated, and output per man per day at bituminous-coal mines in specified States and counties in 1934

[Note that figures relate only to active mines of commercial size, excluding wagon mines producing less than 1,000 tons. Waste and refuse are not included in tonnage. The statistics of average tons per man per day in 1934 are based upon (1) the "reported" number of man-shifts, where the operator keeps a record thereof; otherwise, upon (2) the "calculated" number of man-shifts, obtained by multiplying the average number of men employed underground and on the surface at each mine by the number of days worked by the mine and tipple, respectively. They are not precisely comparable with the figures published for the years prior to 1932, which were based on a "calculated" method throughout, but in most States the discrepancy is slight.]

ALABAMA

County	Net tons					Total quantity	Value		Number of employees				Average number of days mines operated	Average tons per man per day
	Loaded at mines for shipment	Commercial sales by truck or wagon	Othersales to local trade, or used by employees, or taken by locomotives at tipple	Used at mines for power and heat	Made into coke at mines		Total	Average per ton	Underground	Surface		Total		
										Instrip pits	All others			
Bibb.....	453,619	9,372	7,245	3,225	-----	473,461	\$1,045,000	\$2.21	975	-----	182	1,157	175	2.33
Blount.....	82,360	16,230	300	1,550	-----	100,440	212,000	2.11	220	13	39	272	158	2.33
Cullman.....	-----	12,624	-----	-----	-----	12,624	34,000	2.69	48	-----	10	58	144	1.51
Jefferson.....	4,737,915	101,469	51,750	24,780	-----	4,915,914	9,769,000	1.99	8,508	-----	1,311	9,819	196	2.55
Marion.....	242,134	8,631	2,709	-----	-----	253,474	679,000	2.68	544	-----	75	619	162	2.53
St. Clair.....	570,897	4,324	5,058	17,071	-----	597,350	1,398,000	2.34	1,009	-----	125	1,134	207	2.54
Shelby.....	421,187	32,342	1,821	1,387	-----	456,737	1,149,000	2.52	767	-----	172	939	195	2.49
Tuscaloosa.....	66,743	9,298	2,515	-----	-----	78,556	148,000	1.88	186	-----	31	217	122	2.97
Walker.....	2,086,575	8,853	33,040	3,533	-----	2,132,001	4,166,000	1.95	3,579	106	591	4,276	165	3.03
Other counties (Etowah, Fayette, and Winston).....	118,020	3,290	50	200	-----	121,560	238,000	1.96	283	21	56	360	169	2.00
Total, 1934.....	8,779,450	206,433	104,488	51,746	-----	9,142,117	18,838,000	2.06	16,119	140	2,592	18,851	185	2.62
Total, 1933.....	8,465,688	162,935	100,444	40,922	-----	8,769,989	13,788,000	1.57	15,440	132	2,665	18,237	148	3.26

ALASKA

Total, 1934.....	101,060	-----	5,370	1,078	-----	107,508	\$451,000	\$4.20	56	-----	37	93	217	5.33
Total, 1933.....	90,700	-----	4,817	950	-----	96,467	481,000	4.99	59	-----	41	100	199	4.86

TABLE 40.—Production, value, men employed, days operated, and output per man per day at bituminous-coal mines in specified States and counties in 1934—Continued

County	Net tons						Value		Number of employees				Average number of days mines operated	Average tons per man per day
	Loaded at mines for shipment	Commercial sales by truck or wagon	Other sales to local trade, or used by employees, or taken by locomotives at tippie	Used at mines for power and heat	Made into coke at mines	Total quantity	Total	Average per ton	Underground	Surface		Total		
										In strip pits	All others			
Total, 1934 ¹	-----	3,558	5,500	-----	-----	9,058	\$45,000	\$4.97	16	-----	3	19	296	1.61
Total, 1933 ²	-----	-----	10,345	-----	-----	10,345	52,000	5.03	19	-----	4	23	268	1.68
ARKANSAS														
Franklin.....	104,530	835	-----	3,021	-----	108,386	\$289,000	\$2.67	352	50	42	444	77	3.16
Johnson.....	92,191	100	371	1,600	-----	94,262	302,000	3.20	504	-----	110	614	66	2.32
Logan.....	278,415	3,100	-----	2,300	-----	283,815	977,000	3.44	870	-----	122	992	127	2.25
Pope and Scott.....	45,853	739	36	433	-----	47,061	182,000	3.87	178	-----	22	200	116	2.03
Sebastian.....	311,599	3,437	400	7,472	-----	322,908	814,000	2.52	1,022	2	141	1,165	106	2.62
Total, 1934.....	832,588	8,211	807	14,826	-----	856,432	2,564,000	2.99	2,926	52	437	3,415	102	2.46
Total, 1933.....	862,713	7,972	1,301	10,938	-----	882,924	2,348,000	2.66	3,150	47	474	3,671	94	2.57
CALIFORNIA, IDAHO, AND OREGON														
Total, 1934 ³	17,050	7,349	1,739	3,000	-----	29,138	\$98,000	\$3.36	57	-----	19	76	162	2.36
Total, 1933 ⁴	5,592	1,688	212	-----	-----	7,492	27,000	3.60	46	-----	12	58	79	1.65

COLORADO

Boulder.....	222, 145	213, 864	5, 308	20, 479	-----	461, 796	\$1, 177, 000	\$2. 55	626	-----	100	726	185	3. 44
Delta.....	18, 753	14, 745	355	2, 756	-----	36, 609	85, 000	2. 32	46	-----	22	68	114	4. 73
Elbert.....	-----	5, 662	20	231	-----	5, 913	9, 000	1. 52	8	2	3	13	164	2. 73
El Paso.....	101, 117	181, 784	10, 132	6, 260	-----	299, 293	649, 000	2. 17	306	-----	58	364	246	3. 34
Fremont.....	169, 319	173, 563	5, 223	4, 631	-----	352, 736	914, 000	2. 59	749	-----	140	889	165	2. 40
Garfield.....	10, 223	15, 132	717	2, 000	-----	28, 072	57, 000	2. 03	33	-----	11	44	169	3. 78
Gunnison.....	410, 140	21, 035	2, 334	9, 564	-----	443, 073	873, 000	1. 97	442	-----	100	542	171	4. 79
Huerfano.....	566, 563	32, 124	4, 405	5, 353	-----	608, 445	1, 475, 000	2. 42	909	-----	218	1, 127	165	3. 27
Jefferson.....	114, 956	18, 803	726	1, 150	-----	135, 635	275, 000	2. 03	152	-----	26	178	165	4. 62
La Plata.....	7, 065	11, 784	-----	-----	-----	18, 849	40, 000	2. 12	32	-----	9	41	157	2. 93
Larimer.....	-----	3, 224	54	182	-----	3, 460	9, 000	2. 60	9	-----	3	12	133	2. 18
Las Animas.....	744, 673	29, 029	20, 062	12, 355	58, 011	864, 130	2, 240, 000	2. 59	1, 892	-----	279	1, 671	139	3. 71
Mesa.....	24, 368	27, 634	447	1, 769	-----	54, 218	114, 000	2. 10	83	-----	24	107	157	3. 22
Moffatt.....	-----	2, 945	-----	-----	-----	2, 945	7, 000	2. 38	6	-----	-----	6	190	2. 58
Montezuma.....	25	4, 879	140	12	-----	5, 056	18, 000	3. 56	16	-----	3	19	175	1. 52
Rio Blanco.....	-----	3, 937	-----	-----	-----	3, 937	8, 000	2. 03	6	-----	1	7	209	2. 89
Routt.....	440, 391	13, 534	4, 109	27, 277	-----	485, 311	1, 282, 000	2. 64	621	-----	186	807	109	5. 52
Weid.....	1, 126, 414	205, 639	8, 525	35, 205	-----	1, 375, 783	3, 026, 000	2. 20	1, 277	-----	160	1, 437	157	6. 10
Other counties (Jackson and Pitkin).....	20, 500	2, 999	414	1, 759	-----	25, 672	51, 000	1. 99	9	20	7	36	137	5. 21
Total, 1934.....	3, 976, 652	982, 316	62, 971	130, 983	58, 011	5, 210, 933	12, 309, 000	2. 36	6, 722	22	1, 350	8, 094	158	4. 08
Total, 1933.....	3, 925, 594	1, 014, 381	102, 594	132, 720	54, 478	5, 229, 767	11, 350, 000	2. 17	6, 579	19	1, 310	7, 908	148	4. 46

GEORGIA

Total, 1934 *.....	32, 394	-----	-----	322	-----	32, 716	\$80, 000	\$2. 45	93	-----	20	113	185	1. 56
Total, 1933 *.....	40, 262	-----	340	780	-----	41, 382	77, 000	1. 86	78	-----	15	93	234	1. 90

* Coconino and Navajo Counties.

* Apache, Coconino, and Navajo Counties.

* Amador, Monterey, Santa Cruz, and Trinity Counties, Calif.; Owyhee and Teton Counties, Idaho; Coos County, Oreg.

* Amador, Monterey, and Trinity Counties, Calif.; Teton County, Idaho; Coos County, Oreg.

* Walker County.

TABLE 40—Production, value, men employed, days operated, and output per man per day at bituminous-coal mines in specified States and counties in 1934—Continued

ILLINOIS

County	Net tons					Value		Number of employees			Average number of days mines operated	Average tons per man per day	
	Loaded at mines for shipment	Commercial sales by truck or wagon	Other sales to local trade, or used by employees, or taken by locomotives at tippie	Used at mines for power and heat	Made into coke at mines	Total quantity	Total	Average per ton	Surface				Total
									In strip pits	All others			
Bond and Montgomery	521,965	31,437	3,077	12,308		568,787	\$840,000	\$1.48	829	145	974	144	4.05
Bureau	86	27,107	422	3,627		31,242	70,000	2.24	133	31	164	113	1.69
Cass and Morgan		2,394				2,394	5,000	2.09	10	3	13	116	1.59
Christian	3,709,859	65,570	67,327	23,659		3,866,715	6,266,000	1.62	1,633	567	2,200	221	7.96
Clinton	185,033	68,403	12,905	17,909		284,250	403,000	1.42	402	61	463	179	3.43
Edgar		24,481	91	539		25,111	44,000	1.75	44	7	51	131	3.77
Franklin	7,428,134	38,111	57,510	107,430		7,631,185	11,864,000	1.55	6,737	1,444	8,181	143	6.52
Fullon	1,468,659	176,039	2,592	10,481		1,657,771	2,371,000	1.43	1,089	193	1,282	149	7.11
Gallatin	208	30,480		953		31,641	49,000	1.55	44		18	62	3.75
Greene		9,401		875		10,276	25,000	2.43	36		8	44	1.72
Grundy		186,926	150	1,234		188,310	351,000	2.54	196	20	216	171	3.37
Hancock		2,835	24	4		2,863	7,000	2.44	12	8	20	82	1.45
Henry	524,432	124,890	3,274	6,707		659,303	1,094,000	1.66	363	46	409	186	6.70
Jackson	1,458,040	44,294	3,878	2,416		1,508,628	2,155,000	1.43	539	130	669	163	9.76
Jefferson and Marion	227,353	11,550	21,833	22,779		283,515	356,000	1.26	354	4	358	114	5.67
Knox	237,953	138,964	2,480	4,806		384,203	786,000	2.05	404	8	412	203	4.06
LaSalle	152,584	152,584	73,539	1,535		311,719	811,000	2.60	594	90	684	173	2.34
Livingston	84,061	22,940	242	574		23,766	67,000	2.82	48	31	79	138	1.74
McDonough		5,497	8	10		5,515	15,000	2.72	18	8	26	128	1.34
Macoupin	3,161,285	68,758	17,320	106,596		3,353,959	4,376,000	1.30	2,865		3,200	196	5.34
Madison	1,139,770	414,159	9,207	57,712		1,620,848	2,153,000	1.33	1,618	20	1,897	177	4.85
Marshall		6,434		6,434		11,000	11,000	1.71	28		33	139	1.40
Menard		113,699	452	3,685		117,836	217,000	1.84	166		29	195	1.77
Mercer		34,859	710	1,520		37,089	74,000	2.00	88		16	104	1.48
Peoria	1,185,070	328,895	20,573	3,457		1,537,995	2,567,000	1.67	1,612	6	1,777	192	4.47
Perry	2,901,648	48,972	29,943	40,898		3,021,461	4,099,000	1.36	1,129	553	1,682	146	10.50
Putnam and Woodford	107,461	38,503	20,104	7,989		174,057	428,000	2.45	726		44	770	1.83
Randolph	403,158	44,494	6,488	15,454		469,594	778,000	1.66	677		103	780	103
Rock Island		78,248		99		78,347	190,000	2.43	161		16	177	1.86
St. Clair	1,180,266	1,128,398	114,706	65,997		2,489,367	3,437,000	1.38	2,631	72	3,111	153	5.21
Saline	2,530,733	37,106	57,410	48,033		2,673,282	4,606,000	1.72	3,171	107	3,703	141	5.11

Sangamon.....	1,905,369	268,029	128,096	26,480	-----	2,327,974	3,756,000	1.61	3,235	-----	344	3,579	147	4.41
Schuyler.....	-----	45,239	146	383	-----	45,768	74,000	1.62	77	12	25	114	169	2.38
Scott.....	-----	3,882	15	-----	-----	3,897	12,000	3.08	9	-----	4	13	182	1.65
Shelby.....	2,000	24,755	20	1,800	-----	28,575	102,000	3.57	110	-----	21	131	120	1.81
Stark.....	-----	18,866	6	255	-----	19,127	41,000	2.14	63	-----	14	77	164	1.52
Tazewell.....	138,762	192,516	-----	1,676	-----	332,054	597,000	1.79	455	-----	62	517	190	3.39
Vermilion.....	1,608,419	254,529	59,436	12,183	-----	1,934,567	3,278,000	1.69	2,568	90	285	2,943	148	4.44
Wabash.....	-----	15,574	30	557	-----	16,161	18,000	1.11	38	-----	12	50	148	2.19
Warren.....	-----	5,474	-----	205	-----	5,679	17,000	2.99	17	-----	5	22	143	1.80
Washington.....	231,690	17,665	49,261	16,286	-----	314,902	480,000	1.52	315	-----	61	376	150	5.59
Williamson.....	1,786,354	213,350	8,208	58,409	-----	2,066,321	3,099,000	1.50	2,007	109	425	2,541	158	5.13
Other counties (Crawford, Jersey, Macon, White, and Will).....	896,076	264,918	3,168	4,844	-----	1,169,006	2,251,000	1.93	381	224	110	715	235	6.95
Total, 1934.....	35,023,844	4,781,525	774,651	692,364	-----	41,272,384	64,238,000	1.56	37,612	1,731	6,724	46,067	160	6 5.62
Total, 1933.....	31,981,599	3,887,791	918,438	625,317	-----	37,413,145	54,578,000	1.46	36,414	1,549	6,182	44,145	141	6 6.00

INDIANA

Clay.....	793,287	105,385	1,844	15,771	-----	916,287	\$1,467,000	\$1.60	185	338	175	698	176	7.47
Daviess.....	-----	22,450	150	1,140	-----	23,740	42,000	1.77	40	-----	12	52	171	2.67
Dubois, Perry, and Spencer.....	-----	18,102	80	81	-----	18,263	29,000	1.59	24	-----	4	28	214	3.05
Gibson.....	978,945	68,148	-----	20,433	-----	1,067,526	1,589,000	1.49	560	-----	110	670	211	7.57
Greene.....	1,560,855	27,262	3,788	22,584	-----	1,614,489	2,471,000	1.53	623	275	155	1,053	185	8.29
Knox.....	1,190,444	124,089	82,158	16,802	-----	1,413,493	2,050,000	1.45	701	-----	215	916	179	8.62
Parke.....	350	32,036	-----	1,049	-----	33,435	72,000	2.15	63	-----	10	73	131	3.51
Pike.....	2,433,746	3,880	2,430	25	-----	2,440,081	2,840,000	1.16	98	530	251	879	179	15.52
Sullivan.....	2,213,398	15,752	8,876	50,200	-----	2,288,226	3,766,000	1.65	1,637	147	333	2,117	174	6.21
Vanderburg.....	76,544	76,605	-----	7,500	-----	160,649	206,000	1.28	241	-----	39	280	132	4.35
Vermillion.....	1,171,374	63,811	2,048	31,111	-----	1,268,344	1,971,000	1.55	1,128	75	202	1,405	169	5.34
Vigo.....	2,007,393	106,776	392,110	43,170	-----	2,549,449	4,000,000	1.57	1,597	157	286	2,040	166	7.52
Warrick.....	772,142	99,814	5,970	6,005	-----	883,931	1,130,000	1.28	497	169	208	874	127	7.96
Other counties (Fountain, Owens, and Warren).....	108,734	6,901	95	-----	-----	115,730	205,000	1.77	31	45	12	88	138	9.53
Total, 1934.....	13,307,212	771,011	499,549	215,871	-----	14,793,643	21,838,000	1.48	7,425	1,736	2,012	11,173	171	6 7.75
Total, 1933.....	12,411,984	726,757	435,034	187,277	-----	13,761,052	17,567,000	1.28	8,023	1,573	1,603	11,199	163	6 7.52

COAL

* Much of the output of the State is obtained from strip pits or by the use of loading machines, in which types of operations the production per man is large.

TABLE 40.—Production, value, men employed, days operated, and output per man per day at bituminous-coal mines in specified States and counties in 1934—Continued

County	Net tons					Value			Number of employees			Average number of days mines operated	Average tons per man per day	
	Loaded at mines for shipment	Commercial sales by truck or wagon	Other sales to local trade, or used by employees, or taken by locomotives at tippie	Used at mines for power and heat	Made into coke at mines	Total quantity	Total	Average per ton	Underground	Surface				Total
										Instrip pits	All others			
Adams.....		20, 271	548	45		20, 864	\$59, 000	\$2. 83	101		11	112	151	1. 23
Appanoose.....	378, 103	70, 115	8, 407	713		457, 338	1, 033, 000	2. 26	1, 429		155	1, 584	119	2. 42
Boone.....	330, 982	91, 674	4, 005	4, 309		430, 970	1, 097, 000	2. 55	966	1	77	1, 044	172	2. 40
Dallas.....	268, 274	58, 858	3, 995	780		331, 907	820, 000	2. 47	539		38	577	196	2. 94
Greene.....		62, 345		286		62, 631	160, 000	2. 55	68	13	11	92	136	5. 00
Guthrie.....		16, 468		55		16, 523	53, 000	3. 51	73		11	84	153	1. 29
Jasper.....		53, 806		2, 913		56, 719	130, 000	2. 29	149		19	168	124	2. 73
Keokuk.....		19, 842				19, 842	44, 000	2. 22	16	19	9	44	160	2. 82
Lucas.....	485, 464	10, 619	1, 887	8, 514		506, 484	1, 114, 000	2. 20	657		42	699	196	3. 70
Mahaska.....	27, 425	61, 200	110	1, 422		90, 157	170, 000	1. 89	109	22	47	178	145	3. 49
Marion.....	173, 415	73, 824	16, 391	4, 864		268, 494	520, 000	1. 94	455	122	62	639	148	2. 85
Monroe.....	244, 005	24, 101	8, 807	1, 677		278, 590	580, 000	2. 08	516		72	588	149	3. 18
Page.....		37, 168	1, 660	31		38, 859	120, 000	3. 09	123		9	132	173	1. 70
Polk.....	78, 488	380, 441	2, 191	7, 646		468, 766	1, 144, 000	2. 44	909		84	993	161	2. 92
Taylor.....	739	9, 443	440	47		10, 669	37, 000	3. 47	47		4	51	194	1. 08
Van Buren.....		8, 845	124	310		9, 279	20, 000	2. 16	26		3	32	160	1. 82
Wapello.....	1, 500	66, 016	427	2, 184		70, 127	152, 000	2. 17	166	3	28	197	152	2. 35
Warren.....	23, 254	140, 374	1, 029	3, 790		168, 447	430, 000	2. 55	201	68	34	303	169	3. 30
Wayne.....	100	9, 884	322	5		10, 311	25, 000	2. 42	53		11	64	90	1. 80
Webster.....		42, 649	41	1, 785		44, 475	136, 000	3. 06	70	23	20	113	185	2. 13
Other counties (Hamilton, Jefferson, and Scott).....		5, 540				5, 540	13, 000	2. 35	14	10	3	27	93	2. 20
Total, 1934.....	2, 011, 749	1, 263, 483	50, 384	41, 376		3, 366, 992	7, 862, 000	2. 34	6, 687	281	753	7, 721	156	2. 80
Total, 1933.....	1, 803, 194	1, 249, 027	108, 876	33, 886		3, 194, 983	7, 217, 000	2. 26	6, 591	333	771	7, 695	138	3. 01

KANSAS

Bourbon.....		29,906		500		30,406	\$53,000	\$1.74		23		2	25	194	6.27
Cherokee.....	235,977	32,849	440	376		269,642	494,000	1.83	156	160	45	361	112	6.85	
Coffey.....		2,450				2,450	8,000	3.27		19	4	23	73	1.45	
Crawford.....	1,915,827	91,403	2,433	10,154		2,019,817	3,515,000	1.74	1,425	711	182	2,318	127	6.88	
Franklin.....		10,297				10,297	32,000	3.11	49		7	56	130	1.42	
Labette.....	3,800	8,566		625		12,891	29,000	2.25		18	3	21	178	3.45	
Leavenworth.....	88,459	1,248				89,707	278,000	3.10	407		90	497	324	5.66	
Linn.....		15,250	135	222		15,607	32,000	2.05		3	13	72	125	1.74	
Osage.....	12,157	41,659	3,571	50		57,437	173,000	3.10	309	20	42	371	114	1.36	
Total, 1934.....	2,256,220	233,628	6,579	11,827		2,508,254	4,619,000	1.84	2,402	954	388	3,744	151	4.45	
Total, 1933.....	1,981,469	207,542	13,023	15,588		2,217,622	3,881,000	1.75	2,629	822	358	3,809	140	4.15	

KENTUCKY

Eastern district:															
Bell.....	1,309,753	38,895	28,402	1,893		1,378,943	\$2,250,000	\$1.63	2,177		390	2,567	169	3.17	
Boyd.....	32,210	19,936	913	597		53,656	91,000	1.70	176		32	208	132	1.95	
Breathitt.....	68,592	399	10	2,400		71,401	128,000	1.79	164		30	194	140	2.63	
Carter.....		6,099				6,099	14,000	2.30	59		11	70	72	1.21	
Clay.....	55,647	4,395	71			60,113	82,000	1.36	135		25	160	190	1.97	
Floyd.....	3,518,105	373	13,176	7,987		3,539,641	5,742,000	1.62	3,596		594	4,190	204	4.15	
Greenup.....		2,100				2,100	4,000	1.90	12		3	15	71	1.97	
Harlan.....	9,501,930	2,880	64,482	13,011		9,582,303	16,246,000	1.70	9,096		1,609	10,705	206	4.35	
Jackson.....		41,461				41,461	60,000	1.45	182		32	214	79	2.46	
Johnson.....	870,675	100	7,781	3,598		882,154	1,706,000	1.93	785		136	921	202	4.75	
Knott.....			687			353,164	596,000	1.69	404		73	477	184	4.03	
Knox.....	437,731	125	3,813	8,427		450,096	706,000	1.57	427		115	542	210	3.95	
Laurel.....		32,630	267			32,897	45,000	1.37	153		33	186	101	1.75	
Lee.....		8,148				8,148	15,000	1.84	54		9	63	69	1.87	
Letcher.....	4,539,049	567	41,716	60,701		4,642,023	7,720,000	1.66	4,813		634	5,447	212	4.01	
Martin.....	221,211	744	1,488			223,443	342,000	1.53	305		57	362	142	4.34	
Perry.....	3,295,889	2,233	67,822	60		3,366,004	5,743,000	1.71	3,915		866	4,781	158	4.46	
Pike.....	4,589,388	28,131	25,614	20,168		4,663,301	7,531,000	1.61	4,533		921	5,454	190	4.50	
Pulaski.....		662				662	1,000	1.51	16		3	19	21	1.66	
Rockcastle.....		6,854				6,854	10,000	1.46	50		11	61	97	1.16	
Whitley.....	281,009	4,329	93	9,966		295,397	600,000	2.03	536		149	685	151	2.85	
Other counties (McCreary, Magoffin, and Wolfe).....	637,250	1,909	5,109	6,328		650,596	1,195,000	1.84	982		146	1,128	152	3.79	
Total, 1934.....	29,710,936	202,980	261,424	135,136		30,310,456	50,827,000	1.68	32,570		5,879	38,449	190	4.16	
Total, 1933.....	27,787,991	137,688	219,383	120,270		28,265,332	33,873,000	1.20	28,420		5,110	33,530	179	4.70	

TABLE 40.—Production, value, men employed, days operated, and output per man per day at bituminous-coal mines in specified States and counties in 1934—Continued

County	Net tons						Value		Number of employees				Average number of days mines operated	Average tons per man per day
	Loaded at mines for shipment	Commercial sales by truck or wagon	Other sales to local trade, or used by employees, or taken by locomotives at tipple	Used at mines for power and heat	Made into coke at mines	Total quantity	Total	Average per ton	Surface		Total			
									Underground	Instrip pits		All others		
Western district:														
Butler.....	7,601	696	21			8,318	\$12,000	\$1.44	29		5	34	104	2.35
Christian.....	24,300	9,020				33,320	42,000	1.26	81		9	90	98	3.78
Davies.....		151,662	144	723		152,529	190,000	1.05	207		41	248	169	3.64
Henderson.....	84,713	85,466	4,997	7,219		182,395	265,000	1.45	403		69	472	123	3.13
Hopkins.....	2,422,392	53,980	26,812	10,648		2,513,782	3,152,000	1.25	2,861		388	3,249	157	4.92
McLean.....	35,210	3,100	1,410	1,932		39,652	45,000	1.13	56		16	72	125	4.42
Muhlenberg.....	2,757,420	30,318	62,741	63,759		2,914,238	3,386,000	1.16	3,115		469	3,584	146	5.58
Ohio.....	501,139	7,255	8,237	5,351		521,982	527,000	1.01	757		124	881	118	5.02
Union.....	523,993	45,419	12,545	17,707		599,664	701,000	1.17	718		105	823	165	4.41
Webster.....	1,218,256	10,905	6,040	12,798		1,247,999	1,430,000	1.15	1,393		207	1,600	133	5.86
Other counties (Crittenden and Hancock).....		900				900	1,000	1.11	5		2	7	49	2.65
Total, 1934.....	7,573,024	398,671	122,947	120,137		8,214,779	9,721,000	1.18	9,625		1,435	11,060	145	5.11
Total, 1933.....	7,326,340	225,753	150,013	132,291		7,834,397	6,875,000	.88	8,775		1,412	10,187	137	5.61
Total all Kentucky, 1934.....	37,283,960	601,631	384,371	255,273		38,525,235	60,548,000	1.57	42,195		7,314	49,509	180	4.33
Total all Kentucky, 1933.....	35,114,331	363,441	369,396	252,561		36,099,729	40,748,000	1.13	37,195		6,522	43,717	170	4.87
MARYLAND														
Allegany.....	1,018,920	121,919	75,558	1,342		1,217,739	\$2,373,000	\$1.95	1,934		235	2,169	188	2.99
Garrett.....	384,234	15,845	2,602	6,692		409,373	716,000	1.75	683		124	807	142	3.57
Total, 1934.....	1,403,154	137,764	78,160	8,034		1,627,112	3,089,000	1.90	2,617		359	2,976	176	3.12
Total, 1933.....	1,351,314	91,046	77,122	11,266		1,530,748	2,134,000	1.39	2,516		364	2,880	172	3.09

MICHIGAN

Bay.....	88,946	67,121	2,505	8,035	-----	166,607	\$529,000	\$3.18	296	-----	38	334	190	2.63
Ingham.....	-----	4,943	601	-----	-----	5,644	26,000	4.69	27	-----	6	33	136	1.24
Saginaw.....	133,587	85,889	3,421	7,666	-----	230,563	724,000	3.14	434	-----	104	538	150	2.86
Shiawassee.....	69,695	1,300	-----	4,717	-----	75,712	230,000	3.04	204	57	50	311	143	1.70
Other counties (Eaton, Jackson, and Midland).....	101,976	32,992	3,003	5,344	-----	143,315	431,000	3.01	313	-----	27	340	153	2.76
Total, 1934.....	324,509	260,640	10,830	25,762	-----	621,741	1,940,000	3.12	1,274	57	225	1,556	157	2.54
Total, 1933.....	241,356	136,574	10,047	18,607	-----	406,584	1,171,000	2.88	1,046	-----	140	1,186	130	2.63

MISSOURI

Adair.....	98,783	21,017	2,701	5,059	-----	127,560	\$247,000	\$1.94	267	-----	34	301	201	2.11
Audrain.....	-----	10,672	-----	200	-----	10,772	22,000	2.04	29	-----	5	34	133	2.38
Barton.....	609,518	1,675	1,479	500	-----	613,172	974,000	1.59	5	230	42	277	138	7 16.08
Bates.....	679,251	17,617	100	-----	-----	696,868	1,122,000	1.61	40	213	16	269	183	7 14.18
Boone.....	-----	43,640	24	28	-----	43,692	90,000	2.06	83	19	16	118	169	2.19
Callaway.....	-----	34,147	2,952	24	-----	37,123	95,000	2.56	60	20	12	92	184	2.19
Chariton.....	-----	900	-----	-----	-----	900	2,000	2.22	11	-----	2	13	45	1.53
Clay.....	17,346	53,014	2,236	2,009	-----	74,605	204,000	2.73	325	-----	48	373	140	1.42
Dade.....	-----	2,251	-----	-----	-----	2,251	6,000	2.67	10	-----	3	13	123	1.41
Davless, Grundy, and Harrison.....	290	10,355	51	73	-----	10,769	35,000	3.25	82	-----	15	97	109	1.02
Henry.....	460,493	64,119	6,116	7,075	-----	537,803	941,000	1.75	18	171	45	234	216	7 10.65
Johnson.....	-----	5,276	-----	-----	-----	5,276	12,000	2.27	12	11	2	25	134	1.57
Lafayette.....	206,602	66,031	4,246	2,633	-----	279,512	627,000	2.24	980	-----	95	1,075	134	1.94
Lincoln and Ralls.....	5,116	5,267	130	25	-----	10,538	23,000	2.18	31	-----	6	37	204	1.39
Linn.....	16,771	11,844	60	52	-----	28,727	67,000	2.33	179	-----	23	202	104	1.37
Macon.....	33,489	21,187	875	1,555	-----	57,106	110,000	1.93	215	-----	84	269	95	2.00
Putnam.....	-----	21,834	100	50	-----	21,984	32,000	1.46	106	-----	19	125	114	1.54
Randolph.....	420,369	32,962	3,124	-----	-----	456,455	822,000	1.80	310	80	55	445	174	7 5.89
Ray.....	168,649	101,363	5,441	2,935	-----	275,748	683,000	2.48	1,143	-----	136	1,279	120	1.80
Vernon.....	15,276	7,407	772	1,330	-----	24,785	43,000	1.73	20	28	16	64	86	7 4.52
Other counties (Howard, Jasper, Platte, and Schuyler).....	6,744	26,440	884	2,569	-----	36,637	121,000	3.30	144	8	16	168	127	1.72
Total, 1934.....	2,738,697	558,818	31,291	23,477	-----	3,352,283	6,278,000	1.87	4,070	780	690	5,540	141	4.29
Total, 1933.....	2,836,308	495,394	77,427	23,083	-----	3,432,212	6,175,000	1.80	3,987	1,022	681	5,690	150	4.02

7 The output is obtained chiefly from strip pits in which the production per man per day is large.

TABLE 40.—Production, value, men employed, days operated, and output per man per day at bituminous-coal mines in specified States and counties in 1934.—Continued

MONTANA

County	Net tons					Value		Number of employees				Average number of days mines operated	Average tons per man per day	
	Loaded at mines for shipment	Commercial sales by truck or wagon	Other sales to local trade, or used by employees, or taken by locomotives at tippie	Used at mines for power and heat	Made into coke at mines	Total quantity	Total	Average per ton	Underground	Surface				Total
										Instrip pits	All others			
Blaine.....		12, 238				12, 238	\$33, 000	\$3. 11	24		5	29	185	2. 28
Carbon.....	300, 110	8, 699	4, 272	1, 025		314, 106	478, 000	1. 52	256		121	377	137	6. 07
Cascade.....	362, 093	31, 615	4, 859	97		398, 664	533, 000	1. 34	262		45	307	213	6. 10
Chouteau.....		3, 248	8			3, 256	11, 000	3. 38	12		3	15	115	1. 90
Daniels.....		7, 242	150	80		7, 472	11, 000	1. 47	12		4	16	187	2. 49
Fergus.....		4, 930	10			4, 940	23, 000	4. 66	17		4	21	121	1. 94
Gallatin and Park.....		1, 800				1, 800	5, 000	2. 78	8		2	10	107	1. 68
Hill.....		12, 691	165	72		12, 928	36, 000	2. 78	22		9	31	167	2. 50
Judith Basin.....		2, 874				2, 874	10, 000	3. 48	14		2	16	96	1. 87
Musselshell.....	627, 283	9, 533	2, 633	6, 232		645, 681	1, 106, 000	1. 71	445		150	595	147	7. 37
Pandora and Toole.....		1, 639	70	30		1, 739	10, 000	5. 75	8		2	10	230	. 76
Richland.....	10, 076	8, 852				18, 928	26, 000	1. 37	38		8	46	192	2. 14
Roosevelt.....		4, 807	50	25		4, 882	7, 000	1. 43	9		4	13	124	3. 03
Rosebud.....	1, 111, 531	907	628			1, 113, 057	1, 669, 000	1. 50	2	48	13	63	289	61. 17
Sheridan.....		12, 395	120	35		12, 550	17, 000	1. 35	17		6	23	217	2. 52
Wibaux.....		5, 386	56	4		5, 446	7, 000	1. 29	8		3	11	135	3. 66
Other counties (Dawson, Golden Valley, and Valley).....		5, 123	12	6		5, 141	10, 000	1. 95	4	2	1	7	147	5. 00
Total, 1934.....	2, 411, 093	133, 972	13, 031	7, 606		2, 565, 702	3, 997, 000	1. 56	1, 158	50	382	1, 590	166	9. 73
Total, 1933.....	2, 037, 102	90, 776	11, 516	3, 813		2, 152, 207	3, 309, 000	1. 54	958	41	325	1, 324	166	9. 80

NEW MEXICO

Colfax.....	659,708	14,535	4,426	2,884	-----	681,553	\$1,863,000	\$2.73	781	-----	176	957	159	4.48
Lincoln and Socorro.....	700	1,949	1,256	100	-----	4,005	16,000	3.99	18	-----	5	23	156	1.11
McKinley.....	381,620	16,735	15,095	26,298	-----	439,748	1,131,000	2.57	765	-----	212	977	156	2.89
Rio Arriba.....	22,695	1,875	15	202	-----	24,787	49,000	1.98	37	-----	11	48	202	2.56
San Juan.....	-----	2,473	4,015	-----	-----	6,488	17,000	2.62	10	-----	4	14	261	1.78
Sandoval and Santa Fe.....	86,102	3,089	3,222	10,329	-----	102,742	326,000	3.17	244	-----	79	323	192	1.66
Total, 1934.....	1,150,825	40,656	28,029	39,813	-----	1,259,323	3,402,000	2.70	1,855	-----	487	2,342	164	3.29
Total, 1933.....	1,120,987	34,862	30,190	40,197	-----	1,226,236	3,071,000	2.50	1,868	-----	472	2,340	168	3.12

NORTH CAROLINA

Total, 1934 ^a	100	2,290	-----	750	-----	3,140	\$9,000	\$2.87	12	-----	6	18	221	.79
Total, 1933 ^b	-----	1,514	-----	500	-----	2,014	7,000	3.48	7	-----	3	10	175	1.15

NORTH DAKOTA (LIGNITE)

Adams.....	9,550	15,175	209	151	-----	25,085	\$33,000	\$1.32	38	8	25	71	78	4.51
Bowman.....	3,472	13,528	100	-----	17,100	22,000	1.29	19	4	6	29	163	163	3.61
Burke.....	141,715	15,622	1,050	-----	158,387	227,000	1.43	-----	69	31	100	215	215	7.36
Burlingh.....	186,321	37,480	726	85	-----	224,612	313,000	1.39	49	40	33	122	214	7.81
Divide.....	185,289	8,070	6,140	-----	179,499	244,000	1.36	8	40	20	68	153	153	7.25
Dunn and Golden Valley.....	130	4,233	-----	61	-----	4,424	5,000	1.13	6	-----	1	7	206	3.07
Grant.....	5,519	21,677	158	150	-----	27,504	41,000	1.49	10	14	8	32	169	5.08
Hettinger.....	-----	11,318	799	-----	12,117	14,000	1.16	4	25	5	34	99	99	3.59
McLean.....	85,600	33,037	9,095	278	-----	128,010	170,000	1.33	62	98	36	196	142	4.60
Mercer.....	393,102	2,878	3,543	55,278	-----	454,801	607,000	1.33	252	40	86	378	167	7.20
Morton.....	17,063	10,463	-----	3,005	-----	30,531	43,000	1.41	27	4	8	39	155	5.04
Mountrail.....	66	6,351	20	-----	6,437	9,000	1.40	16	6	4	26	176	176	1.41
Oliver.....	-----	3,000	200	-----	3,200	4,000	1.25	2	5	2	9	128	128	2.73
Stark.....	1,324	16,325	41,890	1,200	-----	60,739	70,000	1.15	48	3	15	66	201	4.57
Ward.....	270,577	115,952	193	281	-----	387,003	506,000	1.31	134	79	54	287	221	6.55
Williams.....	2,102	32,197	70	70	-----	34,439	55,000	1.60	53	2	19	74	137	3.40
Total, 1934.....	1,281,830	347,306	64,193	60,559	-----	1,753,888	2,363,000	1.35	728	437	353	1,518	174	6.65
Total, 1933.....	1,349,408	311,838	60,203	60,823	-----	1,782,272	2,248,000	1.26	645	364	292	1,301	173	7.93

^a The output is obtained chiefly from strip pits in which the production per man per day is large.

^b The output of this county is obtained chiefly from strip pits, in which the production per man per day is large.

^c Moore County.

TABLE 40.—Production, value, men employed, days operated, and output per man per day at bituminous-coal mines in specified States and countries in 1934—Continued

County	Net tons					Value		Number of employees				Average number of days mines operated	Average tons per man per day	
	Loaded at mines for shipment	Commercial sales by truck or wagon	Other sales to local trade, or used by employees, or taken by locomotives at tippie	Used at mines for power and heat	Made into coke at mines	Total quantity	Total	Average per ton	Surface		Total			
									Underground	Instrip pits				All others
Athens	2,295,831	32,063	8,495	25,147		2,361,536	\$3,553,000	\$1.50	4,213		487	4,700	131	3.82
Belmont	5,814,043	121,629	117,313	20,863		6,073,853	9,567,000	1.58	6,468		930	7,398	174	4.72
Carroll	144,801	57,808	4,015	1,566		208,190	399,000	1.92	341		48	389	165	3.24
Columbiana	128,976	127,085	1,283	2,080		259,424	487,000	1.88	376	12	58	446	189	3.07
Coshocton	74,014	126,204	3,679	3,215		207,112	376,000	1.82	264	6	59	329	187	3.36
Gallia and Scioto		6,150	43			6,193	12,000	1.94	17		3	20	188	1.65
Guernsey	1,134,090	82,154	9,815	4,190		1,230,249	1,979,000	1.61	1,433		129	1,562	195	4.04
Harrison	2,211,800	11,830	10,027	19,827		2,253,484	3,796,000	1.68	1,281	358	278	1,917	211	5.57
Hocking	246,224	85,059	14,783	34		346,100	639,000	1.85	520		111	631	138	3.97
Holmes	29,171	240	240	65		29,476	60,000	2.04	48	18	14	80	173	2.16
Jackson	163,282	58,599	22,010	7,000		250,891	481,000	1.92	283	56	72	411	147	4.16
Jefferson	2,914,346	260,621	61,738	16,767		3,253,472	5,637,000	1.73	3,606	93	473	4,172	180	4.33
Lawrence	5,229	43,251	16,450	54		64,984	133,000	2.05	188		32	220	128	2.31
Mahoning	162	94,739	21,742	3,883		120,526	265,000	2.20	233		36	269	197	2.28
Medina		6,072	4,098	1,157		11,327	39,000	3.44	16	2	5	23	209	2.36
Meigs	335,640	35,290	3,887	45		374,862	637,000	1.70	587		73	660	169	3.36
Morgan and Washington	376,625	1,030	825	200		378,680	667,000	1.76	598		77	675	150	3.73
Muskingum	434,132	88,199	233	4,547		527,111	972,000	1.84	482	78	95	655	209	3.85
Noble	306,343	3,506	1,582	8,713		320,144	497,000	1.55	522		87	609	131	4.00
Perry	579,250	128,616	3,734	146		711,746	1,248,000	1.75	1,085	28	220	1,333	141	3.79
Portage		14,480		1,020		15,500	34,000	2.19	34	3	7	44	168	2.10
Stark	23,656	376,582	53,195	942		454,375	953,000	2.10	581	18	106	705	196	3.30
Summit		29,500	100	730		30,330	53,000	1.75	75		10	85	157	2.27
Tuscarawas	522,588	386,314	152,063	2,904		1,063,869	2,036,000	1.91	1,390	30	204	1,624	160	4.08
Vinton	102,481	22,987	40	1,051		126,559	230,000	1.82	135	74	38	247	103	4.98
Wayne		10,171	150	250		10,571	24,000	2.27	35		8	43	116	2.11
Total, 1934	17,813,518	2,239,110	511,540	126,396		20,690,564	34,774,000	1.68	24,811	776	3,660	29,247	167	4.23
Total, 1933	17,248,755	1,744,816	476,418	118,774		19,588,763	23,549,000	1.20	22,110	538	2,794	25,442	169	4.55

OKLAHOMA

Coal.....	32,271	6,177	135	330	-----	38,913	\$117,000	\$3.01	82	-----	11	93	173	2.42
Craig and Rogers.....	18,776	3,075	30	1,000	-----	22,881	35,000	1.53	7	12	3	22	206	7 5.04
Haskell.....	100,589	962	157	1,827	-----	103,535	187,000	1.81	89	27	21	137	152	7 4.97
Latimer.....	65,664	10	-----	408	-----	69,082	163,000	2.36	179	-----	30	209	126	2.63
LeFlore.....	338,485	3,266	1,153	4,512	-----	347,416	1,008,000	2.90	997	-----	213	1,210	116	2.48
Muskogee.....	9,106	1,005	5	5	-----	11,172	21,000	1.88	33	26	7	66	65	2.61
Okmulgee.....	177,600	7,376	185	685	-----	185,946	351,000	1.89	530	3	76	609	91	3.37
Pittsburg.....	168,994	3,154	657	5,174	-----	177,979	475,000	2.67	506	-----	91	597	144	2.07
Tulsa.....	94,701	11,640	4,930	2,705	-----	113,976	218,000	1.91	95	45	16	156	159	7 4.61
Other counties (McIntosh and Wagoner).....	129,413	6,022	1,694	360	-----	137,489	271,000	1.97	-----	126	-----	126	170	7 6.40
Total, 1934.....	1,138,599	42,738	9,946	17,006	-----	1,208,289	2,846,000	2.36	2,518	239	468	3,225	124	3.02
Total, 1933.....	1,184,254	29,354	6,585	18,051	-----	1,238,244	2,616,000	2.11	2,299	236	439	2,974	128	3.26

PENNSYLVANIA (BITUMINOUS)

Allegheny.....	11,060,339	1,763,501	986,503	67,351	-----	13,877,694	\$25,023,000	\$1.80	13,715	4	1,531	15,250	206	4.42
Armstrong.....	2,425,838	64,486	40,243	1,039	-----	2,531,606	4,311,000	1.70	3,617	-----	490	4,107	146	4.21
Beaver.....	2,393	68,611	23,757	99	-----	94,860	243,000	2.56	214	-----	36	250	160	2.38
Bedford.....	153,822	82,394	156,009	811	9,415	402,451	923,000	2.29	687	-----	92	779	164	3.14
Blair.....	63,467	133,533	1,373	2,695	1,065	202,133	431,000	2.13	471	-----	115	586	157	2.20
Butler.....	522,740	145,006	6,743	603	-----	675,092	1,294,000	1.92	1,183	-----	160	1,343	159	3.15
Cambria.....	11,270,206	371,754	662,050	138,484	55,868	12,498,362	24,092,000	1.93	16,997	2	2,452	19,451	185	3.48
Centre.....	362,311	105,168	16,042	1,343	-----	484,864	913,000	1.88	925	-----	110	1,035	173	2.72
Clarion.....	1,210,643	91,595	1,542	1,983	-----	1,305,763	2,071,000	1.59	1,834	25	235	2,097	193	3.22
Clearfield.....	2,941,374	73,546	46,735	10,877	-----	3,072,532	5,495,000	1.79	5,201	2	625	5,831	161	3.27
Clinton.....	-----	43,977	5,283	983	-----	62,500	116,000	1.86	105	6	21	132	168	2.82
Elk.....	749,971	40,649	8,499	15,996	-----	815,115	1,459,000	1.79	1,328	-----	154	1,482	179	3.07
Rayette.....	10,897,911	180,522	92,071	120,281	636,797	11,927,582	23,767,000	1.99	15,060	69	2,363	17,492	149	4.58
Greene.....	3,713,320	8,829	14,504	17,526	-----	3,754,179	7,112,000	1.89	3,737	-----	674	4,411	189	4.49
Huntingdon.....	456,896	51,928	4,595	12,024	-----	525,443	1,178,000	2.24	912	-----	73	985	199	2.68
Indiana.....	5,836,046	43,656	230,082	51,209	28,758	6,189,751	10,433,000	1.69	6,990	-----	919	7,909	181	4.32
Jefferson.....	1,719,828	71,750	5,520	8,202	-----	1,805,300	3,204,000	1.77	2,590	-----	351	2,941	188	3.27
Lawrence.....	130,717	52,370	4,619	12,195	-----	199,901	465,000	2.33	393	-----	70	463	191	2.26
Lycoming.....	16,488	37,704	20	-----	54,212	116,000	2.14	98	-----	19	117	177	2.62	
McKean.....	-----	13,866	6	-----	13,872	26,000	1.87	33	-----	8	41	189	1.79	
Mercer.....	154,432	113,653	2,030	11,080	-----	282,095	632,000	2.24	479	-----	83	562	211	2.37
Somerset.....	5,694,666	61,419	68,520	94,303	-----	5,918,908	10,825,000	1.83	7,462	4	1,097	8,563	193	3.58
Tioga.....	123,067	63,300	15,060	5,264	-----	206,691	627,000	3.03	502	-----	84	586	173	2.04
Venango.....	5,264	12,723	-----	-----	-----	17,987	41,000	2.28	31	-----	8	39	177	2.60
Washington.....	13,187,874	272,443	150,708	33,445	-----	13,644,470	24,132,000	1.77	15,121	104	1,692	16,917	187	4.30
Westmoreland.....	7,812,791	509,926	254,204	93,410	405,084	9,075,415	16,005,000	1.76	10,620	44	1,756	12,420	169	4.32
Other counties (Bradford and Fulton).....	171,569	15,245	-----	274	-----	187,088	437,000	2.34	263	-----	27	290	231	2.80
Total, 1934.....	80,696,259	4,493,554	2,796,698	702,377	1,136,987	89,825,875	165,371,000	1.84	110,568	260	15,251	126,079	179	3.98
Total, 1933.....	71,326,491	3,395,888	2,868,023	666,261	1,039,281	79,295,944	108,418,000	1.37	101,593	226	13,634	115,453	162	4.24

7 The output is obtained chiefly from strip pits, in which the production per man per day is large.

COAL

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TABLE 40.—Production, value, men employed, days operated, and output per man per day at bituminous-coal mines in specified States and counties in 1934—Continued

SOUTH DAKOTA (LIGNITE)

County	Net tons					Value		Number of employees			Average number of days mines operated	Average tons per man per day		
	Loaded at mines for shipment	Commercial sales by truck or wagon	Other sales to local trade, or used by employees, or taken by locomotives at tippie	Used at mines for power and heat	Made into coke at mines	Total quantity	Total	Average per ton	Surface				Total	
									Instrip pits	All others				
Dewey.....	16, 035	13, 730	-----	10	-----	30, 375	\$66, 000	\$1. 84	-----	29	24	53	176	3. 26
Harding.....	-----	1, 225	260	-----	-----	1, 485	2, 000	1. 35	4	2	-----	6	50	4. 95
Meade.....	-----	1, 438	-----	10	-----	1, 448	4, 000	2. 76	6	-----	-----	8	138	1. 32
Perkins.....	-----	5, 782	77	30	-----	5, 889	8, 000	1. 36	11	7	1	19	120	2. 58
Other counties (Corson and Ziebach).....	150	3, 050	10	-----	-----	3, 210	6, 000	1. 87	-----	3	2	5	164	3. 91
Total, 1934.....	16, 785	25, 225	347	50	-----	42, 407	76, 000	1. 79	21	41	29	91	152	3. 07
Total, 1933.....	33, 610	22, 516	3, 200	49	-----	59, 375	104, 000	1. 75	20	93	34	147	100	4. 04

TENNESSEE

Anderson.....	766, 449	7, 244	7, 851	6, 376	-----	787, 920	\$1, 355, 000	\$1. 72	802	-----	264	1, 066	187	3. 96
Bledsoe.....	15, 900	1, 800	5, 000	200	-----	22, 900	57, 000	2. 49	26	-----	7	33	227	3. 05
Campbell.....	1, 020, 554	25, 334	5, 025	3, 697	-----	1, 093, 610	2, 058, 000	1. 93	1, 467	-----	341	1, 808	174	3. 39
Claiborne.....	690, 554	1, 108	10, 562	6, 062	-----	708, 286	1, 217, 000	1. 72	1, 033	-----	154	1, 187	176	3. 38
Cumberland.....	9, 359	5, 026	1, 259	15, 644	-----	21, 000	21, 000	1. 34	54	-----	20	74	110	1. 92
Fentress.....	235, 473	400	3, 584	11, 412	-----	300, 889	440, 000	1. 46	324	-----	81	405	223	3. 34
Grundy.....	286, 610	825	2, 728	1, 140	6, 277	297, 580	571, 000	1. 92	469	-----	99	565	168	3. 13
Hamilton.....	1, 233	58, 367	1, 983	189	-----	61, 772	125, 000	2. 02	101	-----	38	199	149	2. 09
Marion.....	293, 039	17, 732	3, 915	400	-----	315, 068	656, 000	2. 08	491	-----	127	618	208	2. 45
Morgan.....	258, 892	6, 566	-----	8, 398	6, 225	280, 081	498, 000	1. 78	635	-----	106	741	237	1. 59
Overton.....	-----	5, 936	-----	-----	-----	5, 936	12, 000	2. 02	25	-----	6	31	102	1. 88
Other counties (Rhea, Roane, Scott, Sequatchie, Van Buren, and White).....	220, 739	26, 203	8, 390	11, 774	-----	276, 106	504, 000	1. 83	508	-----	73	581	162	2. 93
Total, 1934.....	3, 866, 802	156, 541	49, 038	50, 907	12, 502	4, 135, 790	7, 514, 000	1. 82	5, 992	-----	1, 316	7, 308	185	3. 05
Total, 1933.....	3, 574, 753	94, 243	45, 363	44, 311	16, 091	3, 774, 761	6, 255, 000	1. 39	5, 935	-----	1, 116	7, 061	161	3. 33

TEXAS

Bituminous: Brewster, Palo Pinto, and Webb.....	24,417	4,058	26	2,642	-----	31,143	\$84,000	\$2.70	191	-----	69	200	166	0.72
Total bituminous, 1934.....	24,417	4,058	26	2,642	-----	31,143	84,000	2.70	191	-----	69	200	166	.72
Total bituminous, 1933.....	16,347	1,490	2,908	2,046	-----	22,791	59,000	2.59	178	-----	64	242	100	.94
Lignite:														
Anderson and Henderson.....	486,222	395	64	3,448	-----	490,129	851,000	1.74	283	-----	13	296	220	7.54
Bastrop, Bexar, and Milam.....	164,178	75	11	2,316	-----	166,880	112,000	.67	125	35	9	169	137	7.18
Harrison, Titus, and Wood.....	45,990	23,355	-----	2,092	-----	71,437	98,000	1.37	68	-----	12	80	152	5.89
Total lignite, 1934.....	696,390	23,825	75	7,856	-----	728,146	1,061,000	1.46	476	35	34	545	184	7.28
Total lignite, 1933.....	776,812	15,167	47	7,061	-----	799,087	774,000	.97	472	42	47	561	189	7.55
State total, 1934.....	720,807	27,883	101	10,498	-----	759,289	1,145,000	1.51	667	35	103	805	178	5.30
State total, 1933.....	793,159	16,657	2,955	9,107	-----	821,878	833,000	1.01	650	42	111	803	162	6.32

UTAH

Carbon.....	2,070,810	43,760	13,035	3,474	25,153	2,156,232	\$4,234,000	\$1.96	1,886	-----	610	2,496	173	4.99
Emery.....	138,693	17,201	1,452	513	-----	158,159	306,000	1.93	114	-----	48	162	158	6.19
Summit.....	29,630	516	-----	-----	-----	30,146	60,000	1.99	44	-----	8	52	168	3.45
Other counties (Grand, Iron, Kane, Sevier, and Uintah).....	54,459	1,611	3,241	2,335	-----	61,646	146,000	2.37	71	-----	26	97	150	4.23
Total, 1934.....	2,293,892	63,088	17,728	6,322	25,153	2,406,183	4,746,000	1.97	2,115	-----	692	2,807	171	5.00
Total, 1933.....	2,526,293	100,139	16,574	10,124	21,916	2,674,986	5,109,000	1.91	2,159	-----	747	2,906	176	5.23

VIRGINIA

Buchanan.....	573,131	-----	85	46	-----	573,262	\$897,000	\$1.56	653	-----	105	758	169	4.49
Dickenson.....	1,161,369	637	13,298	867	-----	1,176,101	1,850,000	1.58	997	-----	187	1,184	239	4.15
Lee.....	1,096,124	10,682	15,000	1,000	-----	1,123,866	2,014,000	1.79	1,460	-----	302	1,762	100	3.36
Montgomery and Pulaski.....	190,086	936	6,841	4,140	-----	202,003	597,000	2.96	576	-----	146	722	148	1.89
Russell.....	752,580	8,452	9,934	565	-----	771,531	1,227,000	1.59	784	-----	217	1,001	179	4.31
Scott.....	-----	500	-----	-----	-----	500	1,000	2.00	4	-----	-----	4	60	2.08
Tazewell ¹⁰	2,643,273	41,201	9,003	279	-----	¹⁰ 2,693,756	5,044,000	1.87	2,502	-----	609	3,111	226	3.84
Wise.....	2,641,671	16,322	25,015	21,879	131,275	2,836,162	4,735,000	1.67	3,143	-----	522	3,665	104	3.99
Total, 1934.....	9,058,264	78,530	79,836	28,776	131,275	9,376,681	16,375,000	1.75	10,119	-----	2,088	12,207	200	3.84
Total, 1933.....	7,892,547	42,449	97,730	24,839	121,077	8,178,642	10,029,000	1.23	8,134	-----	1,627	9,781	184	4.55

¹⁰ Includes the Tazewell County operations for 1 mine producing in both Tazewell County, Va., and McDowell County, W. Va. All tonnage for this mine in earlier years was tabulated in McDowell County, W. Va.

92135-36-23

COAL

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TABLE 40.—Production, value, men employed, days operated, and output per man per day at bituminous-coal mines in specified States and counties in 1934—Continued

County	Net tons					Value		Number of employees			Average number of days mines operated	Average tons per man per day		
	Loaded at mines for shipment	Commercial sales by truck or wagon	Other sales to local trade, or used by employees, or taken by locomotives at tippie	Used at mines for power and heat	Made into coke at mines	Total quantity	Total	Average per ton	Surface				Total	
									Underground	Instrip pits				All others
King.....	292,302	209,052	4,335	538	-----	506,227	\$1,417,000	\$2.80	630	-----	167	797	198	3.20
Kittitas.....	523,471	26,133	9,266	7,108	-----	565,978	1,595,000	2.82	569	-----	136	705	210	3.82
Lewis.....	20,151	21,351	1,000	800	-----	43,302	100,000	2.31	87	-----	19	106	95	4.30
Pierce.....	123,671	9,402	2,552	1,231	2,636	139,642	499,000	3.58	252	-----	78	330	200	2.11
Other counties (Thurston and Whatcom).....	100,100	22,433	814	4,595	-----	127,942	391,000	3.06	181	-----	42	223	157	3.66
Total, 1934.....	1,059,695	288,371	17,967	14,272	2,636	1,382,991	4,002,000	2.89	1,719	-----	442	2,161	193	3.32
Total, 1933.....	1,047,911	308,733	25,406	11,396	622	1,394,068	3,916,000	2.81	2,101	-----	454	2,555	168	3.25
WEST VIRGINIA														
Barbour.....	922,771	7,376	11,217	16	-----	941,380	\$1,331,000	\$1.41	1,221	-----	147	1,368	123	5.62
Boone.....	2,697,587	357	12,216	7,982	-----	2,718,142	4,528,000	1.67	2,326	-----	535	2,861	193	4.92
Brooke.....	498,813	43,104	599,990	155	-----	1,132,062	1,990,000	1.76	1,031	-----	224	1,255	186	4.84
Clay.....	706,712	1,488	14,012	17,092	-----	739,304	1,209,000	1.64	617	-----	148	765	228	4.25
Fayette.....	10,576,164	8,847	192,370	64,692	230,337	11,072,410	20,773,000	1.88	10,701	-----	1,649	12,350	221	4.06
Gilmer.....	23,590	2,970	104	-----	-----	26,634	47,000	1.76	72	-----	14	86	98	3.15
Grant.....	7,305	2,840	85	715	-----	11,005	22,000	2.00	54	-----	14	68	61	2.66
Greenbrier.....	1,684,053	21,900	18,822	14,764	-----	1,739,539	3,008,000	1.73	1,583	-----	221	1,804	198	4.87
Hancock.....	-----	17,195	3,467	1,245	-----	21,907	42,000	1.92	49	-----	12	61	178	2.01
Harrison.....	3,008,037	114,540	18,849	859	190	3,143,475	4,627,000	1.47	3,059	-----	434	3,493	138	6.51
Kanawha.....	5,709,498	33,244	73,682	15,743	-----	5,832,167	9,386,000	1.61	5,261	-----	928	6,189	204	4.63
Lewis.....	-----	7,700	6,941	-----	-----	14,641	34,000	2.32	22	-----	5	27	192	2.33
Logan.....	13,253,434	4,088	87,473	10,114	-----	13,355,114	20,996,000	1.57	9,771	-----	1,780	11,551	196	5.91
McDowell ^u	16,851,041	20,824	183,265	115,820	-----	17,170,950	31,360,000	1.83	15,163	34	3,651	18,848	199	4.57
Marion.....	6,881,995	19,228	52,055	37,281	-----	6,990,559	10,324,000	1.56	5,904	2	807	6,713	180	5.78
Marshall.....	546,272	88,556	149,386	9,487	-----	793,701	1,324,000	1.67	939	-----	157	1,146	155	4.47
Mason.....	23,992	41,737	3,607	8,829	-----	69,329	95,000	1.37	143	-----	22	165	145	2.90
Mercer.....	3,257,215	6,463	25,455	6,003	-----	3,295,136	5,905,000	1.79	2,989	-----	858	3,847	210	4.07

Mineral.....	275,973	26,403	5,425	945	-----	308,746	549,000	1.78	471	-----	92	568	214	2.56
Mingo.....	3,199,967	1,878	27,251	-----	-----	3,229,096	5,101,000	1.58	3,153	-----	621	3,774	176	4.87
Monongalia.....	4,850,643	81,589	23,679	790	-----	4,956,701	6,753,000	1.36	4,341	-----	703	5,044	179	5.49
Nicholas.....	60,038	10,049	554	6,799	-----	77,440	167,000	2.16	146	-----	42	188	134	3.06
Ohio.....	1,830,548	164,910	43,830	4,303	-----	2,093,591	3,203,000	1.53	2,266	-----	160	2,426	230	3.76
Preston.....	684,023	9,846	2,298	10,191	50,684	757,022	1,167,000	1.54	1,320	-----	184	1,504	153	3.30
Putnam.....	352,737	5,491	-----	-----	-----	358,228	533,000	1.49	512	-----	111	623	163	3.53
Raleigh.....	12,496,955	24,635	109,535	104,239	-----	12,735,364	24,030,000	1.89	11,198	2,038	13,236	214	4.49	
Randolph.....	29,847	29,847	22,396	9,623	-----	411,392	710,000	1.73	725	-----	129	864	154	3.12
Taylor.....	849,385	18,578	3,797	1	-----	871,761	1,141,000	1.31	882	-----	100	982	166	5.35
Tucker.....	492,927	104	10,088	22,756	-----	525,875	1,045,000	1.99	640	-----	69	709	169	4.40
Upshur.....	169,601	7,732	126	3,785	-----	181,294	253,000	1.40	206	-----	46	252	128	5.61
Webster.....	837,638	6,152	7,650	3,884	-----	856,324	1,536,000	1.80	898	-----	140	1,038	216	3.81
Wyoming.....	1,623,007	10,043	10,375	28,001	-----	1,671,426	3,256,000	1.95	1,665	-----	356	2,021	198	4.17
Other counties (Braxton, Summers, and Wayne).....	13,081	20,580	17	-----	-----	33,678	59,000	1.75	79	-----	16	95	69	5.11
Total, 1934 ¹¹	94,775,558	890,344	1,716,415	500,885	281,191	¹¹ 98,134,393	167,104,000	1.70	89,457	86	16,413	105,906	196	4.73
Total, 1933.....	91,328,937	817,841	1,648,139	361,347	187,271	94,343,535	107,124,000	1.14	77,722	20	14,730	92,472	196	5.20

WYOMING

Campbell and Crook.....	94,943	12,007	458	7,942	-----	116,250	\$136,000	\$1.17	7	20	10	37	250	12.56
Carbon.....	368,777	23,849	3,377	16,629	-----	417,632	1,008,000	2.41	126	-----	90	326	202	6.35
Converse.....	-----	8,741	45	-----	-----	8,786	14,000	1.59	12	5	2	10	161	2.87
Fremont.....	23,334	5,453	4,065	-----	-----	32,852	66,000	2.01	30	-----	14	44	98	7.62
Hot Springs.....	153,822	9,817	2,034	21,116	-----	186,789	444,000	2.38	235	-----	56	291	136	4.72
Johnson.....	6,656	2,212	286	-----	-----	9,154	14,000	1.53	10	-----	2	12	172	4.43
Lincoln.....	369,462	9,259	3,253	10,486	-----	392,460	906,000	2.31	333	-----	114	447	181	4.86
Sheridan.....	408,693	30,998	21,735	2,321	-----	468,747	648,000	1.40	261	-----	74	335	143	9.68
Sweetwater.....	2,633,655	2,945	19,470	69,856	-----	2,725,926	6,321,000	2.32	1,790	-----	431	2,221	203	6.06
Other counties (Big Horn, Park, and Uinta).....	6,445	7,720	200	-----	-----	14,365	34,000	2.37	22	-----	6	28	175	2.94
Total, 1934.....	4,059,131	123,345	52,584	132,901	-----	4,367,961	9,591,000	2.20	2,936	25	799	3,760	188	6.17
Total, 1933.....	3,703,414	107,665	67,954	134,234	-----	4,013,167	8,636,000	2.15	2,893	18	842	3,753	170	6.6.20

¹¹Much of the output of the State is obtained from strip pits or by the use of loading machines, in which types of operations the production per man is large.

¹¹Includes only the McDowell County operation for 1 mine producing in both Tazewell County, Va., and McDowell County, W. Va. All tonnage for this mine in earlier years was tabulated in McDowell County, W. Va.

COAL PRODUCED AND CONSUMED IN ALASKA

TABLE 41.—*Coal produced and consumed in Alaska, 1929-34*

Year	Produced in Alaska, chiefly subbituminous coal and lignite ¹		Imported from States, chiefly bituminous coal from Washington ² (net tons)	Imported from foreign countries, chiefly bituminous coal from British Columbia ² (net tons)	Total coal consumed (net tons)
	Net tons	Value			
1929.....	100,600	\$528,000	36,693	27,073	164,366
1930.....	120,100	631,000	37,128	23,892	181,120
1931.....	105,900	556,000	30,772	17,796	154,468
1932.....	102,700	514,000	28,422	12,463	143,580
1933.....	96,467	481,000	21,524	14,009	132,000
1934.....	107,508	451,000	28,317	14,675	150,505

¹ Compiled by the Alaska Branch of the U. S. Geological Survey.² Compiled from records of the Bureau of Foreign and Domestic Commerce.

DETAILED STATISTICS OF ANTHRACITE AND SEMIANTHRACITE OUTSIDE OF PENNSYLVANIA

Table 42 analyzes the production of anthracite and semianthracite from fields outside of Pennsylvania. Although statistics for these coals are included with those for bituminous coal in the primary tables of this report they are shown here separately. For a detailed analysis of the hard-coal industry outside of Pennsylvania, see *Coal in 1930*, pp. 721 to 726.

TABLE 42.—*Production, value, men employed, days mines operated, and output per man per day at the principal hard-coal mines outside of Pennsylvania in 1934*

	Virginia	Arkansas, Colorado, and New Mexico	Total
Production:			
Loaded at mines for shipment.....net tons..	190,086	171,004	361,090
Commercial sales by truck or wagon.....do....	936	2,261	3,197
Other sales to local trade or used by employees, or taken by locomotives at tipple.....net tons..	6,841	446	7,287
Used at mines for power and heat.....do....	4,140	4,341	8,481
Total production.....do....	202,003	178,052	380,055
Value:			
Total.....	\$598,000	\$634,000	\$1,232,000
Average per ton.....	\$2.96	\$3.56	\$3.24
Number of employees:			
Underground.....	576	771	1,347
Surface.....	146	171	317
Total employees.....	722	942	1,664
Average number of days mines operated.....	148	96	118
Average production per man per day.....net tons..	1.89	1.97	1.93

Part 2.—PENNSYLVANIA ANTHRACITE

By H. L. BENNETT, W. H. YOUNG, AND F. G. TRYON

The essential facts of the statistical record for Pennsylvania anthracite in 1934 are presented in the following tables. The reader is referred to the chapter on coal in the Minerals Yearbook, 1935, pages 613 to 648, for a discussion of the developments in the anthracite industry in 1934.

The salient developments in the anthracite industry during the past 5 years are summarized in table 1A. From this table it will be seen that while the production of anthracite during 1934 increased 15.4 percent over the output in 1935, it was still 17.6 percent below the production of 1930. The value of total production in 1934 was 18.1 percent above the 1933 figure but 31.1 percent below 1930. The average value obtained in 1934 on all coal (\$4.27 per ton, table 15A) advanced 2.4 percent over the 1933 average of \$4.17 but was 16.4 percent less than the average of \$5.11 obtained in 1930. Producers' stocks increased 73.7 percent during 1934, while exports and imports rose 25.4 and 4.8 percent, respectively. Although the average number of men employed increased only 4.2 percent compared with those employed in 1933, a gain of 25 days (13.7 percent) was made in working time. Tonnage mined from strip pits increased 17.6 percent; that loaded by machines underground advanced 41.6 percent, while hand mining rose 14 percent.

STATISTICAL SUMMARY

TABLE 1A.—Statistical trends of the Pennsylvania anthracite industry, 1930-34

	1930	1931	1932	1933	1934
Production:					
Loaded at mines for shipment:					
Breakers.....net tons..	59,839,838	51,264,291	42,994,291	41,780,739	49,435,764
Washeries.....do.....	994,199	1,295,190	648,086	1,231,984	966,804
Dredges.....do.....	368,020	199,268	252,346	322,686	353,754
Sold to local trade and used by employees.....net tons..	3,144,434	2,901,117	2,810,337	3,249,552	3,285,936
Used at collieries for power and heat net tons..	5,038,346	3,985,786	3,150,161	2,956,383	3,126,033
Total production.....do.....	69,384,837	59,645,652	49,855,221	49,541,344	57,168,291
Value at breaker, washery, or dredge.....	\$354,574,000	\$296,355,000	\$222,375,000	\$206,718,000	\$244,152,000
Average sales realization per net ton on breaker shipments:					
Lump and broken.....	\$7.02	\$6.74	\$5.60	\$5.43	\$5.43
Egg.....	\$7.26	\$7.01	\$6.17	\$5.90	\$5.88
Stove.....	\$7.68	\$7.37	\$6.53	\$6.25	\$6.23
Chestnut.....	\$7.25	\$7.21	\$6.26	\$5.95	\$5.98
Pea.....	\$4.18	\$4.76	\$4.55	\$4.22	\$4.40
Total domestic.....	\$7.05	\$6.87	\$6.09	\$5.78	\$5.80
Buckwheat No. 1.....	\$2.49	\$2.79	\$2.83	\$2.84	\$2.86
Buckwheat No. 2 (rice).....	\$1.51	\$1.52	\$1.52	\$1.50	\$1.56
Buckwheat No. 3 (barley).....	\$1.13	\$1.03	\$0.97	\$1.00	\$0.97
Boiler.....	\$0.38	\$0.29	\$0.81	\$1.24	\$1.25
Other, including Buckwheat No. 4.....	\$0.98	\$0.57	\$0.55	\$0.63	\$0.71
Total steam.....	\$1.87	\$2.00	\$1.98	\$1.93	\$1.98
Total, all sizes.....	\$5.52	\$5.35	\$4.74	\$4.46	\$4.53
Percentage by sizes in total breaker shipments:					
Lump and broken.....percent..	0.5	0.3	0.3	0.4	0.3
Egg.....do.....	10.5	9.6	9.1	8.5	7.9
Stove.....do.....	25.7	23.6	23.7	22.8	22.4
Chestnut.....do.....	25.7	25.0	24.3	24.0	25.5
Pea.....do.....	8.2	10.3	9.9	10.2	10.6
Total domestic.....do.....	70.6	68.8	67.3	65.9	66.7
Buckwheat No. 1.....do.....	14.0	14.9	15.5	15.2	15.3
Buckwheat No. 2 (rice).....do.....	7.6	8.6	8.6	8.9	8.6
Buckwheat No. 3 (barley).....do.....	6.8	6.7	7.2	7.8	7.6
Boiler.....do.....	0.1	0.2	0.2	0.1	(?)
Other, including Buckwheat No. 4.....percent..	0.9	0.8	1.2	2.1	1.8
Total steam.....do.....	29.4	31.2	32.7	34.1	33.3
Producers' stocks on Dec. 31 ² net tons..	2,975,000	3,073,000	1,732,000	1,106,000	1,921,000
Exports.....do.....	2,552,000	1,778,000	1,303,000	1,035,000	1,298,000
Imports.....do.....	675,000	638,000	607,000	456,000	478,000
Consumption (calculated).....do.....	67,627,000	58,408,000	50,500,000	49,600,000	55,500,000
Capacity in operation (calculated) do.....	101,000,000	100,000,000	94,000,000	83,000,000	84,000,000
Average number of days worked.....	208	181	162	182	207
Man-days lost on account of strikes and lockouts.....	112,398	570,664	289,523	686,692	774,856
Number of men on strike during year.....	18,202	65,907	34,259	50,948	38,994
Average number of men employed.....	150,804	139,431	121,243	104,633	109,050
Output per man per day.....net tons..	2.21	2.37	2.54	2.60	2.53
Output per man per year.....do.....	460	428	411	473	524
Quantity cut by machines.....do.....	1,410,123	1,587,265	1,674,223	1,648,249	1,981,088
Quantity mined by stripping.....do.....	2,536,288	3,813,237	3,930,973	4,932,069	5,798,138
Quantity loaded by machines underground.....net tons..	4,467,750	4,384,780	5,433,340	6,557,267	9,284,486
Distribution:					
Total receipts in New England ⁴ net tons..	8,387,000	7,064,000	5,639,000	5,252,000	5,992,000
Exports to Canada.....do.....	2,532,000	1,772,000	1,301,000	1,027,000	1,266,000
Loaded into vessels at Lake Erie ⁵ net tons..	1,232,000	761,000	294,000	425,000	607,000
Receipts at Duluth-Superior ⁶ do.....	461,000	300,000	66,000	135,000	229,000

¹ Includes 122,894 tons of coal stored at collieries in 1931 and 33,060 tons in 1932.

² Less than 0.1 percent.

³ From records of the Anthracite Institute. Figures represent prepared coal on the ground at the breaker.

⁴ From records of the Massachusetts Department of Labor and Industries, division on the necessities of life.

⁵ From records of the Ore and Coal Exchange.

⁶ From records of the United States Engineer Office, Duluth, Minn.

TABLE 2A.—Salient statistics of monthly developments in the Pennsylvania anthracite industry in 1934

[All tonnage figures represent thousands of net tons]

	1934													1933 total	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total		
Production, including mine fuel, local sales, and dredge coal:															
Monthly total.....	6,102	5,930	6,394	4,819	5,230	4,168	3,430	3,570	3,962	4,711	4,165	4,687	57,168	49,541	
Average per working day.....	231	252	237	201	201	160	137	132	165	181	174	187	188	164	
Shipments, breakers and washeries only: ¹															
Monthly total, all sizes.....	5,189	5,198	5,355	4,173	4,491	3,495	2,974	3,110	3,401	4,027	3,601	4,214	49,228	43,022	
Distribution:															
Lake loadings.....				42	176	122	97	60	73	28	9		607	425	
Receipts at Duluth-Superior.....					68	64	33	20	30	6	8		229	135	
Shipments from Lake docks.....	43	37	28	19	61	57	24	37	61	49	45	71	532	541	
New England receipts—															
By tide (includes imports).....	126	104	166	171	154	158	130	109	126	106	144	116	1,610	1,690	
By rail.....	543	459	671	259	323	295	304	246	324	341	347	370	4,382	3,562	
Exports.....	108	110	98	79	140	100	92	98	101	136	134	102	1,298	1,035	
Imports.....	42	33	48	46	25	25	48	38	56	32	49	36	478	456	
Industrial consumption by—															
Railroads (class I only).....	167	137	164	146	140	123	118	118	126	143	144	158	1,684	1,513	
Electric-power utilities.....	141	150	138	124	137	150	154	168	137	151	139	145	1,724	1,470	
Stocks at end of period shown:															
Railroads (class I only).....	156	156	148	150	150	155	148	145	145	142	141	132	132	156	
Electric-power utilities.....	1,316	1,292	1,309	1,316	1,320	1,307	1,318	1,272	1,265	1,285	1,305	1,250	1,250	1,323	
Stocks on Lake docks.....	215	180	154	143	243	318	377	402	390	396	366	296	296	257	
Retail stocks, 283 representative dealers.....	591	403	386	510	658	709	761	759	786	757	746	702	702	607	
Producers' stocks ¹	725	316	308	690	1,165	1,541	1,769	2,197	2,506	2,673	2,540	1,921	1,921	1,106	
Prices at mines, average per net ton: ²															
Company Stove.....	\$7.25	\$7.25	\$7.25	\$6.50	\$6.25	\$6.50	\$6.75	\$7.00	\$7.25	\$7.25	\$7.25	\$7.25	\$6.98	\$6.98	
Company Buckwheat No. 1.....	\$3.25	\$3.25	\$3.25	\$3.25	\$3.25	\$3.25	\$3.25	\$3.25	\$3.25	\$3.25	\$3.25	\$3.25	\$3.25	\$3.25	
Retail prices (average 25 cities): ³															
Stove.....	\$13.44	\$13.46	\$13.46	\$13.14	\$12.53	\$12.60	\$12.79	\$13.02	\$13.25	\$13.32	\$13.25	\$13.22	\$13.12	\$13.18	
Chestnut.....	\$13.25	\$13.27	\$13.27	\$12.94	\$12.34	\$12.40	\$12.60	\$12.83	\$13.05	\$13.11	\$13.04	\$13.02	\$12.93	\$12.97	
Wholesale prices, index numbers (1926=100.0) ⁴	81.5	81.2	81.2	78.1	75.7	76.9	78.6	79.9	81.3	82.0	82.1	82.3	80.1	82.2	
Labor conditions: ⁴															
Index of employment (1929 average=100.0).....	64.1	63.2	67.5	58.2	63.8	57.5	53.6	49.5	56.9	58.5	60.7	61.6	59.6	51.7	
Index of pay-roll totals (1929 average=100.0).....	73.2	65.8	82.4	51.7	64.0	53.3	42.3	39.7	47.0	48.3	51.2	52.3	55.9	45.8	

¹ As reported by the Anthracite Institute.

² Quoted by trade journals in New York market.

³ Bureau of Labor Statistics, white ash, sidewalk delivery.

⁴ Bureau of Labor Statistics.

COAL

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COMPETITION FROM OTHER FUELS

TABLE 3A.—Total supplies of fuels commonly used for domestic purposes in the United States, 1924 and 1931-34

[Wherever available the figures represent the quantity actually consumed for domestic heating or for heating offices, apartments, hotels, schools, hospitals, etc. Where such figures are not available, but where the fuel is known to be used chiefly for domestic purposes, the total production (or imports) is shown to indicate the trend of growth]

	1924	1931	1932	1933	1934
<i>Solid fuels (net tons)</i>					
Pennsylvania anthracite production:					
Shipments of domestic sizes.....	56, 576, 296	35, 437, 946	29, 096, 962	27, 755, 333	33, 269, 928
Shipments of Buckwheat No. 1 ¹	9, 510, 508	7, 956, 878	6, 735, 313	6, 625, 755	7, 735, 412
Shipments of smaller steam sizes.....	11, 160, 695	9, 240, 931	8, 029, 388	8, 954, 321	9, 700, 982
Local sales.....	3, 043, 939	2, 901, 117	2, 810, 337	3, 249, 552	3, 285, 936
Total commercial production.....	80, 291, 438	55, 536, 872	46, 672, 000	46, 584, 961	54, 042, 258
Anthracite exported.....	4, 017, 785	1, 778, 308	1, 303, 355	1, 034, 562	1, 237, 610
Anthracite imported, chiefly from United Kingdom and U. S. S. R. (Russia).....	117, 951	637, 951	607, 097	456, 252	478, 118
Fuel briquets produced.....	580, 470	698, 316	470, 604	530, 430	704, 856
Fuel briquets imported.....	38	60, 950	80, 288	42, 395	-----
Byproduct coke sold for domestic use.....	2, 812, 771	8, 376, 652	9, 422, 343	10, 215, 360	10, 174, 114
Beehive coke sold for domestic use.....	139, 886	118, 665	207, 857	275, 677	346, 181
Coke imported.....	82, 833	103, 563	117, 275	160, 873	160, 934
Gas-house coke sold.....	1, 400, 000	1, 813, 400	1, 656, 000	1, 495, 000	1, 513, 200
Petroleum coke produced.....	761, 100	2, 032, 000	1, 789, 000	1, 580, 000	1, 300, 000
Anthracite and semianthracite produced outside of Pennsylvania.....	704, 513	507, 140	454, 028	350, 068	330, 055
Bituminous coal for domestic use.....	(²)	(²)	(²)	(²)	(²)
<i>Oil (barrels of 42 gallons)</i>					
Domestic heating oils:					
Range oil ³	(⁷)	4, 549, 000	6, 841, 000	10, 269, 000	15, 756, 000
Other light fuel oils ³	5, 021, 000	24, 848, 000	44, 264, 000	50, 140, 000	60, 822, 000
Commercial heating oils ³	(⁷)	15, 731, 000	386, 800	395, 900	421, 000
Liquefied petroleum gases, domestic.....	(⁷)	364, 200	386, 800	395, 900	421, 000
<i>Gas (million cubic feet)</i>					
Natural gas consumed for domestic use ⁴	285, 152	380, 897	385, 887	368, 774	379, 497
Manufactured gas sold for domestic and house-heating purposes.....	(⁷)	275, 318	1, 246, 970	1, 228, 557	1, 233, 500

¹ A considerable part of the Buckwheat No. 1 is used for domestic purposes.

² Partly estimated.

³ Based on figures from Census of Manufactures.

⁴ Revised.

⁵ Between 56,000,000 and 77,000,000 tons a year.

⁶ Oil used for heating houses, hot-water heating, and cooking.

⁷ Data not available.

⁸ Includes furnace oil.

⁹ Used for heating offices, hotels, apartments, schools, hospitals, and buildings other than houses.

PRODUCTION, BY WEEKS AND MONTHS

The following tables summarize the statistics of the weekly and monthly production of anthracite that are first published in the Bureau of Mines weekly coal reports. Statistics of weekly output are estimated from the records of cars of anthracite loaded by the nine railroads that serve the region. These weekly figures have been adjusted to the annual total ascertained by direct canvass of the operators themselves.

TABLE 4A.—Estimated weekly production of anthracite in 1934, in net tons

Week ended	Weekly production	Number of working days	Daily average	Week ended	Weekly production	Number of working days	Daily average
Jan. 6.....	1,388,000	5	277,600	July 21.....	823,000	6	137,167
Jan. 13.....	1,677,000	6	279,500	July 28.....	825,000	6	137,500
Jan. 20.....	1,317,000	6	219,500	Aug. 4.....	880,000	6	146,667
Jan. 27.....	1,180,000	6	196,667	Aug. 11.....	690,000	6	115,000
Feb. 3.....	1,127,000	6	187,833	Aug. 18.....	655,000	6	109,167
Feb. 10.....	1,217,000	6	202,833	Aug. 25.....	752,000	6	125,333
Feb. 17.....	1,649,000	6	274,833	Sept. 1.....	1,094,000	6	182,333
Feb. 24.....	1,704,000	5.5	284,000	Sept. 8.....	850,000	5	170,000
Mar. 3.....	1,648,000	6	274,667	Sept. 15.....	953,000	6	158,833
Mar. 10.....	1,685,000	6	280,833	Sept. 22.....	1,088,000	6	178,000
Mar. 17.....	1,668,000	6	278,000	Sept. 29.....	925,000	6	154,167
Mar. 24.....	1,145,000	6	190,833	Oct. 6.....	809,000	6	134,833
Mar. 31.....	1,022,000	6	170,333	Oct. 13.....	1,015,000	6	169,167
Apr. 7.....	821,000	5	164,200	Oct. 20.....	1,285,000	6	214,167
Apr. 14.....	995,000	6	165,833	Oct. 27.....	1,182,000	6	197,000
Apr. 21.....	1,268,000	6	211,333	Nov. 3.....	875,000	5	175,000
Apr. 28.....	1,479,000	6	246,500	Nov. 10.....	1,029,000	6	171,500
May 5.....	1,356,000	6	226,000	Nov. 17.....	1,046,000	5	209,200
May 12.....	1,084,000	6	180,667	Nov. 24.....	947,000	6	157,833
May 19.....	1,107,000	6	184,500	Dec. 1.....	776,000	5	129,333
May 26.....	1,229,000	6	204,833	Dec. 8.....	704,000	6	117,333
June 2.....	1,111,000	5	222,200	Dec. 15.....	1,506,000	6	251,000
June 9.....	1,053,000	6	175,500	Dec. 22.....	1,258,000	6	209,666
June 16.....	778,000	6	128,833	Dec. 29.....	904,000	5	180,800
June 23.....	802,000	6	133,667	Jan. 5, 1935.....	1,226,000	1	1,221,600
June 30.....	1,139,000	6	189,833				
July 7.....	654,000	5	109,000				
July 14.....	793,000	6	132,167				
				Total.....	57,168,000	303.5	188,362

¹ Figures represent the output and number of working days in that part of the week included in the calendar year 1934. Figures of total production for the week of January 5, 1935, are 1,108,000 tons.

² A average daily production for the entire week and not for the working days that fell in the calendar year 1934.

TABLE 5A.—Estimated monthly production of anthracite, 1931-34¹

[Production figures represent thousands of net tons]

Month	1931			1932			1933			1934		
	Month-ly production	Number of working days	Daily average	Month-ly production	Number of working days	Daily average	Month-ly production	Number of working days	Daily average	Month-ly production	Number of working days	Daily average
January.....	6,183	26	238	3,937	25	157	3,818	25	153	6,102	26	231
February.....	5,400	23.5	230	4,061	24.5	166	4,287	23.5	182	5,930	23.5	252
March.....	4,754	26	183	4,838	27	179	4,532	27	168	6,394	27	237
April.....	5,709	25	228	5,686	25	227	2,899	24	121	4,819	24	201
May.....	5,013	25	201	3,311	25	132	2,975	26	114	5,230	26	201
June.....	4,552	26	175	2,576	26	99	3,939	26	152	4,168	26	160
July.....	3,960	26	152	3,052	25	122	3,688	25	148	3,430	25	137
August.....	4,324	26	166	3,500	27	130	4,409	27	163	3,570	27	132
September.....	4,362	25	175	4,151	25	166	5,007	25	200	3,962	24	165
October.....	6,561	26	252	5,287	25	212	4,725	25	189	4,711	26	181
November.....	4,149	23	180	4,315	24	180	4,825	24	201	4,165	24	174
December.....	4,679	26	180	5,141	26	198	4,437	25	178	4,687	25	187
Total.....	59,646	303.5	197	49,855	304.5	164	49,541	302.5	164	57,168	303.5	188

¹ Production is estimated from weekly car loadings as reported by the Association of American Railroads and includes mine fuel, coal sold locally, dredge coal, and the output of the Bernice Basin in Sullivan County. Does not include an unknown amount of "bootleg" production. In computing the average rates per working day, New Year's, Eight-Hour Day (Apr. 1), Memorial Day, Independence Day, Labor Day, Mitchell Day (Oct. 29), Thanksgiving Day, Christmas, and, since the war, Armistice Day, have been counted as holidays. Beginning with 1927, Washington's Birthday is counted as a half holiday. No allowance, however, has been made for church holy days, which are observed by many of the miners. Monthly statistics from 1905 to 1925 will be found in Coal in 1925, pp. 427-428, and from 1926 to 1930 in Coal in 1930, p. 741.

PRODUCTION, BY REGIONS

TABLE 6A.—Anthracite produced, by regions, 1933-34

Region	Shipments		Local sales		Colliery fuel		Total	
	Net tons	Value ¹	Net tons	Value	Net tons	Value	Net tons	Value ¹
1933								
Lehigh:								
Breaker product.....	6,752,322	\$23,959,018	345,367	\$1,596,054	498,841	\$758,500	7,596,530	\$31,313,572
Washery product.....			7,500	34,650	596	906	8,096	35,556
Dredge product.....	51,083	46,831					51,083	46,831
Total.....	6,803,405	29,005,849	352,867	1,630,704	499,437	759,406	7,655,709	31,395,959
Schuylkill:								
Breaker product.....	12,014,530	48,820,239	1,003,490	4,663,096	646,166	948,694	13,664,176	54,432,029
Washery product.....	878,270	1,671,013	14,351	49,340	15,516	13,216	908,137	1,733,569
Dredge product.....	271,603	132,772	197,260	252,109	988	1,501	469,851	386,382
Total.....	13,164,403	50,624,024	1,215,091	4,964,545	662,670	963,411	15,042,164	56,551,980
Wyoming:								
Breaker product.....	22,964,066	108,518,999	1,604,329	7,094,592	1,541,180	1,634,426	26,109,575	117,248,017
Washery product.....	353,714	853,534	27,615	59,188	221,196	223,406	602,525	1,136,128
Dredge product.....			17,990	18,940			17,990	18,940
Total.....	23,317,780	109,372,533	1,649,934	7,172,720	1,762,376	1,857,832	26,730,090	118,403,065
Total breaker product (including Sullivan County)	41,780,739	186,475,746	2,984,836	13,511,733	2,718,087	3,373,520	47,483,662	203,360,999
Total washery product.....	1,231,984	2,524,547	49,466	143,178	237,308	237,528	1,518,758	2,905,253
Total dredge product.....	322,686	179,603	215,250	271,049	988	1,501	538,924	452,153
Grand total.....	43,335,409	189,179,896	3,249,562	13,925,960	2,956,383	3,612,549	49,541,344	206,718,405
1934								
Lehigh:								
Breaker product.....	7,939,277	35,139,947	383,247	1,808,015	515,191	832,988	8,837,715	37,780,950
Dredge product.....	91,346	110,587					91,346	110,587
Total.....	8,030,623	35,250,534	383,247	1,808,015	515,191	832,988	8,929,061	37,891,537
Schuylkill:								
Breaker product.....	15,461,448	64,521,383	881,170	3,736,704	635,426	954,340	16,978,044	69,212,427
Washery product.....	823,077	1,855,254	35,474	126,168	25,750	38,314	884,301	2,019,736
Dredge product.....	262,408	148,210	268,276	336,973	985	1,496	531,669	486,679
Total.....	16,546,933	66,524,847	1,184,920	4,199,845	662,161	994,150	18,394,014	71,718,842
Wyoming:								
Breaker product.....	25,921,186	123,784,412	1,618,389	7,401,515	1,782,996	2,120,743	29,322,571	133,306,670
Washery product.....	143,727	413,575	10,007	53,234	148,806	175,011	302,540	641,820
Dredge product.....			29,005	38,412	160	360	29,165	38,772
Total.....	26,064,913	124,197,987	1,657,401	7,493,161	1,931,962	2,296,114	29,654,276	133,987,262
Sullivan County:								
Breaker product.....	113,853	284,921	60,368	254,839	16,719	14,844	190,940	554,604
Total breaker product.....	49,435,764	223,730,663	2,943,174	13,201,073	2,950,332	3,922,915	55,329,270	240,854,651
Total washery product.....	966,804	2,268,829	45,481	179,402	174,556	213,325	1,186,841	2,661,556
Total dredge product.....	353,754	258,797	297,281	375,385	1,145	1,856	652,180	636,038
Grand total.....	50,756,322	226,258,289	3,285,936	13,755,860	3,126,033	4,138,096	57,168,291	244,152,245

¹ Value given is value at which coal left possession of producing company f. o. b. mines and does not include margins of separately incorporated sales companies.

PRODUCTION, BY FIELDS AND COUNTIES

The classification by trade regions—Lehigh, Schuylkill, and Wyoming—is used most commonly by the trade. It is paralleled by the organization of the United Mine Workers, in which district 1 corresponds to the Wyoming trade region, district 7 to the Lehigh region, and district 9 to the Schuylkill region. In studies of costs of production and reserves, however, a classification adopted by geologists is more useful because it corresponds more closely to the natural conditions that largely govern mining costs. The geologic classification recognizes four fields. The Northern field is identical with the Wyoming region. That part of the Southern field lying east of Tamaqua, known as the Panther Creek Valley, and the Eastern Middle field make up the Lehigh region. That part of the Southern field west of Tamaqua and the Western Middle field compose the Schuylkill region. The Bernice Basin in Sullivan County is sometimes grouped with the Northern field.

Table 7A shows the production by fields. Comparing 1934 with the preceding year, the largest increase occurred in the Western Middle field, where a gain of 27.8 percent was made, followed by the Southern field, with an advance of 18.6 percent. The Northern field, which contributed more than half of the total production, showed an increase of only 11.2 percent.

TABLE 7A.—Anthracite produced, by fields, 1930-34, in net tons

[The figures of breaker product include a certain quantity of culm-bank coal, which in 1934 amounted to 962,383 tons. Data for 1913-25 will be found in Coal in 1925, p. 517, and for 1926-29 in Coal in 1930, p. 747]

	1930	1931	1932	1933	1934
Northern:¹					
Breakers.....	37,756,000	31,933,000	27,026,778	26,222,956	29,513,511
Washeries.....	466,000	403,000	305,625	602,525	302,540
Dredges.....			10,035	17,990	29,165
Total.....	38,222,000	32,336,000	27,342,438	26,843,471	29,845,216
Eastern Middle:					
Breakers.....	* 6,508,000	* 6,075,000	5,417,755	5,536,113	6,013,462
Washeries.....	(²)	(²)		8,096	
Total.....	6,508,000	6,075,000	5,417,755	5,544,209	6,013,462
Western Middle:					
Breakers.....	13,918,000	11,912,000	9,153,447	9,450,345	12,417,648
Washeries.....	522,000	916,000	441,243	830,361	801,391
Dredges.....	265,000	161,000	190,067	233,210	213,567
Total.....	14,705,000	12,989,000	9,784,757	10,513,916	13,432,606
Southern:					
Breakers.....	9,471,000	7,883,000	7,001,313	6,274,248	7,384,649
Washeries.....	100,000	65,000	29,010	77,776	82,910
Dredges.....	379,000	238,000	279,948	287,724	409,448
Total.....	9,950,000	8,246,000	7,310,271	6,639,748	7,877,007
Grand total.....	69,385,000	59,646,000	49,855,221	49,541,344	57,168,291

¹ Includes Sullivan County, which in 1934 contributed 190,940 tons of breaker product.

² A small amount of washery product is included with the breaker product.

Table 8A gives the break-down of production, by counties, for the year 1934. From this table it will be seen that while anthracite was produced in 14 counties in 1934, production was concentrated chiefly in Luzerne, Lackawanna, and Schuylkill Counties, which accounted for more than 82 percent of the 1934 total. Luzerne is by far the most important producer, with Schuylkill and Lackawanna competing for second place.

Except for Sullivan County, whose tonnage contribution is proportionately insignificant, the largest increase in 1934 over 1933 occurred in Schuylkill County, where a gain of 35 percent was made, followed by Carbon County, with an increase of 24.9 percent. Lackawanna and Luzerne Counties showed increases of 8.8 and 10.2 percent, respectively, both less than the general advance of 15.4 percent for the industry as a whole.

TABLE 8A.—Anthracite produced in 1934, by counties

County	Shipments		Local sales	
	Net tons	Value ¹	Net tons	Value
Carbon.....	1,893,865	\$7,983,380	70,596	\$337,492
Columbia.....	165,184	747,168	26,433	42,860
Dauphin.....	524,894	2,231,232	243,541	479,779
Lackawanna.....	10,679,375	51,207,417	848,205	3,933,841
Luzerne.....	18,874,460	88,973,484	994,013	4,418,244
Northumberland.....	5,632,218	21,903,588	312,243	1,241,853
Schuylkill.....	12,164,386	49,893,441	700,778	2,972,483
Sullivan.....	113,853	284,921	60,368	254,839
Susquehanna and Wayne.....	610,819	2,913,595	9,732	51,723
Berks, Lehigh, Northampton, and York ²	97,318	120,063	20,027	22,746
Total, 1934.....	50,756,322	226,258,289	3,285,936	13,755,860
Total, 1933.....	43,335,409	189,179,896	3,249,552	13,925,960
Change, 1934.....percent.....	+17.1	+19.6	+1.1	-1.2

County	Colliery fuel		Total		Men employed
	Net tons	Value	Net tons	Value ¹	
Carbon.....	73,036	\$154,831	2,037,497	\$8,475,703	4,037
Columbia.....	6,529	8,157	198,096	798,185	408
Dauphin.....	66,568	99,848	835,003	2,810,859	1,255
Lackawanna.....	660,883	807,211	12,188,463	55,948,469	24,496
Luzerne.....	1,586,604	1,948,173	21,455,077	95,339,901	47,004
Northumberland.....	81,369	111,095	6,025,830	23,256,536	8,415
Schuylkill.....	589,864	941,000	13,455,028	53,806,924	21,838
Sullivan.....	16,719	14,844	190,940	554,604	501
Susquehanna and Wayne.....	44,406	52,844	664,957	3,018,162	1,044
Berks, Lehigh, Northampton, and York ²	55	93	117,400	142,902	52
Total, 1934.....	3,126,033	4,138,096	57,168,291	244,152,245	109,050
Total, 1933.....	2,956,383	3,612,549	49,541,344	206,718,405	104,633
Change, 1934.....percent.....	+5.7	+14.5	+15.4	+18.1	+4.2

¹ Value given for shipments is value at which coal left possession of producing company f. o. b. mines and does not include margins of separately incorporated sales companies.

² Counties producing dredge coal only.

FRESH-MINED AND CULM-BANK COAL, BREAKER AND WASHERY PRODUCT

Anthracite is produced from three sources—from mines, from old culm banks, and from the rivers that drain the anthracite region. For the past 3 years the producers have been asked to state the source of coal prepared at each breaker, washery, and dredge. The results for 1934 are shown in the two tables that follow, by regions and by fields. Table 9A, by regions, shows that in addition to the 1,180,849 tons of culm-bank coal prepared at washery plants during 1934, 962,383 tons were handled at breaker plants. About 47 percent of this tonnage was handled by Schuylkill-region breakers. The Schuylkill region contributed 62.2 percent of the total culm-bank coal prepared. Table 10A shows the same data, classified by fields, and the changes during 1934 compared with those in 1933. Thus, while the total quantity of culm-bank coal decreased 29.5 percent, all other types of coal increased substantially, particularly that mechanically mined, which advanced 41.6 percent.

TABLE 9A.—Anthracite produced in 1934, classified as fresh-mined, culm-bank, and river coal, and as breaker, washery, and dredge product, by regions, in net tons.

Region and type of plant	From mines			From culm banks	From river dredging	Total
	Underground		Strip pits			
	Mechanically mined	Hand mined				
Lehigh:						
Breakers.....	445,992	5,961,384	2,245,126	185,213	91,346	8,837,715
Dredges.....						91,346
Total.....	445,992	5,961,384	2,245,126	185,213	91,346	8,929,061
Schuylkill:						
Breakers.....	1,157,424	12,535,811	2,830,615	454,194		16,978,044
Washeries.....			5,992	878,309		884,301
Dredges.....					531,669	531,669
Total.....	1,157,424	12,535,811	2,836,607	1,332,503	531,669	18,394,014
Wyoming:						
Breakers.....	7,681,070	20,602,120	716,405	322,976		29,322,571
Washeries.....				302,540		302,540
Dredges.....					29,165	29,165
Total.....	7,681,070	20,602,120	716,405	625,516	29,165	29,654,276
Total, including Sullivan County:						
Breakers.....	9,284,486	39,290,255	5,792,146	962,383		55,329,270
Washeries.....			5,992	1,180,849		1,186,841
Dredges.....					652,180	652,180
Grand total.....	9,284,486	39,290,255	5,798,138	2,143,232	652,180	57,168,291

TABLE 10A.—Anthracite produced in 1934, classified as fresh-mined, culm-bank, and river coal, and as breaker, washery, and dredge product, by fields, in net tons.

Field and type of plant	From mines			From culm banks	From river dredging	Total
	Underground		Strip pits			
	Mechanically mined	Hand mined				
Eastern Middle: Breakers.....	436,642	4,016,746	1,429,468	130,606	-----	6,013,462
Western Middle: Breakers.....	999,114	9,164,435	1,884,721	369,378	-----	12,417,648
Washeries.....	-----	-----	5,992	795,399	-----	801,391
Dredges.....	-----	-----	-----	-----	213,567	213,567
Total.....	999,114	9,164,435	1,890,713	1,164,777	213,567	13,432,606
Southern: Breakers.....	167,660	5,316,014	1,761,552	139,423	-----	7,384,649
Washeries.....	-----	-----	-----	82,910	-----	82,910
Dredges.....	-----	-----	-----	-----	409,448	409,448
Total.....	167,660	5,316,014	1,761,552	222,333	409,448	7,877,007
Northern: ¹ Breakers.....	7,681,070	20,793,060	716,405	322,976	-----	29,513,511
Washeries.....	-----	-----	-----	302,540	-----	302,540
Dredges.....	-----	-----	-----	-----	29,165	29,165
Total.....	7,681,070	20,793,060	716,405	625,516	29,165	29,845,216
Grand total, 1934.....	9,284,486	39,290,255	5,798,138	2,143,232	652,180	57,168,291
Grand total, 1933.....	6,557,267	34,474,844	4,932,069	3,038,240	538,924	49,541,344
Change, 1934.....percent..	+41.6	+14.0	+17.6	-28.5	+21.0	+15.4

¹ Includes Sullivan County, which contributed 190,940 tons of underground coal.

TABLE 11A.—Culm-bank coal put through breakers, by fields, 1929-34, in net tons

Year	Northern ¹	Eastern Middle	Western Middle	Southern	Total
1929.....	73,000	15,000	116,000	223,000	427,000
1930.....	75,000	7,000	58,000	52,000	192,000
1931.....	96,000	70,000	57,000	307,000	530,000
1932.....	159,000	82,000	328,000	215,000	784,000
1933.....	479,000	212,000	559,000	293,000	1,543,000
1934.....	323,000	131,000	369,000	139,000	962,000

¹ Includes Sullivan County.

SHIPMENTS, BY REGIONS AND SIZES

TABLE 12A.—Anthracite shipped, by regions and sizes, in 1934

[Figures of shipments from breakers include 962,383 tons of culm-bank coal handled in the breakers]

Size	Breaker shipments				Washery shipments	Dredge shipments	Grand total
	Lehigh region	Schuyl-kill region	Wyoming region	Total (including Sullivan County)			
<i>Net tons</i>							
Lump 1 and broken.....	31,374	59,983	61,067	152,424	-----	-----	152,424
Egg.....	433,375	1,031,743	2,408,125	3,878,258	1,054	-----	3,879,312
Stove.....	1,666,175	3,011,198	6,391,903	11,090,843	50,534	-----	11,141,377
Chestnut.....	1,957,015	3,655,926	6,968,893	12,608,698	120,476	-----	12,729,174
Pea.....	989,722	1,583,482	2,657,471	5,247,216	120,425	-----	5,367,641
Total domestic.....	5,077,661	9,342,332	18,487,459	32,977,439	292,489	-----	33,269,928
Buckwheat No. 1.....	1,299,877	2,535,503	3,644,750	7,543,992	241,420	-----	7,785,412
Buckwheat No. 2 (rice).....	675,452	1,392,396	2,195,545	4,272,533	173,782	50,696	4,497,011
Buckwheat No. 3 (barley).....	724,645	1,703,669	1,298,080	3,739,721	253,743	159,041	4,152,505
Buckwheat No. 4.....	161,642	424,626	210,921	797,189	3,968	95,169	896,326
Boiler.....	-----	-----	10,034	10,034	-----	48,848	58,882
Other.....	-----	12,922	74,397	94,556	1,402	-----	96,258
Total steam.....	2,861,616	6,119,116	7,433,727	16,458,325	674,315	353,754	17,486,394
Grand total.....	7,939,277	15,461,448	25,921,186	49,435,764	966,804	353,754	50,756,322
<i>Value</i>							
Lump 1 and broken.....	\$155,370	\$333,136	\$338,851	\$827,357	-----	-----	\$827,357
Egg.....	2,567,255	6,026,636	14,177,825	22,794,343	\$6,504	-----	22,800,847
Stove.....	10,458,065	18,621,360	39,952,043	69,111,114	118,073	-----	69,229,787
Chestnut.....	11,848,856	21,904,975	41,535,169	75,378,523	530,580	-----	75,909,409
Pea.....	4,389,392	6,773,194	11,876,783	23,080,388	478,444	-----	23,558,832
Total domestic.....	29,418,938	53,659,301	107,878,671	191,192,025	1,134,207	-----	192,326,232
Buckwheat No. 1.....	3,811,918	7,151,963	10,607,796	21,591,763	638,859	-----	22,230,622
Buckwheat No. 2 (rice).....	1,084,761	1,937,498	3,604,326	6,683,944	251,846	\$19,131	6,954,921
Buckwheat No. 3 (barley).....	750,879	1,439,495	1,418,790	3,620,898	241,129	141,299	4,003,326
Buckwheat No. 4.....	73,451	239,929	157,332	470,712	2,087	57,831	530,630
Boiler.....	-----	-----	12,527	12,527	-----	40,536	53,063
Other.....	-----	43,197	104,970	158,794	701	-----	159,495
Total steam.....	5,721,009	10,862,082	15,905,741	32,538,638	1,134,622	258,797	33,932,057
Grand total.....	35,139,947	64,521,383	123,784,412	223,730,663	2,268,829	258,797	226,258,289
<i>Average value per ton</i>							
Lump 1 and broken.....	4.95	5.55	5.55	5.43	-----	-----	5.43
Egg.....	5.92	5.84	5.89	5.88	6.17	-----	5.88
Stove.....	6.28	6.18	6.25	6.23	2.35	-----	6.21
Chestnut.....	6.05	5.99	5.96	5.98	4.40	-----	5.96
Pea.....	4.43	4.28	4.47	4.40	3.97	-----	4.39
Total domestic.....	5.79	5.74	5.84	5.80	3.88	-----	5.78
Buckwheat No. 1.....	2.93	2.77	2.91	2.86	2.65	-----	2.86
Buckwheat No. 2 (rice).....	1.61	1.43	1.64	1.56	1.45	.38	1.55
Buckwheat No. 3 (barley).....	1.04	.84	1.09	.97	.95	.89	.96
Buckwheat No. 4.....	.45	.57	.75	.59	.53	-----	.59
Boiler.....	-----	-----	1.25	1.25	-----	-----	.90
Other.....	-----	3.34	1.41	1.67	.50	-----	1.66
Total steam.....	2.00	1.78	2.14	1.98	1.68	.73	1.94
Grand total.....	4.43	4.17	4.78	4.53	2.35	.73	4.46

1 The quantity of lump included is insignificant.

TRENDS IN SIZES SHIPPED

TABLE 13A.—*Sizes of anthracite shipped from breakers, by regions, 1931-34, in percent of total*

[Note that shipments of dredge and washery coal are not included]

Size of coal	Percent of total shipments							
	Lehigh region				Schuylkill region			
	1931	1932	1933	1934	1931	1932	1933	1934
Lump ¹ and broken.....	0.2	0.2	0.4	0.4	0.4	0.4	0.6	0.4
Egg.....	6.4	6.5	5.9	5.4	8.0	7.2	7.0	6.7
Stove.....	22.2	22.5	21.6	21.0	20.4	20.5	19.6	19.5
Chestnut.....	24.9	22.5	22.9	24.7	23.2	22.5	21.8	23.6
Pea.....	11.3	11.6	11.8	12.5	10.0	9.4	10.2	10.2
Total domestic.....	65.0	63.3	62.6	64.0	62.0	60.0	59.2	60.4
Buckwheat No. 1.....	16.0	17.0	16.4	16.4	17.0	17.5	16.8	16.7
Buckwheat No. 2 (rice).....	9.7	9.2	9.7	8.5	9.2	9.6	9.8	9.0
Buckwheat No. 3 (barley).....	8.6	8.8	9.0	9.1	10.4	10.6	10.6	11.0
Boiler.....	.7	.2			(?)			
Other, including Buckwheat No. 4.....	(?)	1.5	2.3	2.0	1.4	2.3	3.6	2.9
Total steam.....	35.0	36.7	37.4	36.0	38.0	40.0	40.8	39.6
	Wyoming region				Total, including Sullivan County			
Lump ¹ and broken.....	0.4	0.4	0.3	0.2	0.3	0.3	0.4	0.3
Egg.....	11.3	10.7	10.2	9.3	9.6	9.1	8.5	7.9
Stove.....	25.7	25.7	24.8	24.7	23.6	23.7	22.8	22.4
Chestnut.....	26.1	25.8	25.4	26.9	25.0	24.3	24.0	25.5
Pea.....	10.1	9.7	9.7	10.2	10.3	9.9	10.2	10.6
Total domestic.....	73.6	72.3	70.4	71.3	68.8	67.3	65.9	66.7
Buckwheat No. 1.....	13.5	13.9	13.9	14.1	14.9	15.5	15.2	15.3
Buckwheat No. 2 (rice).....	8.0	8.0	8.4	8.5	8.6	8.6	8.9	8.6
Buckwheat No. 3 (barley).....	4.2	4.9	6.0	5.0	6.7	7.2	7.8	7.6
Boiler.....	.1	.3	.2	(?)	.2	.2	.1	(?)
Other, including Buckwheat No. 4.....	.6	.6	1.1	1.1	.8	1.2	2.1	1.8
Total steam.....	26.4	27.7	29.6	28.7	31.2	32.7	34.1	33.3

¹ The quantity of lump included is insignificant.² Less than 0.1 percent.

TRENDS IN VALUES AND PRICES

SOURCES OF INFORMATION AND METHODS OF ANALYSIS

Margins of sales agents not included.—The valuation figures in this study represent value at the breaker or washery reported by the operating companies. In making its report, the company is requested to “estimate value of the product not sold” and to “exclude selling expenses.”

From this it will be seen that when a producing company sells its output to a separately organized sales company (the practice of many, including certain of the larger producers), the value reported will exclude the margin of the sales company and may therefore be somewhat less than the circular price at which the coal in question is placed on the general market. This fact should be borne in mind in considering the variations in value between different regions shown in the tables for the same sizes of coal. (See table 14A.)

Estimates included in figures of value.—The reports are furnished in writing and signed by responsible officers of the mining companies. The estimates represent only 11.6 percent of the value shown in 1934

because, aside from a few extremely small producers, only one company failed to report. The values for this company, a producer in the Wyoming region, were estimated in 1934 as follows: The tonnage it reported of each size from broken to pea was multiplied by the company's average circular price for that size as quoted in the trade journals for the year. The tonnage reported for Buckwheat No. 1 and for each smaller size was multiplied by the average sales realization obtained on that size by all other producers in the Wyoming region.

AVERAGE SALES REALIZATIONS

The average sales realizations on each size from 1931 to 1934 are given in table 14A. To insure comparability the table is based on shipments of breaker coal only, the dredge and washery product being excluded.

The average realization on breaker shipments in 1934, all sizes combined, was \$4.53 per net ton, an increase of 7 cents per ton when compared with the 1933 average of \$4.46. With the exception of 1933, however, the 1934 average sales realization was the lowest obtained by anthracite operators since 1919.

In the domestic sizes there was a marked increase in the price obtained for pea coal (18 cents per ton), and a smaller increase of 3 cents per ton on chestnut. Other domestic sizes varied little in price.

The average mine price of all steam sizes increased from \$1.93 in 1933 to \$1.98 in 1934, chiefly because of the higher price realized on Buckwheat No. 2.

TABLE 14A.—Average sales realization per net ton on anthracite shipments from breakers, by regions and sizes, 1931-34

[Value does not include margins of separately incorporated sales companies]

Size	Lehigh region				Schuylkill region			
	1931	1932	1933	1934	1931	1932	1933	1934
Lump ¹ and broken.....	\$6.35	\$5.58	\$4.72	\$4.95	\$6.76	\$6.03	\$5.47	\$5.55
Egg.....	6.87	5.92	5.81	5.92	6.84	5.99	5.80	5.84
Stove.....	7.26	6.38	6.20	6.28	7.26	6.45	6.17	6.18
Chestnut.....	7.16	6.18	5.96	6.05	7.13	6.18	5.92	5.99
Pea.....	4.77	4.57	4.18	4.43	4.55	4.48	4.15	4.28
Total domestic.....	6.74	5.92	5.68	5.79	6.71	5.98	5.68	5.74
Buckwheat No. 1.....	2.80	2.85	2.87	2.93	2.70	2.70	2.73	2.77
Buckwheat No. 2 (rice) ²	1.53	1.56	1.60	1.61	1.44	1.41	1.39	1.43
Buckwheat No. 3 (barley).....	1.05	1.01	1.04	1.04	.91	.83	.84	.84
Total, steam ³	1.97	1.98	1.96	2.00	1.82	1.77	1.72	1.78
Total, all sizes.....	5.07	4.48	4.29	4.43	4.85	4.30	4.06	4.17
	Wyoming region				Total, including Sullivan County			
Lump ¹ and broken.....	\$6.79	\$5.54	\$5.74	\$5.55	\$6.74	\$5.69	\$5.43	\$5.43
Egg.....	7.11	6.28	5.96	5.89	7.01	6.17	5.90	5.88
Stove.....	7.44	6.60	6.29	6.25	7.37	6.53	6.25	6.23
Chestnut.....	7.26	6.31	5.97	5.96	7.21	6.26	5.95	5.98
Pea.....	4.89	4.58	4.27	4.47	4.76	4.55	4.22	4.40
Total, domestic.....	6.97	6.18	5.85	5.84	6.87	6.09	5.78	5.80
Buckwheat No. 1.....	2.86	2.90	2.90	2.91	2.79	2.83	2.84	2.86
Buckwheat No. 2 (rice) ²	1.57	1.57	1.53	1.64	1.52	1.52	1.50	1.56
Buckwheat No. 3 (barley).....	1.20	1.11	1.13	1.09	1.03	.97	1.00	.97
Total, steam ³	2.15	2.13	2.06	2.14	2.00	1.98	1.93	1.98
Total, all sizes.....	5.70	5.05	4.73	4.78	5.35	4.74	4.46	4.53

¹ The quantity of lump included is insignificant. ² Includes birdseye. ³ Includes all other steam sizes.

AVERAGE VALUES OF SHIPMENTS, LOCAL SALES, AND COLLIERY FUEL

TABLE 15A.—Average value per net ton of anthracite shipped, local sales, colliery fuel, and total production, by regions, 1933-34¹

[Note that values in this table include washery and dredge coal]

Year and region	1933				1934			
	Shipments	Local sales	Colliery fuel	Total production	Shipments	Local sales	Colliery fuel	Total production
Lehigh.....	\$4.26	\$4.62	\$1.52	\$4.10	\$4.39	\$4.72	\$1.62	\$4.24
Schuylkill.....	3.85	4.09	1.45	3.76	4.02	3.54	1.50	3.90
Wyoming.....	4.69	4.35	1.05	4.73	4.76	4.52	1.19	4.52
Total ²	4.37	4.29	1.22	4.17	4.46	4.19	1.32	4.27

¹ Value given for shipments is value at which coal left possession of producing company f. o. b. mines and does not include margins of separately incorporated sales companies.

² Includes Sullivan County.

NUMBER OF OPERATIONS

Due to the many changes in anthracite practices during the past few years, particularly with regard to concentration of preparation at central breakers, it has not been possible to make the figures on number of active plants comparable with earlier years. However, in 1934 an effort was made to make an accurate count of the number of active breakers. The results are shown in table 16A, together with other information comparable with that for 1933.

TABLE 16A.—Number of active operations in the anthracite industry, 1933-34

District and type of product	Total active plants reporting ¹	Breakers ²	Reporting men employed at preparation plants ³	Other preparation plant ⁴	Washeries ⁵	Culm banks operated in conjunction with breakers	Dredges	Reporting strip-pit tonnage			
1933											
Lehigh:											
Breakers or mines.....	39	}	29	}	}	}	}	}			
Washeries.....	1		1						1	16	29
Dredges.....	1		1						1	1	1
Total.....	41		30		1	16	1	29			
Schuylkill:											
Breakers or mines.....	73	}	53	}	}	}	}	}			
Washeries.....	8		8						8	19	33
Dredges.....	32		20						20	32	1
Total.....	113		81		8	19	32	34			
Wyoming:											
Breakers or mines.....	185	}	86	}	}	}	}	}			
Washeries.....	16		7						7	14	35
Dredges.....	1		1						1	16	1
Total.....	202		94		16	14	1	35			
Sullivan County: Breakers or mines.....	6		4								
Total:											
Breakers or mines.....	303		172			49		97			
Washeries.....	25		15		25			1			
Dredges.....	34		22				34				
Grand total.....	362		209		25	49	34	98			

See footnotes at end of table.

TABLE 16A.—Number of active operations in the anthracite industry, 1933-34—Con.

District and type of product	Total active plants reporting ¹	Breakers ²	Reporting men employed at preparation plants ³	Other preparation plant ⁴	Washeries ⁵	Culm banks operated in conjunction with breakers	Dredges	Reporting strip-pit tonnage
1934								
Lehigh:								
Breakers or mines.....	33	26				8		27
Dredges.....	2			2			2	
Total.....	35	26		2		8	2	27
Schuylkill:								
Breakers or mines.....	57	37		13		12		31
Washeries.....	13			1	7			1
Dredges.....	30			19			30	
Total.....	100	37		33	7	12	30	32
Wyoming:			(⁶)					
Breakers or mines.....	189	71		6	1	12		36
Washeries.....	15				2			
Dredges.....	2			2			2	
Total.....	206	71		8	3	12	2	36
Sullivan County: Breakers or mines.....	5	5						
Total:								
Breakers or mines.....	284	139		19	1	32		94
Washeries.....	28			1	9			1
Dredges.....	34			23			34	
Grand total.....	346	139		43	10	32	34	95

¹ The number of active plants contains numerous duplications, that is, successions known and unknown, and leases and subleases. Each report received which was tabulated for production or for employment has been counted separately.

² Equipped to prepare standard sizes of fresh-mined coal. There were no definite data for 1933.

³ The number shown does not represent active breakers, for which there were no definite data in 1933. The number reported for dredges represents reports showing men employed at tippie.

⁴ For preliminary crushing, screening, or cleaning. Usually old breakers are used for this purpose. The number reported for dredges represents reports showing men employed at tippie.

⁵ Preparation plant for the sizing and cleaning of culm-bank coal.

⁶ See footnotes 2, 3, and 4.

LABOR STATISTICS

TABLE 17.—Men employed and days worked in the anthracite field, by regions, in 1934

	Average number of men employed							Grand total
	Underground			Surface				
	Miners and their laborers	Other	Total underground	In strip pits	In preparation plant	Other	Total surface	
Lehigh:								
Breaker product.....	7,931	3,801	11,732	1,563	1,607	2,840	6,010	17,742
Dredge product.....					4	21	25	25
Total.....	7,931	3,801	11,732	1,563	1,611	2,861	6,035	17,767

TABLE 17.—Men employed and days worked in the anthracite field, by regions, in 1934—Continued

	Average number of men employed							Grand total
	Underground			Surface				
	Miners and their laborers	Other	Total underground	In strip pits	In preparation plant	Other	Total surface	
Schuylkill:								
Breaker product.....	12,315	5,958	18,273	1,809	2,087	3,925	7,821	26,094
Washery product.....				15	252	439	706	706
Dredge product.....					64	175	239	239
Total.....	12,315	5,958	18,273	1,824	2,403	4,539	8,766	27,039
Wyoming:								
Breaker product.....	37,428	15,334	52,762	917	3,200	6,785	10,902	63,664
Washery product.....					26	26	52	52
Dredge product.....					16	11	27	27
Total.....	37,428	15,334	52,762	917	3,242	6,822	10,981	63,743
Sullivan County: Breaker product.....	262	108	370		54	77	131	501
Total:								
Breaker product.....	57,936	25,201	83,137	4,289	6,948	13,627	24,864	1108,001
Washery product.....				15	278	465	753	1,758
Dredge product.....					84	207	291	291
Grand total.....	57,936	25,201	83,137	4,304	7,310	14,299	25,913	109,050
	Number of days worked							
Lehigh:								
Breaker product.....	187	179	185	265	180	192	208	193
Dredge product.....					185	187	187	187
Total.....	187	179	185	265	180	192	208	193
Schuylkill:								
Breaker product.....	242	237	240	196	243	239	230	237
Washery product.....				53	169	167	165	165
Dredge product.....					173	140	149	149
Total.....	242	237	240	195	233	228	223	235
Wyoming:								
Breaker product.....	200	198	200	182	199	209	204	200
Washery product.....					186	253	220	220
Dredge product.....					165	171	168	168
Total.....	200	198	200	182	199	209	204	200
Sullivan County: Breaker product.....	175	172	174		178	173	175	174
Total:								
Breaker product.....	207	204	206	218	208	214	213	208
Washery product.....				53	171	171	169	169
Dredge product.....					172	147	154	154
Total average.....	207	204	206	218	206	212	211	207

¹ The men shown for "breaker product" include a considerable number of washery employees who could not be separated from breaker employees. The tonnage reported for the 753 washery men amounted to 976,000 tons, about 83 percent of the total washery product, and about 46 percent of the total culm-bank coal. (See tables 9A and 10A.)

TABLE 18A.—*Strikes, suspensions, and lockouts in the anthracite region in 1934*

	Lehigh	Schuyl-kill	Wyoming	Sullivan County	Total
Total number employed.....	17,767	27,039	63,743	501	109,050
Men on strike.....	8,857	6,883	23,254	-----	38,994
Man-days lost on account of strike.....	79,687	94,947	600,222	-----	774,856
Average days lost—					
Per man employed.....	4.5	3.5	9.4	-----	7.1
Per man on strike.....	9.0	13.8	25.8	-----	19.9

EQUIPMENT AND METHODS OF MINING

Since 1929 the Bureau of Mines has collected data on the tonnage of anthracite produced by mechanized mining.

TABLE 19A.—*Relative growth of mechanical loading, hand loading, and stripping in anthracite mines, 1927-34*

[Mechanical loading includes coal handled on pit-car loaders and hand-loaded face conveyors]

Year	Mechanical loading underground	Stripping	Hand loading	Year	Mechanical loading underground	Stripping	Hand loading
Net tons:				Index numbers:			
1927.....	2,223,000	2,153,000	71,435,000	1927.....	100	100	100
1928.....	2,351,000	2,423,000	67,374,000	1928.....	106	113	94
1929.....	3,470,000	1,912,000	66,494,000	1929.....	156	89	93
1930.....	4,468,000	2,536,000	60,458,000	1930.....	201	118	85
1931.....	4,385,000	3,813,000	49,075,000	1931.....	197	177	69
1932.....	5,433,000	3,981,000	38,401,000	1932.....	244	185	54
1933.....	6,557,000	4,932,000	34,475,000	1933.....	295	229	48
1934.....	9,284,000	5,798,000	39,260,000	1934.....	418	269	55

¹ As reported by the Commonwealth of Pennsylvania, Department of Mines.

TABLE 20A.—*Pennsylvania anthracite loaded mechanically underground, 1927-34*

Year	Scrapers and mobile loaders		Conveyors and pit-car loaders ¹		Total loaded mechanically	
	Number of units	Net tons loaded	Number of units	Net tons handled	Number of units	Net tons handled
1927 ²	305	(3)	159	(3)	464	2,223,281
1928 ²	302	(3)	184	(3)	486	2,351,074
1929.....	350	2,450,279	355	1,019,879	705	3,470,158
1930.....	384	2,927,038	421	1,540,662	805	4,467,750
1931.....	462	2,462,370	576	1,922,410	1,038	4,384,780
1932.....	490	2,651,591	859	2,781,749	1,349	5,433,340
1933.....	464	2,395,403	965	4,161,864	1,429	6,557,267
1934.....	531	3,017,741	1,376	6,286,745	1,907	9,284,486

¹ Includes duck-bills and other self-loading conveyors, which account for only a small part of the total.

² As reported by the Commonwealth of Pennsylvania, Department of Mines.

³ Not separately reported; see total.

TABLE 21A.—*Change in tonnage of anthracite loaded by principal types of machines, 1932-34*

	1932	1933	1934	Increase (+) or decrease (-), 1934 over 1933	
	<i>Net tons</i>	<i>Net tons</i>	<i>Net tons</i>	<i>Net tons</i>	<i>Percent</i>
Mobile loading machines.....	60,561	48,078	37,227	-10,851	-22.6
Scraper loaders.....	2,591,030	2,347,325	2,980,514	+633,189	+27.0
Pit-car loaders.....	30,874	62,586	63,106	+520	+1.8
Hand-loaded face conveyors ¹	2,750,875	4,099,278	6,203,639	+2,104,361	+51.3
Total.....	5,433,340	6,557,267	9,284,486	+2,727,219	+41.6

¹ Shaker chutes, etc., including those equipped with duck-bills.

TABLE 22A.—*Anthracite handled by mobile loaders and scrapers and by all types of conveyors in 1934, by fields, in net tons*

Field	Mobile loaders	Scraper loaders	Pit-car loaders	Hand-loaded face conveyors, all types ¹	Total mechanically loaded underground
Northern.....	13,427	2,509,100	36,091	5,145,240	7,681,070
Eastern Middle.....		97,034			
Western Middle.....	23,800	356,290	27,015	625,594	999,114
Southern.....						18,090	115,985
Total.....	37,227	2,980,514	63,106	6,203,639	9,284,486

¹ Shaker chutes, etc., including those equipped with duck-bills.

TABLE 23A.—*Anthracite cut by machines, 1933-34*

Region	1933			1934		
	Number of cutting machines		Net tons cut by machines	Number of cutting machines		Net tons cut by machines
	Permissible	All other types		Permissible	All other types	
Lehigh.....	1		700	1		5,000
Schuylkill.....	2	6	52,549	4	6	66,829
Wyoming (including Sullivan County).....	138	21	1,595,000	134	24	1,909,259
Total.....	141	27	1,648,249	139	30	1,981,088

TABLE 24A.—Relative growth of anthracite mined from strip pits, 1915-34, in net tons

Year	Number of power shovels in use	Quantity mined by stripping		Percent of fresh-mined total that was stripped	Number of men employed	Average number of days worked
		Total	Average per shovel			
1915.....	57	1, 121, 603	19, 677	(1)	(1)	(1)
1920.....	96	2, 054, 441	21, 400	2. 5	(1)	(1)
1925.....	97	1, 578, 478	16, 273	2. 7	(1)	(1)
1930.....	108	2, 536, 288	23, 484	3. 7	(1)	(1)
1931.....	189	3, 813, 237	20, 176	6. 7	2, 232	(1)
1932.....	234	3, 980, 973	17, 013	8. 3	2, 407	190
1933.....	319	4, 932, 069	15, 461	10. 7	3, 383	195
1934:						
Lehigh district.....	120	2, 245, 126	18, 709	25. 9	1, 563	265
Schuylkill district.....	132	2, 836, 607	21, 489	17. 2	1, 824	195
Wyoming district.....	97	716, 405	7, 386	2. 5	917	182
Total, 1934.....	349	5, 798, 138	16, 614	10. 7	4, 304	218

¹ Data not available.

² Includes 151 gasoline, 63 steam, 66 electric, and 69 other types of shovels.

DREDGE OPERATIONS

Average receipts per net ton on all dredge coal sold, 1930-34

1930.....	\$0. 84	1933.....	\$0. 84
1931.....	. 83	1934.....	. 98
1932.....	. 93		

TABLE 25A.—Anthracite produced by dredges, by rivers, 1933-34

River (including tributaries)	1933			1934		
	Number of dredges	Net tons	Value	Number of dredges	Net tons	Value
Lehigh.....	1	51, 083	\$46, 831	2	91, 346	\$110, 587
Schuylkill.....	5	106, 004	89, 190	4	100, 873	61, 010
Susquehanna.....	28	381, 837	316, 132	28	459, 961	464, 441
Total.....	34	538, 924	452, 153	34	652, 180	636, 038

IMPORTS AND EXPORTS

TABLE 26A.—Anthracite imported, by countries, 1933-34, in net tons

[Compiled from records of the Bureau of Foreign and Domestic Commerce]

Country	1933	1934	Country	1933	1934
Canada.....		2, 098	U.S.S.R. (Russia) in Europe..	229, 151	323, 326
China.....	6		United Kingdom.....	200, 291	152, 694
Germany.....	26, 800		Total.....	456, 252	478, 118
French Indo-China.....	2				
Netherlands.....	2				

TABLE 27A.—Anthracite imported, by customs district, 1933-34, in net tons

[Compiled from records of the Bureau of Foreign and Domestic Commerce]

Customs district	1933	1934	Customs district	1933	1934
Buffalo.....		640	Oregon.....	8	3
Connecticut.....	7,392	17,892	Rhode Island.....	79,905	93,594
Dakota.....		5	San Francisco.....	3	
Maine and New Hampshire.....	18,864	34,735	Washington.....	4	206
Massachusetts.....	336,830	331,073	Total.....	456,252	478,118
New York.....	13,246				

TABLE 28A.—Anthracite exported, by countries, 1933-34, in net tons

[Compiled from records of the Bureau of Foreign and Domestic Commerce]

Country	1933	1934	Country	1933	1934
North America:			South America:		
Bermuda.....	815	1,119	Bolivia.....		52
Canada.....	1,027,107	1,266,462	Colombia.....		1,125
Central America:			Venezuela.....	3	4
Guatemala.....	17	5	Europe:		
Honduras.....	74	11	France.....	1	
Panama.....	44		Germany.....	8	
Salvador.....	1	2	Italy.....		18,162
Mexico.....	224	203	United Kingdom.....		1
Miquelon and St. Pierre Islands.....		131	Asia: Philippine Islands.....	7	
Newfoundland and Lab- rador.....	6,063	5,003	New Zealand.....		475
West Indies:			Total.....	1,034,562	1,297,610
British:					
Trinidad and Tobago.....	11				
Other British.....	118	196			
Cuba.....	56	4,659			
Dominican Repub- lic.....	2				
French.....	11				

TABLE 29A.—Anthracite exported, by customs districts and ports, 1933-34, in net tons

[Compiled from records of the Bureau of Foreign and Domestic Commerce]

Customs district	1933	1934	Customs district	1933	1934
North Atlantic:			Rail gateways on Canadian border:		
Massachusetts.....		26	Eastern:		
New York.....	32,365	23,128	Maine and New Hampshire.....	95	258
Philadelphia.....	51,167	104,252	Vermont.....	1,385	542
South Atlantic:			St. Lawrence.....	335,552	432,513
Florida.....	30	82	Rochester ¹	48,926	95,578
Mobile.....			Buffalo.....	541,978	616,612
New Orleans.....	141	11	Michigan.....	431	3,570
Mexican border:			Western:		
Arizona.....	93	38	Duluth, Superior, and International Falls.....	4,767	5,685
El Paso.....	58	152	Dakota.....	675	855
San Antonio.....	2	1	Miscellaneous: Alaska.....	6	
Pacific coast:			Total.....	1,034,562	1,297,610
Washington.....	50				
San Francisco.....	8	2			
Los Angeles.....	1				
San Diego.....	20	11			
Lake Erie ports: Ohio ¹	16,812	14,294			

¹ Chiefly Buffalo and Erie.² Rail, car ferry, and Lake Ontario.

GOLD AND SILVER

(DETAILED STATISTICS—GENERAL REPORT)

By J. P. DUNLOP

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DOMESTIC PRODUCTION

Approximate distribution of the production of gold and silver in the United States in 1934, by producing States and Territories

[Figures supplied by U. S. Bureau of the Mint]

State or Territory	Gold		Silver		Increase or decrease from 1933 (fine ounces)	
	Fine ounces	Value ¹	Fine ounces	Value ²	Gold	Silver
Alabama.....	2,620	\$91,700	346	\$224	+2,615	+346
Alaska.....	537,394	18,808,800	178,327	115,282	+80,120	+22,993
Arizona.....	158,509	5,547,800	4,270,201	2,760,534	+86,754	+2,125,227
California.....	712,946	24,953,100	860,133	556,046	+118,079	+605,862
Colorado.....	316,617	11,081,600	3,494,833	2,259,286	+51,401	+1,331,556
Georgia.....	811	28,400	17	11	+376	-34
Idaho.....	82,791	2,897,700	7,490,906	4,842,606	+26,381	+864,163
Maryland.....					-15	
Michigan.....	26	900	13,099	8,468	+18	-112,827
Missouri.....			34,932	22,582		+34,932
Montana.....	89,080	3,117,800	3,567,763	2,306,433	+27,837	+3,942
Nevada.....	134,814	4,718,500	2,887,457	1,666,639	+33,614	+1,856,174
New Mexico.....	23,131	809,600	991,592	641,029	-3,964	-171,191
New York.....			4,587	2,965		+4,587
North Carolina.....	566	19,800	9,832	6,356	-82	+9,652
Oregon.....	34,230	1,198,000	57,223	36,993	+14,445	+39,688
Pennsylvania.....	566	19,800	4,069	2,630	+319	+1,872
Philippine Islands.....	349,477	12,231,700	238,474	154,165	+69,942	+57,102
Puerto Rico.....	46	1,600	7	5	+17	+7
South Carolina.....	506	17,700	265	171	+346	+233
South Dakota.....	474,051	16,591,800	99,923	64,600	-45,497	-30,389
Tennessee.....	431	15,100	61,702	39,888	+208	+33,619
Texas.....	317	11,100	789,287	510,246	+302	+789,047
Utah.....	159,334	5,576,700	7,623,036	4,928,023	+66,082	+2,325,316
Virginia.....	969	33,900	94	61	+950	+94
Washington.....	7,180	251,300	46,457	30,033	+2,139	+30,343
Wyoming.....	4,771	167,000	786	508	+2,550	+409
	3,091,183	108,191,400	32,725,353	21,155,784	+534,937	+9,722,724

¹ Gold valued at \$35.00 per fine ounce.

² Silver valued at 64+ cents per fine ounce. Purchase rate for United States product.

The figures in the preceding table were obtained through cooperation between the United States Bureau of the Mint and the Bureau of

Mines and were agreed upon after conference and adjustment between the two Bureaus. They are therefore final for both.

The totals are based on bullion deposits in the United States mints and assay offices and on returns to the Bureau of the Mint from the smelting and refining companies. The distribution is adjusted by means of information collected by the Bureau of Mines directly from the producing mines and tabulated for the mine reports discussed later. The data for the total production and in part for the distribution are obtained from records of (1) the unrefined domestic gold and silver deposited in the United States mints and assay offices, (2) the domestic gold and silver in fine bars reported by private refineries, and (3) the unrefined domestic gold and silver contained in ore and matte exported for reduction. The last item is very small.

Domestic smelters recovered 638,726 ounces of gold and 76,916,921 ounces of silver from foreign ores and bullion in 1934, an increase of 73,748 ounces in gold but a decrease of 19,437,719 ounces in silver compared with 1933. As usual in recent years the foreign ores and bullion came mainly from Mexico, Canada, and Peru; China, however, contributed large shipments of silver bullion in 1934.

In 1934, as in 1933 and 1932, more old gold was returned from industrial to monetary use than was issued to the arts and industries, a decided reversal of the normal trend; returns for 1934 totaled 2,169,351 ounces and issues 406,651 ounces, a net return of 1,762,700 ounces. The quantity of new silver used for industrial and artistic purposes was 11,492,425 ounces (about 35 percent of the domestic output) in 1934 compared with 10,810,571 ounces in 1933; the total quantity of silver (new and old) used in the arts and industries was 39,678,603 ounces (10,335,152 ounces more than in 1933). In addition to the gold and silver derived from foreign and domestic ore and bullion 2,169,351 ounces of gold and 28,186,178 ounces of silver were recovered from old or obsolete jewelry, silverware, dental waste, old film, and other material.

*Gold and silver produced in the United States, 1792-1934*¹

[The estimate for 1792-1872 is by R. W. Raymond, commissioner, and for the period since 1872 by the Director of the Mint]

Period	Gold		Silver	
	Fine ounces	Value	Fine ounces	Value
1792-1847.....	1, 186, 977	\$24, 537, 000	309, 500	\$404, 500
1848-72.....	58, 279, 781	1, 204, 750, 000	118, 568, 200	157, 749, 900
1873-1934.....	172, 506, 411	3, 622, 810, 300	3, 159, 046, 659	2, 391, 610, 793
	231, 973, 169	4, 852, 097, 300	3, 277, 924, 359	2, 549, 765, 193

¹ Gold valued per fine ounce as follows: Prior to 1933, \$20.67+; 1933, \$25.56; 1934, \$35.00.

The average commercial value per fine ounce of silver for the total recorded domestic production is \$0.778.

REGULATIONS AND EXECUTIVE ORDERS RELATING TO GOLD AND SILVER OF DOMESTIC ORIGIN

A complete account of the regulations pertaining to gold and silver is given in the chapter on Gold and Silver in Minerals Yearbook, 1935, issued by the United States Bureau of Mines. The Yearbook also contains detailed statistics of production, by States. It may be

purchased for \$2 from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Following is a brief résumé of orders and regulations issued in 1933 and 1934.

Gold.—On April 20, 1933, an Executive order relating to foreign exchange and the earmarking and exporting of gold coin, bullion, or currency forbade the export of gold bullion. On July 27 the newspapers announced a decision of the Attorney General, effective August 9, that permitted export to 75 percent of the United States gold-mine production but made it impracticable for the remaining 25 percent, a situation that soon would have resulted in the closing of many smelters.

The President on August 29, 1933, issued an Executive order, coupled with an antihoarding clause, under which the United States Government acted as agent for producers of newly mined gold to obtain the world price through the United States Mint and Federal Reserve banks.

On October 25, 1933, the Reconstruction Finance Corporation began buying newly mined gold at arbitrarily fixed and periodically rising prices, the day-by-day price generally being above the world price. On October 27 the Reconstruction Finance Corporation was authorized by Presidential order to extend Government purchase of gold by entering foreign markets and began to bid for gold in Paris and London markets, offering \$32.36 per ounce. On January 16, 1934, the Federal Reserve Bank of New York began paying depositors by check the United States price of \$34.45 per ounce, less a small commission, coincident with the President's message of January 15 to Congress recommending that the upper limit of permissible revaluation of the dollar be 60 percent. Payment for deposits was resumed on February 1 by the Bureau of the Mint, following passage of the Gold Reserve Act of 1934 on January 30, 1934, and the President's proclamation of January 31 fixed the weight of the gold dollar at $15\frac{1}{21}$ grains, nine-tenths fine. The value of gold per fine ounce immediately became \$35 and still remains at this price.

Silver.—On December 21, 1933, an Executive order fixed the price of silver derived from domestic mines and produced after the date of the order at 64.646464+ cents per fine ounce; this price was continued throughout 1934.

PRICES OF SILVER

Average monthly prices of fine bar silver, other than that from domestic mines, in New York in 1934 were as follows:

Price of fine bar silver (other than domestic) per ounce in New York in 1934, by months

January	\$0. 44498	August	\$0. 49298
February .....	. 45545	September .....	. 49796
March .....	. 46187	October .....	. 52682
April .....	. 45492	November .....	. 54567
May .....	. 44538	December .....	. 54702
June .....	. 45485		
July .....	. 46612	Average .....	. 48283

*Price of fine bar silver per ounce in New York, 1929-34*¹

1929	\$0. 533	1932	\$0. 282
1930 .....	. 385	1933 .....	. 350
1931 .....	. 290	1934 .....	. 483

¹ 1929-33: Average for all silver; 1934: Average for silver other than domestic.

The yearly price of silver showed a fairly regular downward trend—from \$1.337 and \$1.339 in 1865 and 1866 to \$0.507 in 1915. The World War caused the price to advance; the downward trend was steady from 1923 to 1927. There was an increase of about 2 cents per ounce in 1928, followed by a decrease of about 5 cents per ounce in 1929. The average yearly price decreased to \$0.385 for 1930, \$0.290 for 1931, and \$0.282 for 1932, but it increased to \$0.350 for 1933 and to \$0.646+ (for domestic silver) for 1934.

More than half the world output of silver is derived from ores valued chiefly for metals other than silver, so that the price of silver has less weight in encouraging the bulk of silver production that has the price of other metals associated with it. Only about one-third of the world silver output is derived from ores having silver as a highly predominant factor.¹

Other information relating to the production and consumption of silver has been published by the Bureau of Mines.²

IMPORTS AND EXPORTS ³

Value of gold and silver imported into and exported from the United States, 1933-34, by classes

	Imports	Exports	Excess of—	
			Imports	Exports
1933				
Gold:				
Contained in domestic ore and base bullion.....		\$2,606,607		\$2,606,607
Contained in foreign ore and base bullion.....	\$16,178,252	2,164	\$16,176,088	
Domestic bullion refined.....	44	267,007,686		267,007,642
Foreign bullion refined.....	169,203,250	78,020,502	91,182,748	
United States coin.....	4,878,001	16,399,795		11,521,794
Foreign coin.....	2,937,139	2,615,439	321,700	
	193,196,686	366,652,193	107,680,536	281,136,043
Excess exports over imports.....				173,455,507
Silver:				
Contained in domestic ore and base bullion.....		189,150		189,150
Contained in foreign ore and base bullion.....	6,508,385		6,508,385	
Domestic bullion refined.....	150	13,940,234		13,940,084
Foreign bullion refined.....	50,133,645	1,331,883	48,801,762	
United States coin.....	1,008,056	48,380	959,676	
Foreign coin.....	2,574,510	3,531,326		956,816
	60,224,746	19,040,973	56,269,823	15,086,050
Excess imports over exports.....			41,183,773	
1934				
Gold:				
Contained in ore and base bullion.....	36,273,557	493,201	35,780,356	
Bullion refined.....	1,140,764,166	52,230,263	1,088,533,903	
United States coin.....	7,178,725		7,178,725	
Foreign coin.....	2,454,062	35,200	2,418,862	
	1,186,670,510	52,758,664	1,133,911,846	
Excess imports over exports.....			1,133,911,846	
Silver:				
Contained in ore and base bullion.....	15,812,306	90,448	15,721,858	
Bullion refined.....	69,024,861	10,107,983	58,916,878	
United States coin.....	759,019	453,128	305,891	
Foreign coin.....	17,128,949	5,899,777	11,229,172	
	102,725,135	16,551,336	86,173,799	
Excess imports over exports.....			86,173,799	

¹ Merrill, Charles White, *Economic Relations of Silver to Other Metals in Argentiferous Ores*: Econ. Paper 10, Bureau of Mines, 1930, 29 pp.

² Merrill, Charles White, *Summarized Data of Silver Production*: Econ. Paper 8, Bureau of Mines, 1930, 58 pp.; *Consumption of Silver in the Arts and Industries of the United States*: Econ. Paper 14, Bureau of Mines, 1932, 18 pp.

³ Figures on imports and exports compiled by Claude Gallier, of the Bureau of Mines, from records of the Bureau of Foreign and Domestic Commerce.

DOMESTIC SUPPLY

The total excess of imports of gold over exports from 1916 to 1934, inclusive, was \$2,685,231,812. The only years since 1916 in which exports of gold exceeded imports were: 1919, when the excess was \$292,000,000; 1925, when it was \$134,000,000; 1928, when it was \$391,862,000; 1932, when it was \$446,212,000; and 1933, when it was \$173,456,000. The great gain in the domestic supply of gold is illustrated best by the following figures, which show the excess of imports over exports: 1916, \$530,000,000; 1917, \$180,000,000; 1918, \$21,000,000; 1920, \$95,000,000; 1921, \$667,000,000; 1922, \$238,000,000; 1923, \$294,000,000; 1924, \$258,000,000; 1926, \$98,000,000; 1927, \$6,000,000; 1929, \$175,000,000; 1930, \$280,000,000; 1931, \$145,325,000; and 1934, \$1,133,912,000.

The domestic supply of new gold comes chiefly from dry and siliceous ore and from placer gravel worked largely by dredges. These two sources yielded 90.2 percent of the domestic gold in 1915, 79.86 percent in 1930, 86.5 percent in 1931, 92.9 percent in 1932, 92.94 percent in 1933, and 92.68 percent in 1934. The proportionate output of gold from copper ore was 7.2 percent in 1915, 16.4 percent in 1926, 22.2 percent in 1929, 9.65 percent in 1931, and only 5.25 percent in 1934.

In 1915 dry and siliceous ore yielded 36 percent of the total silver; copper ore, 26 percent; lead ore, 27 percent; and lead-zinc ore, only 9 percent. In 1934 dry and siliceous ore yielded 26 percent; copper ore, 23.64 percent; lead ore, 9.59 percent; and lead-zinc ore, 29.08 percent. Thus, the largest gain in the output of silver has been from lead-zinc ore and the greatest loss from dry and siliceous ore. The recovery of silver from copper-lead ores has increased considerably in the last 3 years, owing to the rich silver content of some copper-lead ore from mines in Idaho. Copper-lead ores yielded 14.8 percent of the total silver in 1932, 15 percent in 1933, and 11.38 percent in 1934.

WORLD PRODUCTION

GOLD

According to the Bureau of the Mint, the estimated quantity of gold produced in the world from 1860 to 1934, inclusive, is 948,647,803 fine ounces. For 1934 alone it is estimated as 27,930,463 ounces, an increase of 2,563,068 ounces over 1933.

In a Bureau of Mines publication,⁴ the world output of gold from 1493 to 1927, inclusive, is estimated as approximately 1,003,560,000 ounces, of which 51.5 percent was produced from 1901 to 1927. Adding to this the production (159,599,122 ounces) from 1928 to 1934, inclusive, makes an estimated total for the period 1493-1934 of approximately 1,163,160,000 ounces.

In 1934 production of gold in the United States (Philippine Islands excluded) increased 464,995 ounces, and in the U. S. S. R. (Russia), 1,595,670 ounces. Other large increases were recorded as follows: Egypt, 200,942 ounces; Sweden, 116,550 ounces; Chile, 91,505 ounces; Philippine Islands, 60,781 ounces; New Guinea, 57,279 ounces; Belgian Congo, 54,303 ounces; Rhodesia, 48,178 ounces;

⁴ Ridgway, Robert H., Summarized Data of Gold Production: Econ. Paper 6, Bureau of Mines, 1929, 63 pp.

Australia, 47,038 ounces; British West Africa, 46,158 ounces; Colombia, 45,894 ounces; Central America and West Indies, 42,925 ounces; Japan, 37,594 ounces; France, 32,130 ounces; Bolivia, 31,412 ounces; French West Africa, 28,969 ounces; Mexico, 23,678 ounces; Canada, 20,371 ounces; Portuguese East Africa, 17,936 ounces; Peru, 14,792 ounces; Italy, 14,636 ounces; Venezuela, 13,345 ounces; Sarawak, 10,130 ounces; and Tanganyika, 10,090 ounces. The largest decreases were: Transvaal, Cape Colony, and Natal, 533,856 ounces; Taiwan, 19,250 ounces; British India, 13,913 ounces; Netherland East Indies, 12,537 ounces; and Brazil, 12,379 ounces.

The following table shows the output of gold by countries, 1930 to 1934, as estimated by the Bureau of the Mint.

World production of gold, 1930-34, by countries, in fine ounces

Country	1930	1931	1932	1933	1934
North America:					
Canada.....	2,107,073	2,695,219	3,050,581	2,949,309	2,969,680
Central America and West Indies.....	58,050	67,725	82,238	87,075	130,000
Mexico.....	670,488	623,003	584,487	697,727	661,405
Newfoundland.....				15,689	12,000
United States ¹	2,100,395	2,213,741	2,219,304	2,276,711	2,741,706
South America:					
Argentina.....	1,000		964	964	1,200
Bolivia.....	16,479	17,328	12,281	32,889	64,301
Brazil.....	96,750	115,473	115,451	128,000	113,621
Chile.....	16,686	21,380	38,098	147,054	238,559
Colombia.....	153,727	194,268	248,230	298,246	344,140
Ecuador.....	69,998	59,616	65,629	60,667	66,427
Guiana:					
British.....	6,933	6,944	18,714	31,056	25,000
French.....	43,538	43,531	45,010	42,456	47,454
Netherland.....	3,948	4,597	8,970	12,378	11,896
Peru.....	90,052	73,688	55,555	84,072	98,864
Uruguay.....				18	
Venezuela.....	55,946	42,309	77,087	95,710	109,055
Europe:					
Austria.....			257		
Czechoslovakia.....	2,411	1,093	2,283	2,283	7,588
France.....	42,663	42,663	43,402	57,870	90,000
Germany.....	6,076	4,115	2,186	5,498	5,755
Great Britain.....			6	64	51
Greece.....	482	483	482	482	
Hungary.....				2,861	1,833
Italy.....	1,723	2,165	1,832	2,565	17,201
Rumania.....	85,904	96,482	109,631	120,000	120,019
Spain.....	484	483	484	7,716	7,588
Sweden.....	60,000	90,000	90,000	135,930	252,480
U. S. S. R. (Russia).....	1,433,664	1,700,960	1,990,085	2,667,100	4,262,770
Yugoslavia.....	23,148	21,862	47,582	70,344	71,342
Asia:					
China.....	96,750	96,750	96,751	150,000	150,000
Chosen.....	159,608	208,626	208,626	369,991	369,991
East Indies, Netherland.....	110,435	100,083	77,964	78,832	66,295
Federated Malay States.....	29,597	27,021	27,159	31,107	31,777
India, British.....	329,231	330,484	329,632	336,106	322,193
Indo-China.....	514	289	289	161	7,073
Japan.....	388,740	434,037	434,037	433,800	471,394
Philippine Islands.....	179,204	181,981	229,728	279,535	340,316
Sarawak.....	1,730	5,901	8,178	18,712	28,842
Taiwan.....	15,576	92,430	92,430	92,430	73,180
Turkey.....	900	900	900		
Africa.....	11,749,557	11,927,961	12,735,979	12,448,275	12,340,549
Australasia.....	621,858	783,934	998,267	1,157,712	1,256,918
	20,836,318	22,329,525	24,150,761	25,367,395	27,930,463

¹ Philippine Islands excluded.

² Comprises Transvaal, Cape Colony, and Natal, 10,479,857 ounces; Rhodesia, 693,265 ounces; British West Africa, 384,268 ounces; Belgian Congo, 337,390 ounces; Egypt and Egyptian Sudan, 206,340 ounces; French Africa and Madagascar, 142,846 ounces; Tanganyika, 42,606 ounces; and other countries, 53,977 ounces.

SILVER

The Bureau of the Mint estimates the world production of silver from 1860 to 1934, inclusive, as 10,540,462,583 fine ounces. The output was 21,700,367 ounces more in 1934 than in 1933. The largest increases were: United States (Philippine Islands excluded), 9,665,622 ounces; Mexico, 6,043,950 ounces; Peru, 3,620,780 ounces; Canada, 1,254,298 ounces; Japan, 923,314 ounces; Italy, 913,228 ounces; Chile, 796,476 ounces; Belgian Congo, 752,906 ounces; U. S. S. R. (Russia), 341,000 ounces; and Australasia, 296,352 ounces. The only large decreases were in Central America, Spain, Germany, Burma, Bolivia, and France.

World production of silver, 1930-34, by countries, in fine ounces

Country	1930	1931	1932	1933	1934
North America:					
Canada.....	26,435,900	20,558,200	18,356,393	15,187,063	16,441,361
Central America and West Indies.....	3,900,000	4,000,000	4,300,000	4,800,000	3,500,000
Mexico.....	105,410,900	86,064,500	69,303,054	68,101,062	74,145,012
Newfoundland.....	(1)	(1)	(1)	1,208,280	1,150,000
United States ²	50,627,200	30,822,000	23,831,642	22,821,257	32,486,879
South America:					
Argentina.....	15,000		50,154	50,154	60,000
Bolivia.....	7,091,100	5,772,300	4,115,200	5,469,069	5,216,297
Brazil.....	20,000	10,000	10,000	10,000	10,000
Chile.....	732,400	320,200	103,780	256,621	1,053,097
Colombia.....	60,000	40,000	50,000	107,992	127,461
Ecuador.....	106,100	104,800	114,167	113,200	110,815
Guiana.....	7,500	6,000	6,000	6,000	6,000
Peru.....	15,500,400	10,942,500	6,735,360	6,760,534	10,381,314
Venezuela.....	4,200	4,200	6,000	6,000	7,000
Europe:					
Austria.....	10,200	10,200	27,938		14,017
Czechoslovakia.....	890,600	899,300	947,139	947,139	971,370
France.....	652,000	652,000	643,000	643,000	500,000
Germany.....	5,485,400	5,784,600	5,993,499	6,320,690	5,944,029
Great Britain.....	41,000	34,000	16,043	37,551	138,955
Greece.....	241,100	192,900	192,900	192,900	255,000
Hungary.....				15,593	9,163
Italy.....	571,700	719,300	801,499	377,592	1,290,820
Norway.....	337,800	297,400	292,565	241,125	196,120
Poland.....	558,700	558,700	69,283	41,377	21,155
Rumania.....	142,000	155,800	173,031	173,031	358,027
Spain.....	2,659,200	3,098,700	3,374,335	2,929,508	1,788,289
Sweden.....	75,000	80,000	80,000	244,822	519,717
U. S. S. R. (Russia).....	300,000	350,000	400,000	981,000	1,322,000
Yugoslavia.....	100,300	94,700	133,230	1,624,000	1,748,000
Asia:					
Burma.....	7,047,000	5,898,000	6,001,000	6,050,000	5,787,524
China.....	50,000	60,000	60,000	60,000	80,000
Chosen.....	68,800	203,500	209,332	702,976	702,976
East Indies, Netherland.....	2,094,200	1,473,100	842,362	860,463	771,361
India, British.....	25,000	25,000	25,737	30,241	30,000
Indo-China.....	3,200	1,600	2,724	1,607	3,601
Japan.....	5,628,600	6,183,300	6,360,643	5,958,842	6,882,156
Philippine Islands.....	110,300	97,100	149,131	181,372	212,613
Taiwan.....	15,200	17,200	17,713	17,713	16,075
Turkey.....	220,000	200,000	200,000		
Africa:					
Algeria.....	167,000	150,000	58,899	128,139	100,000
Bechuanaland.....	400	700	1,672	622	957
Belgian Congo.....	13,000	15,000	18,000	2,646,713	3,399,619
British West Africa (Gold Coast, Ashanti, Nigeria, Sierra Leone).....	200	252,900	86,402	117,480	82,400
East Africa, Portuguese.....	40	100	257	224	763
Eritrea.....				96	96
Rhodesia.....	73,360	70,500	114,893	112,459	128,568
Tanganyika, Uganda, Kenya Colony.....	1,400	1,900	4,431	5,505	7,228
Transvaal, Cape Colony, Natal.....	1,050,000	1,063,000	1,120,668	1,065,011	1,002,203
Australasia.....	10,165,000	8,628,800	9,492,726	11,553,031	11,849,383
	248,708,400	195,920,000	164,892,802	169,159,054	190,859,421

¹ Some production. Not recorded in report of Bureau of the Mint.² Philippine Islands excluded.

MINE REPORT

METHOD OF COLLECTING STATISTICS

The first table in this report presents the final official figures of the production of gold and silver in the United States in 1934, as agreed upon by the Bureau of the Mint and the Bureau of Mines. With the comparatively unimportant exceptions of domestic gold and silver contained in ore and matte exported for reduction during the year, these figures record the production of gold and silver bullion from domestic ore in marketable form as metals, either refined or unrefined.

To trace the gold and silver produced back to its source by States, counties, and mining districts, the Bureau of Mines systematically investigates the "mine production" of ores containing gold and silver and the output of the placer mines, the total being classified by methods of production and by kinds of ore, as well as by mining districts. The resulting figures form the basis of the mine reports.

Of the two plans for ascertaining the production of gold and silver, one is a measure of the metallurgic industry and the other of the mining industry; one reports the metal actually recovered in marketable form and the other the mine output and its recoverable content. The two methods will not produce identical results, but the figures for a period of years sufficiently long to compensate for overlap or lag should agree within allowable limits of error.

Gold and silver produced in the United States, 1905-34, according to mint and mine returns

Year	Mint		Mine	
	Gold ¹	Silver	Gold ¹	Silver
1905-30.....	\$1,880,334,300	<i>Fine ounces</i> 1,605,709,554	\$1,868,062,833	<i>Fine ounces</i> 1,596,126,967
1931.....	49,527,200	30,932,050	49,751,668	29,953,728
1932.....	50,626,000	23,980,773	53,218,073	22,899,865
1933.....	65,337,600	23,002,629	67,191,498	23,317,159
1934.....	108,191,400	32,725,353	109,014,594	32,995,017
Total, 1905-34.....	2,154,016,500	1,716,350,359	2,147,238,666	1,705,292,736
Fine ounces of gold.....	101,453,517	-----	101,096,635	-----

¹ Gold valued per fine ounce as follows: Prior to 1933, at \$20.67+; 1933, at \$25.56; 1934, mint at \$35.00 and mine at \$34.95.

According to mint reports, these figures show a total excess of gold for the 30 years of 356,882 ounces (a difference of 0.35 percent) and a total excess of silver of 11,057,623 ounces (a difference of 0.64 percent).

UNITS OF MEASUREMENT

In the measurement of ores and concentrates the short ton of 2,000 pounds is used.

Throughout 1932 and earlier years the price of gold was fixed by law at \$20.67+ per fine ounce, and in 1933 the legal coinage value was continued at \$20.67+. The average weighted price per fine ounce, as computed by the Bureau of Mines, was \$25.56 for the year 1933 and \$34.95 for 1934. For a discussion of prices of newly mined gold in 1933 and 1934, see page 328.

The annual average prices for silver from 1929 to 1934 are given on page 329.

MINES PRODUCING

LEADING GOLD PRODUCERS

About 1,660,900 fine ounces of gold (60 percent of the mine output of the United States—Philippine Islands and Puerto Rico excluded) in 1934 represented the yield of 25 operators, none of which produced less than 15,600 ounces. The output of the 25 largest producers in 1934 was only 45,500 ounces more than that of the 25 largest producers in 1933, although the total gold output of the United States (excluding Philippine Islands and Puerto Rico) increased 475,079 ounces. This indicates, as anticipated, that operators of the larger lode mines treated much lower grade gold ores in 1934 and, as the gold-dredge operators increased their output 81,552 ounces, that the dredges, new mines, and smaller mines were responsible for the increase in output of gold. The average recovery of gold per ton of dry and siliceous ores decreased from 0.180 ounce in 1933 to 0.156 ounce in 1934.

The Homestake mine in South Dakota was the largest producer in 1934, but with an output (in ounces) considerably less than in 1933. The Fairbanks Exploration Co. ranked second and was the largest producer from dredging gravel.

Of the 25 largest producers 9 were in California, 4 each in Alaska and Colorado, 3 in Utah, and 1 each in Arizona, Idaho, Nevada, New Mexico, and South Dakota. Of these companies 15 produced gold from dry and siliceous ores, 5 from gravel by floating dredges, 3 from copper ore, 1 from lead-zinc ore, and 1 from lead ore, lead-zinc ore, and siliceous ore.

The Benguet Consolidated Mining Co. (including the Balatoc mine, controlled by Benguet stockholders) in the Philippine Islands ranked between the Homestake mine and the Fairbanks Exploration Co. as a gold producer; its output increased in 1934 and will show a large increase again in 1935.

*Larger producers of gold in the United States in 1934, in order of output*¹

Rank	Operator	State	Mining district	Source of gold
1	Homestake Mining Co.-----	South Dakota.	Whitewood-----	Dry and siliceous ore.
2	Fairbanks Exploration Co.-----	Alaska	Fairbanks-----	Dredging gravel.
3	Alaska Juneau Gold Mining Co.-----	do.	Juneau-----	Dry and siliceous ore.
4	Golden Cycle Mining & Reduction Co. ²	Colorado.	Cripple Creek-----	Do.
5	Empire Star Mines Co., Ltd.-----	California.	Grass Valley-----	Do.
6	Natomas Co.-----	do.	Folsom-----	Dredging gravel.
7	Yuba Consolidated Gold Fields-----	do.	Yuba River and Snelling.	Do.
8	Phelps Dodge Corporation (Copper Queen).	Arizona.	Warren-----	Copper ore.
9	Utah Copper Co.-----	Utah.	West Mountain-----	Do.
10	Idaho-Maryland Mines Co.-----	California.	Grass Valley-----	Dry and siliceous ore.
11	London Gold Mines Co.-----	Colorado.	Mosquito-----	Do.
12	Willow Creek Mines, Inc.-----	Alaska	Willow Creek-----	Do.
13	Capital Dredging Co.-----	California.	Folsom-----	Dredging gravel.
14	Amer Gold Mining Co.-----	Colorado.	Mosquito-----	Dry and siliceous ore.
15	St. Joseph Lead Co.-----	Idaho.	Middle Boise-----	Do.
16	The Argonaut Mining Co., Ltd.	California.	Jackson-----	Do.
17	Hammon Consolidated Gold Fields.	Alaska.	Nome-----	Dredging gravel.
18	Eureka Standard Consolidated Mining Co.	Utah.	Tintic-----	Dry and siliceous ore.
19	United States Smelting, Refining & Mining Co.	do.	West Mountain-----	Lead ore, lead-zinc ore, and siliceous ore.
20	Carson Hill Gold Mining Corporation.	California.	Mother Lode-----	Dry and siliceous ore.
21	The Mountain Copper Co., Ltd.	do.	Iron Mountain-----	Do.
22	Original Sixteen to One Mine, Inc.	do.	Alleghany-----	Do.
23	Nevada Consolidated Copper Corporation.	Nevada.	Robinson-----	Copper ore.
24	Shenandoah-Dives Mining Co.-----	Colorado.	San Juan-----	Dry and siliceous ore.
25	American Metal Co. (Pecos mine)	New Mexico.	Willow Creek-----	Lead-zinc ore.

¹ Philippine Islands excluded.² Custom mill. Includes ore from Cresson, Portland, United Gold, and other mines.

A total of about 1,117,900 fine ounces of gold came from the smaller lode⁵ and placer mines (more than 12,000 in number), of which the majority produced only small quantities; some, however, had an output of more than 15,000 ounces. The yield from the placer mines (nearly 7,440 in number), other than those enumerated among the 25 largest producers of gold, was about 334,600 ounces, or less than 45 ounces per mine.

LEADING SILVER PRODUCERS

The output of silver from the 25 leading producing companies in 1934 was nearly 23,970,000 ounces, or 73 percent of the mine total (Philippine Islands and Puerto Rico excluded). Nine of these companies (3 each in Idaho and Utah and 1 each in Arizona, Colorado, and Montana) produced more than 1,000,000 ounces each, and none yielded less than 259,000 ounces.

Of the 25 largest producers 6 were in Utah, 5 in Idaho, 3 each in Colorado, Montana, and Nevada, 2 each in Arizona and New Mexico, and 1 in Texas. Only 5 of these producers derived all their silver from dry and siliceous ores; the great bulk of the silver came from base ores, mainly lead-zinc, copper, and copper-lead ores.

Larger producers of silver in the United States in 1934, in order of output

Rank	Operator	State	Mining district	Source of silver
1	Sunshine Mining Co.....	Idaho.....	Evolution.....	Copper-lead ore.
2	Anaconda Copper Mining Co.....	Montana.....	Summit Valley (Butte).	Copper ore and lead-zinc ore.
3	Phelps Dodge Corporation (Copper Queen)	Arizona.....	Warren.....	Copper ore.
4	Empire Zinc Co.....	Colorado.....	Battle Mountain	Do.
5	United States Smelting, Refining & Mining Co.....	Utah.....	West Mountain.....	Lead ore, lead-zinc ore, and siliceous ore.
6	Silver King Coalition Mines Co.....	.....do.....	Uintah.....	Lead-zinc ore.
7	Hecla Mining Co.....	Idaho.....	Lelande.....	Lead ore.
8	Bunker Hill & Sullivan Mining & Concentrating Co.....	.....do.....	Yreka.....	Lead ore and lead-zinc ore.
9	Tintic Standard Mining Co.....	Utah.....	Tintic.....	Lead ore and siliceous ore.
10	American Metal Co. (Presidio mine)	Texas.....	Shafter.....	Siliceous ore.
11	Magma Copper Co.....	Arizona.....	Pioneer.....	Copper ore and siliceous ore.
12	Treadwell Yukon Co., Ltd.....	Nevada.....	Tybo.....	Lead-zinc ore.
13	Federal Mining & Smelting Co. (Morning mine)	Idaho.....	Hunter.....	Do.
14	American Metal Co. (Pecos mine)	New Mexico.....	Willow Creek.....	Do.
15	Combined Metals Reduction Co.....	Nevada.....	Pioche.....	Do.
16	Park City Consolidated Mining Co.....	Utah.....	Blue Ledge.....	Do.
17	Tonopah Mining Co.....	Nevada.....	Tonopah.....	Dry and siliceous ore.
18	Utah Copper Co.....	Utah.....	West Mountain.....	Copper ore.
19	Trout Mining Co.....	Montana.....	Flint Creek.....	Lead-zinc ore.
20	Black Hawk Consolidated Mines Co.....	New Mexico.....	Central.....	Do.
21	Crescent Mining Co.....	Idaho.....	Yreka.....	Copper-lead ore.
22	Commodore Mining Co.....	Colorado.....	Creede.....	Dry and siliceous ore.
23	Eureka Standard Consolidated Mining Co.....	Utah.....	Tintic.....	Do.
24	Shenandoah-Dives Mining Co.....	Colorado.....	San Juan.....	Do.
25	Butte Copper & Zinc Co.....	Montana.....	Summit Valley.....	Lead-zinc ore.

NUMBER OF MINES

The following table indicates the number of mines that produced gold and silver in 1934. The placers are those in which the gold and the silver in natural alloy with the gold and, in a few placers, with platinum are recovered from gravel and sand, whether by hand wash-

⁵ Gardner, E. D., and Johnson, C. H., Mining and Milling Practices at Small Gold Mines: Inf. Circ. 6800, Bureau of Mines, 1934, 31 pp.

ing, sluicing, hydraulicking, drifting (in frozen ground or ancient buried river channels), or dredging. The lode mines are those yielding gold and silver (from ore as distinguished from gravel) mainly from underground workings, including those that yield ore valuable chiefly for copper, lead, or zinc but that contribute precious metals as byproducts. In addition to producing mines enumerated here many properties were being prospected and developed, and many other mining claims were being held by assessment work only.

The enumeration of placer mines is less satisfactory than that of lode mines, because some are operated only temporarily and are individually small and because much of the production is made by transitory miners not regularly working placer ground. So far as possible the unit, as for lode mines, is not the operator but the mining claim or group of claims.

In 1934 the total number of placer mines active in the States in which gold is obtained by placer mining was nearly double that in 1933. The production of gold in 1934 by the 7,444 placer operations (Philippine Islands and Puerto Rico excluded) was 721,380 fine ounces, of which 55 companies operating 74 dredges produced 513,073 ounces, an average of 6,933 ounces to the dredge; the other placers had an output of 208,307 ounces of gold, an average of about 28 ounces. However, many of the placer mines operated by hydraulic and drifting methods had comparatively large outputs, so that the average recovery of gold by more than 7,000 of the placer mines was very small. The largest increases in the number of placers were reported from Arizona, California, Colorado, Idaho, Montana, and Washington; most of the new operations were on a small scale. The number of dredges increased from 63 in 1933 to 74 in 1934, and they yielded 71 percent of the placer gold in 1934 although some of them treated lower-grade gravel than in former years.

The number of lode mines producing gold or silver increased 42 percent in 1934. Most of the activity was at mines treating siliceous ore, but there was also a large increase in the number of mines treating base ores containing gold and silver. The higher price of the base metals and the increased value of the gold and silver content of the base ores resulted in the reopening of a large number of mines. The greatest increases in number of lode mines operated were in Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Washington; some other States also showed increases.

Number of mines in the United States producing gold and silver in 1934, by States ¹

State	Placer	Lode	Total	State	Placer	Lode	Total
Alabama.....	1	1	2	New York ²		1	1
Alaska ²	600	40	640	North Carolina.....	14	12	26
Arizona.....	867	747	1,614	Oregon.....	332	95	427
California.....	1,784	867	2,651	Pennsylvania.....		1	1
Colorado.....	967	929	1,896	South Carolina.....	5	7	12
Georgia.....	20	7	27	South Dakota.....	258	8	266
Idaho.....	1,172	291	1,463	Tennessee ²		2	2
Illinois ²		2	2	Texas.....		8	8
Michigan ²		2	2	Utah.....	28	190	218
Missouri ²		1	1	Virginia ²	3	1	4
Montana.....	654	583	1,237	Washington.....	210	62	272
Nevada.....	160	635	795	Wyoming.....	41	10	51
New Mexico.....	328	153	481				
					7,444	4,655	12,099

¹ Philippine Islands and Puerto Rico excluded.

² Estimate.

³ Number of mines contributing to production of gold or silver.

Number of mines in the United States producing gold and silver, 1930-34¹

Year	Placer	Lode	Total	Year			
				Placer	Lode	Total	
1930.....	1,799	1,984	3,783	1934.....	7,444	4,655	12,099
1931.....	2,081	1,988	4,069				
1932.....	3,496	2,871	6,367				
1933.....	3,742	3,283	7,025					Average.....	3,713	2,956	6,669

¹ Philippine Islands and Puerto Rico excluded.

MINE PRODUCTION

SUMMARY

The following table gives the mine production of gold and silver in 1934, by States, as reported to the Bureau of Mines by the producing mines.

Mine production of gold and silver in the United States in 1934, by States

State	Gold		Silver		Increase or decrease from 1933 (fine ounces)	
	Fine ounces	Value ¹	Fine ounces	Value ²	Gold	Silver
Alabama.....	2,780.71	\$97,186	361	\$233	+2,776.74	+361
Alaska.....	537,281.83	18,778,000	168,868	109,167	+67,995.95	+11,718
Arizona.....	167,024.12	5,837,493	4,448,474	2,875,781	+87,031.51	+2,058,111
California.....	719,063.92	25,131,284	844,413	545,883	+105,485.07	+441,822
Colorado.....	324,923.32	11,356,070	3,475,661	2,246,892	+82,095.62	+1,289,521
Georgia.....	969.91	33,898	48	31	+411.51	-17
Idaho.....	84,817.20	2,964,361	7,394,143	4,780,052	+20,224.97	+406,133
Illinois.....			310	200		-1,112
Maryland.....					-13.50	
Michigan.....	58.63	2,049	529	342	+48.96	-125,397
Missouri.....			63,066	40,770		+63,066
Montana.....	97,445.95	3,405,736	4,006,468	2,590,040	+39,623.75	+1,345,768
Nevada.....	144,275.17	5,042,417	3,057,114	1,976,316	+45,684.89	+1,908,493
New Mexico.....	27,307.01	954,380	1,061,775	686,400	+832.92	-119,805
New York.....			26,406	17,071		+26,406
North Carolina.....	508.70	17,779	9,710	6,277	-215.94	-1,782
Oregon.....	33,711.59	1,178,220	46,560	30,099	+13,471.93	+25,800
Pennsylvania.....	623.00	21,774	6,230	4,027	+414.02	+3,930
Philippine Islands.....	340,314.02	11,893,975	212,700	137,503	+15,274.56	+26,137
Puerto Rico.....	57.00	1,993	13	8	+30.00	+13
South Carolina.....	642.03	22,439	487	315	+407.46	+384
South Dakota.....	486,118.97	16,989,858	99,741	64,479	-26,284.80	-25,676
Tennessee.....	455.00	15,902	61,148	39,530	+231.51	+21,279
Texas.....	358.74	12,538	854,442	552,367	+358.74	+854,282
Utah.....	136,581.52	4,773,524	7,111,417	4,597,280	+27,451.97	+1,442,220
Virginia.....	667.10	23,315	103	67	+634.88	+103
Washington.....	8,301.83	290,149	44,120	28,522	+3,739.15	+25,600
Wyoming.....	4,871.36	170,254	710	459	+2,671.41	+450
	3,119,158.63	109,014,594	32,995,017	21,330,111	+490,383.28	+9,677,858

¹ Gold value computed at average weighted price (\$34.95 per fine ounce).

² Silver value computed at Treasury buying price for newly mined domestic silver (\$0.64646464 per fine ounce).

The mine production of gold in the United States amounted to 3,119,158.63 fine ounces in 1934 compared with 2,628,775.35 ounces in 1933. The value of the output in 1934, based on the average weighted price of \$34.95 per ounce, was \$109,014,594, or \$41,823,096 more than in 1933 when the average weighted price was \$25.56 per ounce.

All the States but North Carolina and Maryland showed increase in value of gold produced, and all but South Dakota, North Carolina,

and Maryland reported increase in quantity. The States making the largest gains were: California (105,485 ounces), Arizona (87,032 ounces), Colorado (82,096 ounces), Alaska (67,996 ounces), Nevada (45,685 ounces), Montana (39,624 ounces), Utah (27,452 ounces), and Idaho (20,225 ounces).

The total increase in quantity of silver produced in 1934 was 9,677,858 fine ounces, and the total increase in value was \$13,169,105. The States with the largest increases were: Arizona (2,058,111 ounces), Nevada (1,908,493 ounces), Utah (1,442,220 ounces), Montana (1,345,768 ounces), Colorado (1,289,521 ounces), Texas (854,282 ounces), California (441,822 ounces), and Idaho (406,183 ounces). Michigan, New Mexico, and South Dakota were the only States that showed any appreciable decrease in output of silver in 1934.

ORE PRODUCTION, CLASSIFICATION, AND AVERAGE METAL YIELD

The best index of lode mining is the quantity, metallic content, and value of ore mined rather than the number of mines or operators. The following table shows the production of ore from mines producing gold and silver and the average extraction of precious metals per ton of ore.

The classification adopted is necessarily arbitrary in part. The complex nature of western ores especially and the gradations from one well-recognized class to another render a fixed terminology essential. The dry and siliceous ores comprise gold and silver ores proper, as well as fluxing ores carrying considerable quantities of iron and manganese oxides and very small quantities of gold and silver, and precious metal-bearing ores carrying copper, lead, or zinc in quantities too low to permit their classification as copper, lead, zinc, or mixed ores. The distinction between gold ore and silver ore is not made here. The total number of silver mines and the total production of true silver ore are both comparatively small. The copper ores include those containing 2.5 percent or more of copper, or less than this percentage in the great disseminated copper deposits of the West and in the Lake Superior ores. In general, the lead ores are those containing 5 percent (dry assay) or more of lead, and the zinc ores are those containing 16 percent or more of zinc, both irrespective of their precious-metal content. However, ores of lower grades in lead and especially in zinc are treated profitably in many districts; they are then, of course, classified as lead ore or zinc ore, as the case may be. The mixed ores are combinations of those enumerated.

The lead, zinc, and lead-zinc ores in most districts in the Eastern and Central States carry no appreciable quantity of gold or silver; such ores are excluded from this report.

The total quantity of ore (from which gold or silver was produced) sold or treated annually decreased from 68,000,000 tons in 1918 to 21,500,000 tons in 1921, then increased steadily until 1926 when the total was 65,787,864 tons. In 1927 the total quantity of ore was 64,526,920 tons; in 1928, 69,747,193 tons; in 1929, 75,653,924 tons, much the largest output ever recorded; in 1930, 53,972,449 tons; in 1931, 41,985,920 tons; in 1932, 21,451,974 tons; in 1933, 19,192,723 tons; and in 1934, 26,149,668 tons.

Ore produced in the United States and average recovery in fine ounces of gold and silver per ton, 1930-34¹

State	Dry and siliceous ore			Copper ore			Lead ore			Zinc ore			Copper-lead and copper-lead-zinc ores			Lead-zinc ore			Total ore (short tons)	
	Short tons	Average ounces per ton		Short tons	Average ounces per ton		Short tons	Average ounces per ton		Short tons	Average ounces per ton		Short tons	Average ounces per ton		Short tons	Average ounces per ton			
		Gold	Silver		Gold	Silver		Gold	Silver		Gold	Silver		Gold	Silver		Gold	Silver		
Alaska.....	4,390,000	0.046	0.03																4,390,000	
Arizona.....	373,073	.209	1.69	2,845,604	0.027	1.22	16,203	0.206	10.43				47	0.160	21.62		35,315	0.075	5.35	3,270,242
California.....	2,299,699	.193	.33	53,357	.001	.002	2,160	.506	23.02			864	11	.276	154.00					2,356,091
Colorado.....	1,164,575	.259	1.23	135,082	.041	14.27	5,677	.455	12.39				201	.914	11.49		3,652	.101	10.16	1,309,187
Idaho.....	202,784	.275	1.34	1,020	.012	4.26	240,465	.002	5.57				118,927	.001	31.07		723,986	.002	2.87	1,287,182
Michigan.....	800	.073	.02	(¹)																800
Montana.....	287,828	.225	2.11	458,587	.003	3.94	10,321	.247	14.80	65,913		0.11					244,303	.013	5.84	1,066,952
Nevada.....	901,454	.132	1.67	1,819,913	.009	.04	24,931	.072	11.15				72	.192	47.19		153,412	.014	7.76	2,899,782
New Mexico.....	55,606	.137	3.42	1,000,972	.001	.02	807	.268	6.22	66,353			1,176	.001	18.58		272,795	.057	3.01	1,397,709
Oregon.....	61,842	.185	.69				3	.803	11.67								300	.006	1.92	62,145
South Dakota.....	1,520,669	.319	.07																	1,520,669
Texas.....	47,625	.008	17.93				54	.013	9.61				1		19.00					47,680
Utah.....	478,119	.151	4.10	4,092,303	.011	.09	67,634	.074	14.88				127	.026	44.24		438,552	.035	8.58	5,076,735
Washington.....	19,420	.335	1.82				160	.084	46.21								28,322		.04	47,902
Wyoming.....	8,164	.245	.04	3			6	.053	5.17											8,173
Eastern States.....	41,232	.109	.03	1,168,251	.001	.07						(⁴)					198,936		.13	61,408,419
1934: Total.....	11,852,890	.156	.72	11,575,092	.013	.67	368,421	.046	8.53	133,130		.05	120,562	.003	30.95		2,099,573	.019	4.54	26,149,668
Percentage.....	45.33			44.26			1.41		0.51				0.46				8.03			100.00
1933: Total.....	8,680,376	.180	.42	8,363,586	.013	.70	717,649	.019	5.47	122,594	0.002	.58	126,207	.001	27.49		1,182,311	.036	5.20	19,192,723
Percentage.....	45.23			43.57			3.74		0.64				0.66				6.16			100.00
1932: Total.....	8,226,167	.197	.48	11,504,946	.009	.45	697,168	.023	7.02	41,410		.07	167,106		20.18		815,177	.062	6.49	21,451,974
1931: Total.....	8,329,009	.177	.52	30,966,550	.007	.31	894,636	.020	6.84	97,950		.06	213,245	.006	13.09		1,484,530	.045	4.69	41,985,920
1930: Total.....	7,767,289	.163	1.13	41,723,797	.008	.33	1,380,641	.019	6.36	249,366	.001	1.80	246,430	.013	12.38		2,604,926	.026	5.01	53,972,449

¹ Illinois, Missouri, Philippine Islands, and Puerto Rico excluded; quantity of crude ore containing gold and silver unknown. Copper ore from Michigan also excluded, as the silver recovered at copper mine in 1934 was native silver in lumps and not recovered from copper bullion.

² Current slag fumed.

³ Includes pyritiferous magnetite ore from Pennsylvania yielding 6,231 tons of copper concentrates.

⁴ Zinc ore yielded no gold or silver.

⁵ Figures represent New York only; lead-zinc ore from other Eastern States yielded no gold or silver.

⁶ Includes low-grade pyritiferous magnetite ore from Pennsylvania; excludes ore containing no gold or silver.

The 11,852,890 tons of dry and siliceous ores treated in 1934 yielded an average of 0.156 ounce of gold and 0.72 ounce of silver per ton, and the 14,296,778 tons of base ores containing gold and silver yielded only 0.014 ounce of gold but 1.69 ounces of silver per ton. It is evident that any large increase in gold must come from placers and from dry and siliceous ores and that any large increase in silver will come from the base ores of which copper ore constituted 81 percent in 1934. The quantity of copper ore in 1934, although larger than in 1933, was still much below normal.

About 88,100 tons more siliceous ore were treated in South Dakota in 1934 than in 1933, and 0.038 ounce less gold was recovered per ton; 1,017,856 tons more were treated in California, and 0.081 ounce less gold was recovered per ton; 219,000 tons more were treated in Alaska, and 0.007 ounce less gold was recovered per ton; and 422,675 tons more were treated in Colorado, and 0.050 ounce less gold was recovered per ton. These four States yielded 79 percent of the total dry and siliceous ore treated and 77 percent of the total gold from such ores in 1934. About 50,565,700 tons less copper ore containing gold and silver were sold or treated in 1934 than in 1929 but about 3,211,500 tons more than in 1933. The quantity of lead ore containing gold and silver was less than one-fourth of that in 1929 and about 349,200 tons less than in 1933. The quantity of lead-zinc ore containing gold and silver increased about 917,300 tons, but the average recovery of gold and silver per ton decreased appreciably. The quantity of copper-lead and copper-lead-zinc ores in 1934 was the smallest since 1922, but the average silver recovered per ton was 3.46 ounces above that in 1933 and nearly 11 ounces above that in 1932.

The quantity of gold recovered from the 14,296,778 tons of base ores in 1934 totaled 203,513 ounces and the silver 24,162,290 ounces compared with 162,544 ounces of gold and 19,452,659 ounces of silver from 10,512,347 tons in 1933.

GOLD, BY SOURCES

As the following table indicates, 92.68 percent of the domestic output of gold in 1934 was obtained from dry and siliceous ores (normally gold quartz and gold-silver quartzose ores) and placers compared with 92.94 percent in 1933. The total contribution of gold from the great copper, lead, and zinc mines was 7.32 percent compared with 7.06 percent in 1933.

Mine production of gold in the United States in 1934, by States, in fine ounces ¹

State	Placers	Dry and siliceous ore	Copper ore	Lead ore	Zinc ore	Copper-lead ore	Lead-zinc ore	Total
Alabama	4.71	2,776.00						2,780.71
Alaska	335,795.83	201,486.00						537,281.83
Arizona	6,982.26	77,949.51	76,092.34	3,333.44		7.53	2,659.04	167,024.12
California	274,024.83	443,906.79	36.31	1,092.95		3.04		719,063.92
Colorado	14,972.99	301,231.49	5,582.37	2,582.81		183.76	369.90	324,923.32
Georgia	542.50	427.41						969.91
Idaho	27,256.37	55,822.40	12.66	397.00		116.41	1,212.36	84,817.20
Michigan		58.63						58.63
Montana	25,543.89	64,885.24	1,396.18	2,544.41			3,076.23	97,445.95
Nevada	5,248.91	118,987.26	16,138.79	1,792.96		13.80	2,093.45	144,275.17
New Mexico	2,587.64	7,645.62	1,223.92	216.24		1.20	15,632.39	27,307.01
North Carolina	218.26	90.44	200.00					508.70
Oregon	22,239.91	11,467.37		2.41			1.90	33,711.59
Pennsylvania ²			623.00					623.00
South Carolina	98.77	543.26						642.03
South Dakota	1,080.20	485,038.77						486,118.97
Tennessee			455.00					455.00
Texas		358.02		.72				358.74
Utah	128.04	72,048.83	44,169.71	4,979.84		3.24	15,251.86	136,581.52
Virginia	10.10	657.00						667.10
Washington	1,773.45	6,514.93		13.45				8,301.83
Wyoming	2,871.36	1,999.68		.32				4,871.36
1934: Total	721,380.02	1,853,894.65	145,930.28	16,956.55		328.98	40,297.13	2,778,787.61
Percentage	25.96	66.72	5.25	0.61		0.01	1.45	100.00
1933: Total	579,908.73	1,561,256.19	105,837.82	13,507.73	253.75	111.05	42,833.62	2,303,708.89
Percentage	25.17	67.77	4.59	0.59	0.01	0.01	1.86	100.00

¹ Philippine Islands and Puerto Rico excluded. The Bureau of Science, Manila, P. I., reports that bullion from lode mines of the Philippine Islands in 1934 yielded 338,146.54 ounces of gold and placer mines 2,167.48 ounces.

² From pyritiferous magnetite ore.

Examination of the data on domestic mine production of gold from various sources shows that the recovery from placer mines was 27 percent of the total output from 1906 to 1910, inclusive. In recent years the placers have yielded the following percentages of the total output of gold: 1929, 19.83; 1930, 20.59; 1931, 20.36; 1932, 23.37; 1933, 25.17; and 1934, 25.96 percent. From 1911 to 1915, inclusive, the gold recovered from dry and siliceous ore represented 67 percent of the total output; in 1930, 59.27 percent; in 1931, 66.16 percent; in 1932, 69.53 percent; in 1933, 67.77 percent; and in 1934, 66.72 percent. The gold recovered from copper ore increased from 5.8 percent of the total from 1906 to 1908, inclusive, to 22.24 percent in 1929, declined to 4.24 percent in 1932, and increased to 4.59 percent in 1933 and to 5.25 percent in 1934. The recovery of gold from all other base ores (about 2.3 percent of the total from 1906 to 1910, inclusive, and nearly 6 percent in 1927) declined to 2.47 percent in 1933 and to 2.07 percent in 1934.

Gold produced in the United States, by sources, as reported by mines, 1922-34, in fine ounces ¹

Year	Placers	Dry and siliceous ore	Copper ore	Lead ore	Zinc ore	Copper-lead and copper-lead-zinc ores	Lead-zinc ore	Total
1922-30	4,151,128	12,083,444	2,999,541	350,851	11,315	33,925	505,004	20,135,208
1931	452,862	1,471,738	214,745	17,648		1,175	66,561	2,224,729
1932	544,433	1,620,102	98,914	15,788		48	50,735	2,330,020
1933	579,909	1,561,256	105,838	13,508	254	111	42,833	2,303,709
1934	721,380	1,853,895	145,930	16,957		329	40,297	2,778,788

¹ Philippine Islands and Puerto Rico excluded.

PLACERS

Although placer operations have increased greatly in number during the last 3 years, many of them have yielded relatively small quantities of gold. Compared with 1933 the number increased 99 percent and the gold recovered 24.4 percent. Placers in Alaska, California, Idaho, Montana, and Oregon produced 684,861 ounces in 1934, whereas the 2,902 placer mines in the other States yielded only 36,519 ounces or an average of about 12.6 ounces. The States showing the largest increases in output from placers were: Alaska (86,568 ounces), Montana (16,839 ounces), California (12,646 ounces), Colorado (9,647 ounces), Oregon (7,457 ounces), Idaho (3,966 ounces), Arizona (1,852 ounces), New Mexico (1,188 ounces), and Wyoming (1,038 ounces).

Placer gold is obtained chiefly by dredging, which method yielded 71 percent of the total placer output in 1934, and by hydraulicking, drift mining, and sluicing; the last two methods named are relatively unimportant except in a few States. A small but increasing quantity of gold is recovered by dry placer mining in Arizona, California, and New Mexico, and a small quantity of gold and platinum comes from ocean-beach mining in California and Oregon. At one placer mine in Wyoming a gasoline-driven drag-line shovel is used to bring gravel to a movable plant equipped with a gold-dredge trommel and standard-dredge sluice boxes.⁶

Dredging.—The quantity of gold recovered by dredges in the United States (Philippine Islands excluded) from the inception of the industry as a commercial factor in 1896 to the end of 1934 is recorded as 13,340,241 fine ounces, originating by States as follows: California, 8,838,581 ounces; Alaska, 2,934,935 ounces; Montana, 482,228 ounces; Colorado, 411,616 ounces; Idaho, 343,156 ounces; Oregon, 295,324 ounces; and other States, 34,401 ounces.

The output was 513,073 ounces from 74 dredges in 1934 compared with 431,521 ounces from 63 dredges in 1933 (revised figures). Of the total in 1934, Alaska produced 269,082 ounces from 30 dredges; California, 194,051 ounces from 30 dredges; Idaho, 15,852 ounces from 5 dredges; Montana, 15,058 ounces from 2 dredges; Oregon, 9,254 ounces from 4 dredges; Colorado, 7,292 ounces from 2 dredges; and Arizona, 2,484 ounces from 1 dredge. Of the total in 1933, California produced 201,710 ounces from 25 dredges; Alaska, 200,563 ounces from 25 dredges; Idaho, 17,361 ounces from 4 dredges; Oregon, 4,736 ounces from 4 dredges; Montana, 3,136 ounces from 2 dredges (revised figures); Colorado, 2,814 ounces from 2 dredges; and Arizona, 1,201 ounces from 1 dredge.

Gold produced in the United States by dredges, 1930-34, in fine ounces

Year	Dredges	California	Alaska	Other States ¹	Total
1930.....	60	166,981	189,272	18,084	374,337
1931.....	58	175,086	181,358	10,837	367,281
1932.....	57	188,831	207,674	17,181	413,686
1933.....	63	201,710	200,563	29,248	431,521
1934.....	74	194,051	269,082	49,940	513,073

¹ Arizona, Colorado, Idaho, Montana, and Oregon.

² Revised figures.

⁶ Ross, Charles L., and Gardner, E. D., *Placer-Mining Methods of E. T. Fisher Co.*, Atlantic City, Wyo., Inf. Circ. 6846, Bureau of Mines, 1935, 11 pp.

Gold dredges operated in the United States in 1934

ALASKA

Name	Address	District	Number of dredges
Northern Star Dredging Co.....	Council	Council	1
Ophir Gold Dredging Co.....	Nome	do	1
Chatham Gold Dredging Co.....	Fairbanks	Fairbanks	1
Fairbanks Exploration Co.....	do	do	5
Fish Creek Mining Co.....	do	do	1
J. R. Murphy, lessee from Fairbanks Gold Dredging Co., Ltd.	Meehan	do	2
Forsgren Dredging Co.....	Deering	Fairhaven	1
Keewalk Mining Co.....	Candle	do	1
Walker's Fork Gold Corporation	Steel Creek	Fortymile	1
American Creek Operating Co.....	Fairbanks	Hot Springs	1
North American Dredging Co.....	Flat	Iditarod	1
J. E. Riley Investment Co.....	do	do	1
Felder-Gale & Co.....	Takotna	Innoko	1
Ganes Creek Dredging Co.....	Ophir	do	1
W. F. Puntilla.....	do	do	2
Coal Creek Dredging Co.....	Nome	Kougarok	1
Dime Creek Dredging Co.....	Haycock	Koyuk	1
Dry Creek Dredging Co.....	Nome	Nome	1
Hammon Consolidated Gold Fields	do	do	2
Sunset Mines Corporation	do	do	1
N. B. Tweet & Son.....	Teller	Port Clarence	1
Spruce Creek Dredging Co.....	Solomon	Solomon	1
New York Alaska Gold Dredging Corporation.....	Akiak	Tuluksak-Aniak	1

ARIZONA

Lynx Creek Placer Mine Co.....	Prescott	Lynx Creek	1
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CALIFORNIA

Allen Dredge.....	Burson	Camanche	1
Charles Staheli.....	Cottonwood	Cottonwood Creek	1
Sierra Gold Dredging Co.....	San Francisco	Dobbins	1
Capital Dredging Co.....	do	Folsom	3
Gold Hill Dredging Co.....	do	do	1
Natomas Co.....	Sacramento	do	6
Oro Bell Dredging Co.....	do	Gold Run	1
M. D. Baker.....	Igo	Igo	1
La Grange Gold Dredging Co.....	San Francisco	La Grange	1
Lancha Plana Gold Dredging Co.....	Camanche	Lancha Plana	1
Trinity Dredging Co.....	Lewiston	Lewiston	1
Canyon Creek Dredge.....	San Francisco	Mother Lode	1
Gold Bar Dredging Corporation.....	Lewiston	New River	1
Cal Oro Dredging Co.....	San Francisco	North Central	1
Oroville Gold Dredging Co.....	Oroville	Oroville	1
Lloyd B. Onyett Dredging Co.....	Palermo	Palermo	1
Snelling Gold Dredging Co.....	San Francisco	Snelling	1
Yuba Consolidated Gold Fields	do	do	1
Do.....	do	Yuba River	5

COLORADO

Continental Dredging Co.....	Breckenridge	Breckenridge	1
Tiger Placers Co.....	Tiger	do	1

IDAHO

Little Smoky Dredging Co.....	Boise	Little Smoky	1
Gold Dredging, Inc.....	Pierce	Pierce	1
Idaho Gold Dredging Co.....	Warren	Warren	2
Warren Creek Dredging Co.....	do	do	1

MONTANA

Yuba Consolidated Gold Fields.....	San Francisco	Ophir	1
Pioneer Placer Dredging Co.....	Goldcreek	Pioneer	1

OREGON

Monarch Gold Dredging Co.....	Baker	Canyon	1
Rogue River Gold Co.....	Rogue River	Foots Creek	1
Pioneer Gold Dredging Co.....	Baker	Mormon Basin	1
Timms Gold Dredging Co.....	Galena	Susanville	1

Additional information on this subject may be found in issues of Minerals Yearbook and Mineral Resources, in reports of the Director of the Mint, and in reports of geological surveys or mining officials of the various States.

DRY AND SILICEOUS ORES

The siliceous ore comprises free-milling (amalgamating) ore, as in Alaska, California, and Oregon; both amalgamating and concentrating ore, as in many States; concentrating ore, as in parts of Colorado and Arizona; all-sliming and cyaniding ore, as in Nevada; and smelting ore. The material smelted consists mainly of concentrates and of siliceous and pyritic ores which are also valuable as fluxes. Tailings from both old dumps and current millings are reworked largely by concentration and subsequent cyanidation or smelting. The treatment of siliceous gold and silver ores by flotation and by smelting the resulting concentrates is increasing; the quantity of ore so treated increased from 359,919 tons in 1931 to 450,275 tons in 1932, 639,579 tons in 1933, and 1,393,923 tons in 1934. The relative output by methods and States is shown on page 348.

Nearly all the siliceous ore in three of the largest gold-producing States—Alaska, California, and South Dakota—yields only a small quantity of silver and is classed as gold ore. The siliceous ore from Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, and Utah includes some silver and gold-silver ores. In 1934, mines in Alaska, California, Colorado, and South Dakota produced 79 percent of the total siliceous ores and 77 percent of the gold recovered from such ores.

Siliceous ore treated and gold recovered per ton of ore treated, 1930-34

Year	Alaska		California		South Dakota		Colorado	
	Ore treated	Recovery per ton	Ore treated	Recovery per ton	Ore treated	Recovery per ton	Ore treated	Recovery per ton
	<i>Short tons</i>	<i>Ounce</i>	<i>Short tons</i>	<i>Ounce</i>	<i>Short tons</i>	<i>Ounce</i>	<i>Short tons</i>	<i>Ounce</i>
1930.....	3,936,000	0.045	730,712	0.344	1,365,156	0.298	710,491	0.274
1931.....	4,195,000	.054	1,008,411	.310	1,404,153	.308	811,619	.281
1932.....	4,068,000	.056	978,218	.343	1,409,893	.340	885,087	.353
1933.....	4,171,000	.053	1,281,843	.274	1,432,555	.357	741,900	.309
1934.....	4,390,000	.046	2,299,699	.193	1,520,669	.319	1,164,575	.259

COPPER ORE

The gold obtained as a byproduct in the treatment of copper ore increased 40,092 ounces in 1934. States showing substantial increases in gold from copper ore were: Arizona (28,682 ounces), Utah (8,642 ounces), Nevada (4,593 ounces), and Colorado (1,720 ounces). The largest decreases were in Montana (3,183 ounces) and California (1,118 ounces). Arizona and Utah mines yielded 82 percent of the total.

LEAD ORE

The production of gold from lead ore increased 3,449 ounces in 1934. Mines in Arizona, California, Montana, New Mexico, and Utah showed increases, but those in Colorado a decrease of 2,026 ounces. Mines in Utah and Arizona yielded about half the total.

ZINC, LEAD-ZINC, AND MIXED ORES

The total output of gold from zinc, lead-zinc, and mixed ores was 40,626 ounces in 1934, or 2,572 ounces less than in 1933; zinc ore yielded no gold in 1934 and only 254 ounces in 1933. Mines in New Mexico and Utah yielded 77 percent of the total gold from lead-zinc ore in 1934.

SILVER, BY SOURCES

The total yield of silver from placers and dry and siliceous ores increased from 3,677,937 ounces in 1933 to 8,620,014 ounces in 1934. The total silver derived from base ores increased from 19,452,659 ounces in 1933 to 24,162,290 ounces in 1934.

Mine production of silver in the United States in 1934, by States, in fine ounces ¹

State	Placers	Dry and siliceous ore	Copper ore	Lead ore	Zinc ore	Copper-lead ore	Lead-zinc ore	Total
Alabama	1	360						361
Alaska	50,618	118,250						168,868
Arizona	1,038	629,343	3,459,138	168,938		1,016	189,001	4,448,474
California	23,248	769,634	108	49,729		1,694		844,413
Colorado	3,216	1,435,352	1,927,335	70,332		2,309	37,097	3,475,661
Georgia	17	31						48
Idaho	8,528	271,000	4,349	1,339,797		3,095,013	2,075,456	7,394,143
Illinois ²				310				310
Michigan		13	516					529
Missouri				63,066				63,066
Montana	3,137	607,863	1,808,104	152,723	6,944		1,427,697	4,006,468
Nevada	1,594	1,509,644	74,225	277,986		3,398	1,190,267	3,037,114
New Mexico	212	190,410	23,082	5,020		21,850	821,201	1,061,775
New York							26,406	26,406
North Carolina	70	140	9,500					9,710
Oregon	3,577	42,371		35			577	46,560
Pennsylvania ⁴			6,230					6,230
South Carolina	6	481						487
South Dakota	85	99,656						103
Tennessee			61,148					61,148
Texas		853,904		519		19		854,442
Utah	17	1,959,845	375,137	1,006,198		5,618	3,764,602	7,111,417
Virginia	2	101						103
Washington	317	35,258		7,394			1,151	44,120
Wyoming	362	313	4	31				710
1934: Total	96,045	8,523,969	7,748,876	3,142,098	6,944	3,730,917	9,533,455	32,782,304
Percentage	0.29	26.00	23.64	9.59	0.02	11.38	29.08	100.00
1933: Total	64,661	3,613,276	5,836,091	3,922,183	70,723	3,470,054	6,153,608	23,130,596
Percentage	0.28	15.62	25.23	16.96	0.31	15.00	26.60	100.00

¹ Philippine Islands and Puerto Rico excluded. The Bureau of Science, Manila, P. I., reports that bullion from gold lode mines of the Philippine Islands in 1934 yielded 212,525 ounces of silver and placer mines 175 ounces.

² From fluor spar-lead ores.

³ Native silver in lumps recovered at copper mine but not from copper bullion.

⁴ From pyritiferous magnetite ore.

Silver produced in the United States, by sources, as reported by mines, 1922-34, in fine ounces ¹

Year	Placers	Dry and siliceous ore	Copper ore	Lead ore	Zinc ore	Copper-lead and copper-lead-zinc ores	Lead-zinc ore	Total
1922-30	456,006	150,087,876	137,344,207	139,718,882	8,197,583	15,865,734	99,244,457	550,914,745
1931	46,521	4,369,200	9,573,651	6,114,975	6,023	2,791,101	6,955,187	29,856,628
1932	63,844	3,931,144	5,180,776	4,894,938	3,025	3,371,570	5,294,372	22,739,669
1933	64,661	3,613,276	5,836,091	3,922,183	70,723	3,470,054	6,153,608	23,130,596
1934	96,045	8,523,969	7,748,876	3,142,098	6,944	3,730,917	9,533,455	32,782,304

¹ Philippine Islands and Puerto Rico excluded.

PLACERS

The quantity of silver recovered from placer bullion increased 31,384 ounces in 1934. Mines in Alaska, California, Idaho, and Oregon yielded 89.5 percent of the total placer silver compared with 91 percent in 1933.

DRY AND SILICEOUS ORES

The total quantity of silver recovered from dry and siliceous ores increased 4,910,693 ounces in 1934. The only large decreases were in Alaska and South Dakota; the largest increases were in Arizona, California, Colorado, Montana, Nevada, Texas, and Utah.

COPPER ORE

Nearly all the silver produced from copper ore is recovered in the electrolytic refining of blister copper. The silver tenor of much of the copper ore mined in Colorado, Idaho, and Montana is notably high, but most of the copper ore from Arizona, Michigan, Nevada, New Mexico, Tennessee, and Utah is low in silver. The yield of silver from copper ore in 1934 was 1,912,785 ounces more than in 1933 but 5,868,690 ounces less than in 1930. States with large increases over 1933 were Arizona, Colorado, and Montana; mines in these three States and Utah yielded 97.7 percent of the total in 1934.

LEAD ORE

Most of the silver from lead ore is obtained by desilverization of lead bullion from the smelting of concentrates from the Western States. The mine production of silver from argentiferous lead ore in 1934 was 780,085 ounces less than in 1933 and 5,636,587 ounces less than in 1930. The largest increases in 1934 were in Arizona, California, Colorado, Montana, and Nevada. The notable decreases were in Idaho and Utah, but these two States yielded 75 percent of the total.

LEAD-ZINC ORE

The output of silver from lead-zinc ore in 1934 increased 3,379,847 ounces over 1933 and represented 29 percent of the total silver produced. There were unusually large increases in Idaho, Nevada, and Utah and large increases also in Arizona and Montana; there was a decrease of 175,081 ounces in New Mexico. Mines in Idaho and Utah yielded 61 percent of the total.

ZINC AND MIXED ORES

None of the zinc ore treated in States east of Colorado yields any gold or silver, and Montana was the only State in 1934 credited with any silver from zinc material. Silver from copper-lead ore increased from 3,470,054 ounces in 1933 to 3,730,917 ounces in 1934; 3,695,013 ounces of the total in 1934 came from Idaho, where the output increased 281,758 ounces. The recoverable silver in the copper-lead ore treated averaged 30.95 ounces to the ton in 1934 compared with 27.49 ounces in 1933 and 20.18 ounces in 1932. This large rise in silver tenor was due mainly to one mine in Idaho.

GOLD AND SILVER, BY METHODS OF TREATMENT

The following table gives the production of gold and silver from ore, old tailings, etc., treated in 1933 and 1934.

Gold and silver produced in the United States from ore, old tailings, etc., in 1934, by States and by methods of recovery ¹

State	Total quantity of crude ore, old tailings, etc., treated (short tons)	Ore, old tailings, etc., to gold and silver mills				Ore and old tailings to concentrating mills (short tons)	Concentrates from all sources			Crude ore to smelters			Ore leached, ² old tailings and slag smelted, etc.		
		Ore (short tons)	Old tailings, etc. (short tons)	Gold (fine ounces)	Silver (fine ounces)		Short tons	Gold (fine ounces)	Silver (fine ounces)	Short tons	Gold (fine ounces)	Silver (fine ounces)	Short tons	Gold (fine ounces)	Silver (fine ounces)
Alaska.....	4,390,000	4,376,319	1,085	185,427	34,718	12,500	2,253	15,992	66,347	96	67	17,185	-----	-----	-----
Arizona.....	3,270,242	186,670	41,030	36,828	65,855	2,267,336	190,176	37,033	1,035,757	774,937	85,801	3,338,703	269	380	7,121
California.....	2,356,091	³ 1,757,982	324,077	298,326	176,068	193,026	27,207	128,244	431,206	25,615	17,150	211,773	⁴ 55,391	1,319	2,118
Colorado.....	1,309,187	675,187	(⁵)	167,425	95,277	457,934	38,604	113,812	701,041	173,066	28,713	2,076,127	-----	-----	-----
Idaho.....	1,287,182	117,988	3,181	28,832	20,816	1,147,611	177,812	25,860	6,849,683	18,007	2,607	508,095	395	262	7,021
Montana.....	1,066,952	130,495	5,029	20,431	36,704	812,508	181,685	22,830	3,413,026	51,688	27,901	543,027	67,232	740	10,574
Nevada.....	2,899,782	190,144	481,466	55,371	186,347	2,103,414	114,721	30,444	1,513,021	120,942	51,997	1,302,664	3,816	1,214	53,488
New Mexico.....	1,397,709	³ 30,038	-----	2,752	74,531	1,352,927	110,698	18,351	887,036	14,744	3,616	99,996	-----	-----	-----
Oregon.....	62,145	8,406	50	3,477	947	61,872	1,239	6,424	23,275	1,699	1,454	18,522	118	117	239
South Dakota.....	1,520,669	1,520,669	(⁶)	485,039	99,656	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Texas.....	47,680	45,653	-----	280	529,715	-----	701	77	310,221	1,027	2	14,506	-----	-----	-----
Utah.....	5,076,735	9,423	170,512	7,860	904	4,526,897	316,702	53,693	4,138,753	362,484	68,277	2,963,212	7,419	6,024	8,531
Washington.....	47,902	280	1,151	219	271	30,286	4,085	41	7,990	16,185	6,268	35,542	-----	-----	-----
Wyoming.....	8,173	8,137	-----	1,094	178	-----	193	885	130	36	21	40	-----	-----	-----
Eastern States.....	⁷ 1,408,419	4,594	1,725	662	283	⁸ 1,276,798	⁸ 37,505	4,446	75,540	125,302	664	28,574	-----	-----	-----
Total, 1933.....	26,148,868 18,864,523	9,065,985 7,424,320	1,029,306 429,355	1,294,023 1,210,799	1,322,270 513,985	14,233,109 9,704,986	1,203,581 952,654	458,132 309,367	19,453,026 15,445,371	1,685,828 1,213,765	294,538 190,486	11,757,966 6,897,012	134,640 92,097	10,656 4,140	89,092 82,219

¹ Illinois, Michigan, Missouri, Philippine Islands, and Puerto Rico excluded.

² No ore leached in 1934 and 1933.

³ Also 10,719 tons of concentrates in California and 186 tons in New Mexico were cyanided. The figures for these concentrates and for the gold and silver recovered from them are included under "Concentrates from all sources."

⁴ Includes 53,328 tons of pyrites (yielding no gold or silver) roasted for the manufacture of sulphuric acid; residue leached amounted to 53,270 tons.

⁵ Sands and slimes (355,841 tons) from ore and concentrates known to have been first amalgamated and estimated tailings from ore first floated and other sands and slimes from iron concentrates first amalgamated (110,004 tons) were cyanided.

⁶ Sands and slimes (1,432,045 tons) from ore first amalgamated were cyanided.

⁷ Includes low-grade pyritiferous magnetite ore from Pennsylvania; excludes ore containing no gold or silver.

⁸ Includes only ore or concentrates yielding gold or silver.

Many gold and silver mills employ concentrating apparatus, and in the preceding table the concentrates obtained from such mills are combined with those from straight concentrating mills under the heading "Concentrates from all sources." The gold and silver included in this item are recovered partly by amalgamation (particularly in Alaska and California) and cyanidation, but most of the concentrates are smelted.

The figures for the quantity of ore treated by concentration include the large quantities of copper, lead, zinc, and mixed ores, the concentrates from which are smelted primarily for the base metals, the gold and silver being recovered in refining the copper and lead bullion and smelting the zinc residues. The quantity of concentrates produced and the recoverable gold and silver content represent not only the concentrates from straight concentrating mills but also the comparatively small quantity from gold and silver mills.

All the States except a few in the Appalachian region increased substantially the tonnage of ore, old tailings, etc., sent direct to gold and silver mills in 1934. Such increases were very large in Alaska, Arizona, California, Colorado, Montana, Nevada, South Dakota, Texas, and Utah. The quantity of old tailings treated increased nearly 600,000 tons.

The quantity of gold recovered at mills was 124,004 ounces more in 1934 than in 1933, due mainly to the large increases in Arizona, California, Colorado, and Nevada.

The quantity of silver recovered in bullion at mills was 838,574 ounces more in 1934 than in 1933. Of this increase about 529,700 ounces came from Texas, 107,100 ounces from California, 104,300 ounces from Nevada, and 74,200 ounces from New Mexico.

In 1934 the quantity of ore and old tailings sent direct to concentrating plants was 46.7 percent more than in 1933, due mainly to the large increases in Arizona, Nevada, Utah, and the Eastern States, where much larger quantities of copper ore were concentrated. Increases were also large in California, Colorado, Idaho, Montana, and Oregon. The gains in Idaho and Montana were principally in lead-zinc ores.

In 1934, 8.4 tons of ore, etc., were concentrated for every ton of ore shipped crude to smelters. In 1919 the ratio was only 5.6:1.

The figures for the quantity and the recoverable gold and silver content of crude ore shipped from the mines direct to smelters include, in general, the richer gold, silver, copper, and lead ores from which the gold and silver eventually are recovered by refining the copper or lead bullion. About 39 percent more crude ore was smelted in 1934 than in 1933, and 78 percent of the total came from mines in Arizona, Colorado, and Utah. Arizona alone contributed 46 percent of the total, or 167,406 tons more than in 1933; the increase in Utah was nearly 183,000 tons; and other States that showed large increases in shipments of crude ore to smelters were California, Colorado, Montana, Nevada, and Washington. The only decreases were in Oregon and Tennessee.

Arizona, with 85,801 ounces in 1934, was again the largest producer of gold from crude ore smelted, and Arizona and Utah together produced 154,078 ounces of the total 294,538 ounces.

The quantity of silver derived from crude ore smelted increased from 6,897,012 ounces in 1933 to 11,757,966 ounces in 1934. The

largest gains were: Arizona, 1,440,957 ounces; Colorado, 1,110,224 ounces; Utah, 869,968 ounces; and Nevada, 645,306 ounces.

The old materials, mainly tailings and slag, re-treated (with which are included figures for ore and old tailings leached) are partly smelted, often for their fluxing as well as for their metal value. Most of the gold and silver derived from old tailings is included under recoveries by amalgamation and cyanidation at gold and silver mills.

Gold and silver produced at mills in the United States and percentage of gold and silver recovered by smelting and from placers, 1930-34¹

Year	Ore, old tailings, etc., treated (short tons)	Bullion recovered from all sources (fine ounces)				Percent of gold and silver from all sources							
		Amalgamation		Cyanidation		Amalgamation		Cyanidation		Placers		Smelting ²	
		Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver
1930..	7,079,131	700,318	230,406	380,148	2,728,841	33.2	0.5	17.8	5.7	20.6	0.1	23.4	93.7
1931..	7,623,878	806,317	274,850	396,390	1,254,866	36.2	.9	17.8	4.2	20.4	.2	25.6	94.7
1932..	7,684,543	851,391	260,447	434,869	753,228	36.5	1.1	18.7	3.3	23.4	.3	21.4	95.3
1933..	7,853,875	893,678	377,823	352,136	227,262	38.8	1.6	15.3	1.0	25.2	.3	20.7	97.1
1934..	10,096,091	866,336	250,209	503,482	1,193,450	31.2	.8	18.1	3.6	26.0	.3	24.7	95.3

¹ Philippine Islands and Puerto Rico excluded.

² Both crude ores and concentrates.

The bulk of the gold continues to come from the gold mills, but the proportion so recovered was only 49.3 percent of the total in 1934 compared with 54.1 percent in 1933 and with 60 percent in 1919.

The total yield of gold by amalgamation in the United States (Philippine Islands and Puerto Rico excluded), as reported to the Bureau of Mines, was 866,336 ounces in 1934 compared with 1,120,344 ounces in 1911, the first year for which figures are available.

Gold and silver bullion produced at mills in the United States in 1934, by States¹

State	Ore, old tailings, etc., treated (short tons)	Bullion recovered from all sources (fine ounces)				Percent of gold and silver from all sources in State			
		Amalgamation		Cyanidation		Amalgamation		Cyanidation	
		Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver
Alaska.....	4,377,404	185,427	34,718	-----	-----	34.5	20.6	-----	-----
Arizona.....	227,700	4,039	1,442	32,789	64,413	2.4	-----	19.6	1.4
California.....	2,082,059	244,720	62,081	2,128,742	2,235,335	34.0	7.4	17.9	27.9
Colorado.....	³ 678,187	52,180	38,324	115,245	56,953	16.1	1.1	35.5	1.6
Idaho.....	121,169	26,099	18,927	2,733	1,889	30.8	.3	3.2	-----
Michigan.....	800	59	13	-----	-----	100.0	2.5	-----	-----
Montana.....	135,524	7,754	3,925	12,677	32,779	8.0	.1	13.0	.8
Nevada.....	671,610	28,506	30,606	26,865	155,741	19.8	1.0	18.6	5.1
New Mexico.....	30,038	567	259	4,275	474,300	2.1	-----	10.2	7.0
Oregon.....	8,456	3,477	947	-----	-----	10.3	2.0	-----	-----
South Dakota.....	⁵ 1,520,669	310,942	58,086	174,097	41,570	64.0	58.2	35.8	41.7
Texas.....	46,653	-----	-----	280	529,715	-----	-----	78.1	62.0
Utah.....	179,935	725	551	7,135	200	-----	-----	-----	-----
Washington.....	1,431	169	71	50	353	.5	-----	5.2	-----
Wyoming.....	8,137	1,060	176	34	2	21.8	24.8	.6	.1
Eastern States.....	6,319	612	83	50	200	9.2	.1	.8	.2
Total, 1933.....	10,096,091	866,336	250,209	503,482	1,193,450	31.2	.8	18.1	3.6
	7,853,875	893,678	377,823	352,136	227,262	38.8	1.6	15.3	1.0

¹ Michigan included. Philippine Islands and Puerto Rico excluded.

² Includes bullion from 10,719 tons of concentrates cyanided.

³ Also 355,841 tons of sands and slimes from ore and concentrates known to have been first amalgamated and 110,004 tons of estimated tailings from ore first floated and other sands and slimes from iron concentrates first amalgamated were cyanided.

⁴ Includes bullion from 186 tons of concentrates cyanided.

⁵ Also 1,432,045 tons of sands and slimes from ore first amalgamated were cyanided.

The output of gold by cyanidation was 428,202 ounces in 1934 compared with 352,136 ounces in 1933 and with 1,444,077 ounces in 1915, the year of largest recorded output. Thus, up to the end of 1933, the quantity recovered by cyanidation had decreased at a much higher rate than that by amalgamation. Notwithstanding a large increase in total output of gold in 1934, recovery by amalgamation decreased 27,342 ounces whereas recovery by cyanidation increased 151,346 ounces. In 1934 amalgamation yielded 866,336 ounces of gold, cyanidation 503,482 ounces, placer bullion 721,380 ounces, and crude ore, concentrates, and miscellaneous material smelted 687,590 ounces.

The largest increases in 1934 in gold recovered by amalgamation were: Idaho, 11,405 ounces; Nevada, 4,936 ounces; Colorado, 3,652 ounces; Arizona, 1,783 ounces; and Oregon, 1,087 ounces. The largest decreases were: Alaska, 24,040 ounces; South Dakota, 17,507 ounces; and California, 10,035 ounces.

The total increase in 1934 of 151,346 ounces in gold recovered by cyanidation was due mainly to the following State increases: California, 91,184 ounces; Arizona, 24,937 ounces; Colorado, 23,071 ounces; Nevada, 12,456 ounces; Montana, 7,866 ounces; Utah, 5,365 ounces; and New Mexico, 2,717 ounces. The notable decreases were: South Dakota, 8,588 ounces; Alaska, 6,668 ounces; and Idaho, 1,398 ounces.

The recovery of silver by amalgamation, which is relatively small, was 127,614 ounces less in 1934 than in 1933. The largest decreases were in Alaska, California, and South Dakota, but these three States yielded 62 percent of the total.

The recovery of silver by cyanidation increased 966,188 ounces in 1934 following annual decreases since the decline began in 1929. The only large decrease in 1934 was in South Dakota; the largest increases were: Texas, 529,715 ounces; California, 185,931 ounces; Nevada, 88,882 ounces; New Mexico, 74,150 ounces; Arizona, 52,380 ounces; and Colorado, 31,692 ounces.

REVIEW BY STATES

The review by States has been omitted from this report. The chapters relating to mine production of gold, silver, copper, lead, and zinc in the Eastern, Central, and Western States give details as to mining, milling, and smelting operations.

PRODUCTION IN PHILIPPINE ISLANDS

The value⁷ of the gold produced in the Philippine Islands from 1907 to 1934, inclusive, is recorded as \$61,314,496. The value⁷ of the output during the last 10 years was as follows:

1925-----	\$1,945,990	1930-----	\$3,704,800
1926-----	1,925,188	1931-----	3,762,433
1927-----	1,686,231	1932-----	5,050,084
1928-----	1,904,062	1933-----	8,308,009
1929-----	3,320,300	1934-----	11,893,975

The output will be considerably larger in 1935 than it was in 1934, as several new mills are in operation. Among the larger producing mines are: Benguet Consolidated, Balatoc, Itogen, Antamok, Demonstration, Baguio, Suyoc, Penique, Benguet Exploration, and Ipo.

⁷ Gold valued per fine ounce as follows: Prior to 1933, \$20.67+; 1933, \$25.56; 1934, \$34.95.

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CRUDE PETROLEUM AND PETROLEUM PRODUCTS

(DETAILED STATISTICS)

By G. R. HOPKINS AND A. B. COONS

SUMMARY OUTLINE

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SUMMARY TABLES OF CRUDE PETROLEUM, PETROLEUM PRODUCTS, AND NATURAL GASOLINE

Selected statistics of crude petroleum, refined products, and natural gasoline, 1924 and 1931-34

	1924	1931	1932	1933	1934
Crude petroleum:					
Domestic production.....thousands of barrels ¹	713, 940	851, 081	785, 159	905, 656	908, 065
World production.....do. ¹	1, 014, 318	1, 373, 656	1, 309, 677	1, 442, 112	1, 522, 243
United States proportion of world production					
percent.....	70	62	60	63	60
Imports ².....thousands of barrels ¹	77, 775	47, 250	44, 682	31, 893	35, 558
Exports ².....do. ¹	18, 239	25, 555	27, 393	36, 584	41, 127
Stocks, end of period ³.....do. ¹	361, 655	{ 370, 919	339, 715	355, 812	} 337, 254
Runs to stills.....do. ¹	643, 719	{ 4370, 194	4 339, 875	4 354, 223	
Total value of domestic production at wells					
thousands of dollars.....	1, 022, 683	894, 608	819, 997	861, 254	895, 636
Average price per barrel at wells.....	\$1.43	\$0.65	\$0.87	\$0.67	\$1.00
Total producing oil wells in the United States, Dec. 31.....	299, 100	315, 850	321, 500	326, 850	333, 070
Total oil wells completed in the United States during year.....	14, 587	6, 788	10, 444	8, 068	12, 512
Refined products:					
Imports ².....thousands of barrels ¹	16, 806	38, 837	29, 812	13, 501	14, 936
Exports ².....do. ¹	98, 905	98, 859	75, 882	70, 143	73, 380
Stocks, end of period ³.....do. ¹	158, 330	{ 247, 936	247, 188	244, 578	} 223, 356
Output of motor fuel.....do. ¹	215, 529	{ 4258, 879	4 249, 116	4 244, 295	
Yield of gasoline.....percent.....	31.2	44.3	44.7	43.7	43.4
Completed refineries, end of year.....	541	473	505	591	632
Daily crude-oil capacity of refineries					
thousands of barrels ¹	2, 828	4, 015	3, 890	3, 918	4, 073
Average tank-wagon price (excluding tax) of gasoline in 50 United States cities cents per gallon ⁵	18.66	11.80	12.45	11.62	12.26
Natural gasoline:					
Production.....thousands of barrels ¹	22, 235	43, 617	36, 281	33, 810	36, 556
Stocks, end of period.....do. ¹	6 302	{ 2, 818	3, 203	{ 3, 317	} 3, 740
		{ 4 2, 825		{ 4 3, 680	

¹ Of 42 gallons.

² From Bureau of Foreign and Domestic Commerce. Imports of crude petroleum in 1934 as reported to the Bureau of Mines; exports include shipments to Alaska, Hawaii, and Puerto Rico.

³ California heavy crude and fuel oil included under refined products.

⁴ For comparison with succeeding year.

⁵ From American Petroleum Institute.

⁶ At plants only—stocks of natural gasoline at refineries not segregated from refined products until Dec. 31, 1929.

Supply and demand of all oils, 1924 and 1931-34

[Thousands of barrels of 42 gallons]

	1924	1931	1932	1933	1934
New supply:					
Domestic production:					
Crude petroleum.....	713,940	851,081	785,159	905,656	908,065
Daily average.....	1,951	2,332	2,145	2,481	2,488
Natural gasoline.....	22,235	43,617	36,281	33,810	36,556
Benzol.....	2,203	1,826	1,031	1,368	1,708
Total production.....	738,378	896,524	822,471	940,834	946,329
Daily average.....	2,017	2,456	2,247	2,578	2,593
Imports:					
Crude petroleum.....	77,775	47,250	44,682	31,893	135,558
Refined products.....	16,806	38,837	29,812	13,501	14,936
Total new supply, all oils.....	832,959	982,611	896,965	986,228	996,823
Daily average.....	2,276	2,692	2,451	2,702	2,736
Decrease in stocks, all oils.....	27,897	44,989	41,792	11,013	37,848
Demand:					
Total demand.....	805,062	1,027,600	938,757	975,215	1,034,671
Daily average.....	2,200	2,815	2,565	2,672	2,835
Exports:³					
Crude petroleum.....	18,239	25,535	27,393	36,584	41,127
Refined products.....	98,905	98,859	75,882	70,143	73,380
Domestic demand.....	687,918	903,206	835,482	868,488	920,164
Daily average.....	1,880	2,476	2,283	2,379	2,521
Excess of daily average domestic production over domestic demand.....	137	419	436	199	72
Stocks, end of period:					
Crude petroleum ⁴	361,655	{ 370,919 370,194 }	{ 339,715 339,875 }	{ 355,312 354,223 }	} 337,254
Natural gasoline.....	7302	{ 2,813 2,825 }	{ 3,203 3,203 }	{ 3,317 3,680 }	} 3,740
Refined products ⁴	158,330	{ 247,936 258,879 }	{ 247,188 249,116 }	{ 244,578 244,295 }	} 223,356
Grand total stocks, all oils.....	520,287	{ 621,673 631,898 }	{ 590,106 592,194 }	{ 603,207 602,198 }	} 564,350
Days' supply⁵.....	236	{ 631,898 221 }	{ 592,194 230 }	{ 602,198 226 }	} 199
Bunker oil (included in demand):					
Foreign trade.....	43,328	42,734	37,395	31,734	28,993
Coastwise trade.....	(9)	26,450	23,135	26,711	24,910

¹ As reported to Bureau of Mines.

² Increase.

³ Exports include benzol and shipments to Alaska, Hawaii, and Puerto Rico.

⁴ Deficiency.

⁵ California heavy crude and fuel oil included under refined products.

⁶ For comparison with succeeding year.

⁷ At plants only—stocks of natural gasoline at refineries not segregated from refined products until Dec. 31, 1929.

⁸ Grand total stocks of all oils divided by daily average total demand.

⁹ Not available.

Supply and demand of all oils in 1934, by months

[Including wax, coke, and asphalt in thousands of barrels of 42 gallons]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
New supply:													
Domestic production:													
Crude petroleum.....	72,017	65,383	75,426	75,645	79,966	79,636	81,339	79,105	75,759	76,593	72,399	74,797	908,065
Daily average.....	2,323	2,335	2,433	2,522	2,580	2,655	2,624	2,552	2,525	2,471	2,413	2,413	2,488
Natural gasoline.....	3,057	2,826	3,049	2,950	2,938	2,864	2,971	3,057	3,074	3,267	3,240	3,263	36,556
Benzol.....	138	141	170	163	184	171	130	123	116	120	121	131	1,708
Total production.....	75,212	68,350	78,645	78,758	83,088	82,671	84,440	82,285	78,949	79,980	75,760	78,191	946,329
Daily average.....	2,426	2,441	2,537	2,625	2,680	2,756	2,724	2,654	2,632	2,580	2,525	2,522	2,593
Imports:													
Crude petroleum ¹	2,800	3,031	2,410	2,845	3,012	3,787	3,001	2,746	2,928	2,884	2,915	3,199	35,558
Refined products.....	1,186	648	1,104	1,239	1,412	1,214	1,684	1,134	1,252	1,346	1,029	1,688	14,936
Total new supply, all oils.....	79,198	72,029	82,159	82,842	87,512	87,672	89,125	86,165	83,129	84,210	79,704	83,078	996,823
Daily average.....	2,555	2,572	2,650	2,761	2,823	2,922	2,875	2,780	2,771	2,716	2,657	2,680	2,731
Decrease in stocks, all oils.....	4,503	4,189	3,693	200	1,954	2,767	3,904	4,132	2,349	7,195	10,473	5,891	37,848
Demand:													
Total demand.....	83,701	76,218	85,852	83,042	89,466	84,905	85,161	90,297	85,478	91,405	90,177	88,969	1,034,671
Daily average.....	2,700	2,722	2,769	2,768	2,886	2,830	2,747	2,913	2,849	2,949	3,006	2,870	2,835
Exports: ²													
Crude petroleum.....	2,288	2,511	2,582	3,942	3,724	3,794	4,128	3,696	4,068	3,277	4,680	2,437	41,127
Refined products.....	5,284	5,426	6,768	7,669	5,912	6,058	6,146	5,947	5,929	5,959	6,138	6,144	73,380
Domestic demand:													
Motor fuel.....	29,489	25,310	30,577	32,736	38,071	36,430	37,466	39,105	34,669	37,674	34,998	30,581	407,106
Kerosene.....	4,246	4,154	4,219	3,655	3,227	2,373	2,816	2,803	3,572	3,057	4,451	4,761	44,234
Gas oil and fuel oil.....	32,682	29,637	32,279	25,448	26,808	23,476	21,451	24,595	24,747	27,988	29,284	33,594	331,989
Lubricants.....	1,507	1,300	1,641	1,646	1,940	1,569	1,491	1,494	1,338	1,674	1,493	1,391	18,484
Wax.....	90	83	79	83	78	87	52	53	56	75	61	60	857
Coke.....	1,057	805	736	520	524	563	481	552	457	629	511	675	7,540
Asphalt.....	443	508	552	1,096	1,367	1,681	1,534	1,817	1,671	1,591	1,065	889	13,924
Road oil.....	97	107	264	176	553	1,113	1,171	1,288	772	507	201	129	6,378
Still gas (production).....	3,457	3,050	3,429	3,642	3,674	3,707	4,150	4,240	3,835	3,792	3,625	3,790	44,391
Miscellaneous.....	42	147	198	207	204	220	181	214	168	126	200	219	2,126
Losses and crude as fuel.....	3,019	3,180	2,518	2,222	3,384	3,884	4,094	4,493	4,156	4,156	3,470	4,599	43,135
Total domestic demand.....	76,129	68,281	76,502	71,431	79,830	75,053	74,887	80,654	75,481	82,169	79,359	80,388	920,164
Daily average.....	2,456	2,439	2,468	2,381	2,575	2,502	2,416	2,602	2,516	2,651	2,645	2,593	2,521
Stocks:													
Crude petroleum.....	353,642	351,641	354,067	354,350	355,883	357,451	355,525	351,092	349,407	346,800	341,403	337,254	337,254
Natural gasoline.....	3,893	3,776	3,916	4,259	4,411	4,566	4,551	4,790	4,611	4,255	3,714	3,740	3,740
Refined products.....	240,160	238,089	231,830	231,004	227,865	228,409	234,314	234,376	233,891	229,659	225,124	223,356	223,356
Total stocks, all oils.....	597,695	593,506	589,813	589,613	587,659	590,426	594,390	590,258	587,909	580,714	570,241	564,350	564,350

¹ As reported to Bureau of Mines.² Increase.³ Exports include benzol and shipments to Alaska, Hawaii, and Puerto Rico.

Runs to stills and production at refineries of the various refined products, 1924 and 1931-34

[Thousands of barrels of 42 gallons, except as otherwise indicated]

	1924	1931	1932	1933	1934
Input:					
Crude petroleum:					
Domestic.....	597,954	847,671	777,696	825,786	860,776
Foreign.....	45,765	46,937	42,301	35,468	34,860
Total crude petroleum.....	643,719	894,608	819,997	861,254	895,636
Natural gasoline ¹	12,671	35,116	20,332	25,346	28,162
Total input.....	656,390	929,724	846,329	886,600	923,798
Output:					
Gasoline.....	213,326	431,510	392,623	401,591	416,932
Kerosene.....	60,026	42,446	43,836	48,977	53,855
Gas oil and distillate fuel oils.....	320,476	83,882	69,467	78,920	94,972
Residual fuel oils.....		253,085	225,283	237,519	240,381
Lubricants.....	27,498	26,704	22,433	23,775	26,373
Wax.....	1,861	1,705	1,639	1,677	1,674
Coke.....	4,085	10,363	9,123	7,900	6,500
Asphalt.....	14,196	16,371	13,612	12,757	15,623
Still gas.....	(²)	38,630	40,905	45,212	44,391
Wax..... thousands of pounds.....	516,491	477,400	458,920	469,560	468,720
Coke..... thousands of short tons.....	761.1	2,032.0	1,788.8	1,580.0	1,300.0
Asphalt..... do.....	2,545.6	2,976.5	2,474.9	2,319.5	2,840.5
Still gas..... millions of cubic feet.....	(³)	154,086	160,812	170,863	169,479
Road oil.....	(⁴)	5,177	6,879	5,534	6,210
Other finished products.....	8,252	4,150	1,738	1,435	1,872
Crude gasoline (net).....	12,920	3,369	1,861	4,547	3,007
Other unfinished oils (net).....					
Shortage.....	19,590	19,070	20,652	16,756	1,949
Total output.....	656,390	929,724	846,329	886,600	923,798

¹ Includes natural gasoline run through pipe lines in California.

² Includes transfers in California. In 1932 such transfers constituted part of supply but were not included in refinery production.

³ Not available.

⁴ Included in "Other finished products."

⁵ Negative quantity; represents net excess of unfinished oils rerun over unfinished oils produced.

Runs to stills and production at refineries of the various refined products in 1934, by months

[Thousands of barrels of 42 gallons, except as otherwise indicated]

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Input:													
Crude petroleum ¹	71,512	66,470	71,807	73,563	76,258	76,054	80,065	79,928	73,611	75,991	73,784	76,593	895,636
Natural gasoline ²	2,222	1,939	2,136	2,038	1,813	2,054	2,142	2,054	2,405	3,128	3,472	2,759	28,162
Total input.....	73,734	68,409	73,943	75,601	78,071	78,108	82,207	81,982	76,016	79,119	77,256	79,352	923,798
Fresh cracking stocks charged to stills:													
Crude oil.....	3,025	3,503	3,925	3,883	4,493	4,227	4,627	5,016	4,029	4,464	4,337	4,879	50,408
Other oils.....	31,456	27,907	29,632	31,349	35,018	34,539	38,793	39,053	36,164	36,805	35,494	36,908	413,118
Output:													
Gasoline.....	33,323	30,609	32,861	34,236	34,723	34,648	36,878	37,296	34,488	36,282	35,591	35,997	416,932
Kerosene.....	4,507	3,961	4,576	4,647	4,548	4,206	4,320	4,376	4,889	4,786	4,777	4,777	53,855
Gas oil and distillate fuel oils.....	7,891	7,155	8,004	7,563	7,761	8,042	7,651	8,723	8,298	7,904	8,044	8,136	94,972
Residual fuel oils.....	19,876	18,073	20,538	19,367	20,428	20,201	20,856	20,373	19,522	20,144	19,917	21,086	240,381
Lubricants.....	2,198	1,865	2,152	2,322	2,577	2,211	2,209	2,152	2,106	2,145	2,090	2,346	26,373
Wax.....	166	140	154	141	149	144	122	121	121	141	141	134	1,674
Coke.....	635	604	628	505	372	522	480	505	550	646	566	487	6,500
Asphalt.....	838	734	905	1,203	1,459	1,610	1,756	1,831	1,626	1,571	1,238	852	15,623
Still gas.....	3,457	3,050	3,429	3,642	3,674	3,707	4,150	4,240	3,835	3,792	3,625	3,790	44,391
Wax..... thousands of pounds.....	46,480	39,200	43,120	39,480	41,720	40,320	34,160	33,880	33,880	39,480	39,480	37,520	468,720
Coke..... thousands of short tons.....	127.0	120.8	125.6	101.0	74.4	104.4	96.0	101.0	110.0	129.2	113.2	97.4	1,300.0
Asphalt..... do.....	152.4	133.5	164.5	218.7	265.3	292.7	319.3	332.9	295.6	285.6	225.1	154.9	2,840.5
Still gas..... millions of cubic feet.....	13,679	11,866	12,872	13,595	13,774	13,981	15,619	16,011	14,773	14,663	13,961	14,695	169,479
Road oil.....	120	112	188	309	768	990	1,113	1,130	705	397	235	143	6,210
Other finished products.....	116	122	129	183	182	163	124	168	176	135	200	174	1,872
Crude gasoline (net).....	* 172	368	* 200	* 716	* 309	* 223	* 263	* 897	* 603	* 254	5	57	* 3,007
Other unfinished oils (net).....	* 61	305	* 580	934	208	333	1,092	189	* 312	147	* 338	32	1,949
Shortage.....	1,040	1,311	1,159	1,265	1,531	1,554	1,719	1,575	1,242	1,180	1,156	1,941	16,073
Total output.....	73,734	68,409	73,943	75,601	78,071	78,108	82,207	81,982	76,016	79,119	77,256	79,352	923,798

¹ Details by districts and months on p. 388.² Includes 1,206,000 barrels run through pipe lines in California.³ Negative quantity; represents net excess rerun over production.

Runs to stills and production at refineries of the various refined products in 1934, by districts

[Thousands of barrels of 42 gallons, except as otherwise indicated]

	East coast	Appalachian	Indiana, Illinois, Kentucky, etc.	Oklahoma, Kansas, and Missouri	Texas inland	Texas Gulf coast	Louisiana Gulf coast	Arkansas and Louisiana inland	Rocky Mountain	California	United States
Input:											
Crude petroleum.....	171,733	35,809	119,166	95,006	61,941	179,418	41,341	18,850	16,037	156,335	895,636
Natural gasoline.....	1,807	284	2,348	5,874	4,079	2,270	231	538	803	10,428	128,162
Total input.....	173,040	36,093	121,514	100,880	66,020	181,688	41,572	19,388	16,840	166,763	923,798
Fresh cracking stocks charged to stills:											
Crude oil.....	16,259	207	7,021	2,406	1,126	16,382	3,170	3,030	807		50,408
Other oils.....	76,487	16,060	73,471	50,529	27,666	71,813	15,065	7,055	7,429	67,543	413,118
Output:											
Gasoline.....	69,630	17,980	67,247	55,624	33,526	78,153	15,205	9,060	8,908	61,599	416,932
Kerosene.....	10,535	2,982	4,224	6,307	3,742	14,417	4,650	921	516	5,561	53,855
Gas oil and distillate fuel oils.....	18,545	2,534	11,593	7,044	4,160	21,919	5,280	1,131	935	21,831	94,972
Residual fuel oils.....	47,076	4,811	17,383	18,677	17,694	47,417	11,919	5,919	3,485	66,000	240,351
Lubricants.....	7,405	5,231	2,373	2,969	313	5,588	428	130	231	1,705	26,373
Wax.....	804	291	135	124	10	162	92		56		1,674
Coke.....	712	116	2,850	1,026	236	1,114	112	12	296	26	6,500
Asphalt.....	6,934	597	2,582	509	320	897	815	797	180	1,992	15,623
Still gas.....	8,808	2,339	9,401	4,600	1,392	10,326	1,638	459	887	4,541	44,391
Wax..... thousands of pounds..	225,120	81,480	37,800	34,720	2,800	45,390	25,760		15,680		468,720
Coke..... thousands of short tons..	142.4	23.2	570.0	205.2	47.2	222.8	22.4	2.4	59.2	5.2	1,300.0
Asphalt..... do.....	1,260.6	108.6	469.5	92.6	58.2	163.1	148.1	144.9	32.8	392.1	2,840.5
Still gas..... millions of cubic feet..	23,262	8,898	35,763	18,517	6,344	41,801	6,383	2,171	3,674	17,666	169,479
Road oil.....	392	93	1,792	894	110	207	57	156	950	1,559	6,210
Other finished products.....	606	282	156	332	74	208		56	11	147	1,872
Crude gasoline (net).....	*1,485	61	*765	*79	370	*784	*64	*258	*57	54	*3,007
Other unfinished oils (net).....	1,836	*2,547	1,685	*524	770	*913	591	154	*28	925	1,949
Shortage.....	1,242	1,323	868	3,377	3,303	2,977	849	851	470	823	16,073
Total output.....	173,040	36,093	121,514	100,880	66,020	181,688	41,572	19,388	16,840	166,763	923,798

* Includes 1,206,000 barrels run through pipe lines in California.

* Negative quantity; represents net excess rerun over production.

Crude production, crude runs to stills, and refinery capacity in 1934, by States

State	Crude production		Crude runs to stills		Daily capacity, Jan. 1, 1935, of total refineries operating	
	Thousands of barrels	Percent of total	Thousands of barrels	Percent of total	Thousands of barrels	Percent of total
Arkansas	11, 182	1.1	7, 552	0.8	38	1.0
California	174, 305	19.2	156, 335	17.5	759	20.9
Colorado	1, 139	.1	1, 098	.1	6	.2
Georgia			1 3, 514	1.4	9	.2
Illinois	4, 479	.5	33, 541	3.8	122	3.4
Indiana	838	.1	54, 781	6.1	193	5.3
Kansas	46, 482	5.1	36, 668	4.1	164	4.5
Kentucky ¹	4, 870	.5	6, 545	.7	26	.7
Louisiana	² 32, 871	³ 3.6	⁴ 52, 639	⁴ 5.9	⁴ 192	⁴ 5.3
Maryland			12, 029	1.3	55	1.5
Massachusetts			⁵ 14, 651	⁵ 1.6	30	.8
Michigan	10, 603	1.2	7, 232	.8	33	.9
Missouri	35		5, 021	.6	16	.4
Montana	3, 603	.4	2, 922	.3	17	.5
New Jersey			64, 249	7.2	261	7.2
New Mexico	16, 864	1.9	1, 318	.1	7	.2
New York	3, 804	.4	13, 587	1.5	57	1.6
Ohio	4, 234	.5	26, 463	3.0	109	3.0
Oklahoma	180, 107	19.9	53, 317	6.0	246	6.8
Pennsylvania	14, 478	1.6	36, 295	9.6	296	8.2
Rhode Island			(1)	(1)	7	.2
South Carolina			(1)	(1)	6	.2
Texas	381, 516	42.0	241, 359	27.0	907	25.0
Utah	(9)	(9)	2, 098	2.2	7	.2
Virginia			(1)	(1)	7	.1
West Virginia	4, 095	.5	3, 821	.4	16	.4
Wyoming	⁶ 12, 560	⁶ 1.4	⁸ 8, 601	⁸ 1.0	⁸ 47	⁸ 1.3
	908, 065	100.0	895, 636	100.0	3, 630	100.0

¹ Georgia includes Delaware, South Carolina, and Virginia.² Includes Tennessee.³ Includes Mississippi.⁴ Includes Alabama and Mississippi.⁵ Massachusetts includes Rhode Island.⁶ Wyoming includes Alaska and Utah.⁷ Includes Delaware.⁸ Includes Nebraska and South Dakota.

Comparative analyses of statistics for the major refined products, 1924 and 1931-34

[Thousands of barrels of 42 gallons, except as otherwise indicated]

	1924	1931	1932	1933	1934
Motor fuel:					
Production	215,529	437,453	399,712	407,932	423,801
Imports	3,453	13,621	8,205	15	1
Exports	29,151	45,716	35,438	29,321	24,686
Stocks, end of period	30,823	55,226	53,805	55,933	51,945
Domestic demand	187,022	403,418	373,900	377,003	407,106
Kerosene:					
Production	60,026	42,446	43,836	48,977	53,855
Imports	10	11	71		
Exports	21,961	12,712	11,044	8,959	9,781
Stocks, end of period	8,594	5,332	4,974	6,558	6,398
Domestic demand	36,712	31,296	5,033	38,493	44,234
Gas oil and fuel oil:					
Production	320,476	336,967	301,353	316,439	335,353
Imports	12,927	24,998	21,286	13,215	12,634
Exports	37,249	29,231	19,994	20,563	28,005
Stocks, end of period ¹	75,520	135,856	129,881	123,500	110,397
Domestic demand	290,766	357,306	130,753	123,004	331,989
Lubricants:					
Production	27,498	26,704	22,433	23,775	26,373
Imports	11	32	12	1	2
Exports	9,103	8,128	6,851	8,218	7,660
Stocks, end of period	6,420	9,485	8,465	7,100	7,331
Domestic demand	18,124	20,068	18,694	17,152	18,484
Wax (thousands of pounds):					
Production	516,491	477,400	458,920	469,560	468,720
Imports	12,867	37,835	33,255	36,634	37,292
Exports	382,820	290,527	235,304	247,769	198,958
Stocks, end of period	89,706	171,220	163,628	69,117	136,136
Domestic demand	221,590	276,457	264,463	353,243	240,035

¹ For comparison with succeeding year.

² Includes transfers (see p. 416).

³ California heavy crude included.

Summary of percentage yields of refined products, 1924 and 1931-34

[Computed on total crude runs to stills]

Product	1924	1931	1932	1933	1934
Gasoline ¹	31.2	44.3	44.7	43.7	43.4
Kerosene	9.3	4.7	5.3	5.7	6.0
Gas oil and distillate fuel oils	49.8	9.4	8.5	9.2	10.6
Residual fuel oils		28.3	27.5	27.6	28.8
Lubricants	4.3	3.0	2.7	2.8	2.9
Wax .....	.3		.2	.2	.7
Coke .....	.6	1.2	1.1	.9	1.7
Asphalt	2.2	1.8	1.7	1.5	.7
Road oil .....		.6	.8	.6	5.0
Still gas	(²)	4.3	5.0	5.2	5.0
Other finished products	1.3	.5	.2	.2	1.2
Shortage	3.0	2.1	2.5	1.9	1.8

¹ Based on total gasoline production less natural gasoline used.

² Not available.

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Stocks of crude petroleum, natural gasoline, and refined products at the end of the year, 1924 and 1931-34

[Thousands of barrels of 42 gallons, except as otherwise indicated]

	1924	1931	1932	1933	1934
Crude petroleum:					
At refineries ¹	31,918	35,821	{ 55,513 * 61,769 }	{ 66,049 * 281,132 }	{ 64,099 * 264,625 }
Pipe line and tank farm ²	321,348	328,171	{ 276,189 * 270,093 }	{ 281,132 * 290,043 }	{ 264,625 * 8,530 }
Producers' ³	8,389	6,202	{ 8,013 * 3,317 }	{ 8,131 * 3,680 }	{ 8,530 * 3,740 }
Total crude petroleum ⁴.....	361,655	370,194	{ 339,715 * 339,875 }	{ 355,312 * 354,223 }	{ 337,254 * 3,740 }
Natural gasoline.....	⁶ 302	2,825	{ 3,203 * 3,680 }	{ 3,317 * 3,680 }	{ 3,740 * 3,680 }
Refined products:					
Gasoline ⁷	30,823	52,401	{ 50,602 * 51,107 }	{ 52,616 * 56,255 }	{ 48,205 * 6,398 }
Kerosene.....	8,594	5,332	{ 4,974 * 5,033 }	{ 6,558 * 6,558 }	{ 6,398 * 6,398 }
Gas oil and distillate fuel oils.....	(⁸)	18,526	{ 14,110 * 14,277 }	{ 17,025 * 16,315 }	{ 21,957 * 16,315 }
Residual fuel oils.....	(⁸)	117,330	{ 115,771 * 116,476 }	{ 106,475 * 106,689 }	{ 88,440 * 106,689 }
Total gas oil and fuel oil ⁵.....	75,520	135,856	{ 129,881 * 130,753 }	{ 123,500 * 123,004 }	{ 110,397 * 7,331 }
Lubricants.....	6,420	9,485	{ 8,465 * 8,694 }	{ 7,100 * 7,100 }	{ 7,331 * 7,331 }
Wax..... thousands of pounds.....	89,706	171,220	{ 163,628 * 163,935 }	{ 69,117 * 16,315 }	{ 136,136 * 405.1 }
Coke..... thousands of short tons.....	97.8	1,511.6	{ 1,330.2 * 276.1 }	{ 727.4 * 254.5 }	{ 405.1 * 339.2 }
Asphalt..... do.....	97.3	301.8	{ 276.1 * 276.1 }	{ 254.5 * 254.5 }	{ 339.2 * 339.2 }
Road oil.....		{ 333	{ 564	{ 332	{ 664
Other finished products.....	{ 1,039	{ 734	{ 456	{ 388 * 216 }	{ 231 * 216 }
Crude gasoline.....			{ 43,359	{ 48,300	{ 5,014
Other unfinished oils.....	{ 34,480	{ 44,757	{ 43,753	{ 45,046	{ 40,738
Total refined products ⁹.....	158,330	258,879	{ 247,188 * 249,116 }	{ 244,578 * 244,295 }	{ 223,356 * 223,356 }
Grand total.....	520,287	631,898	{ 590,106 * 592,194 }	{ 603,207 * 602,198 }	{ 564,350 * 564,350 }

¹ Includes foreign crude held by importers.

² Refinery stocks in California included in pipe-line and tank-farm stocks.

³ For comparison with succeeding years.

⁴ 1924 and 1931 producers' stocks in California included with pipe-line and tank-farm stocks.

⁵ California heavy crude and fuel oil included under refined products as residual fuel oil.

⁶ At plants only—stocks of natural gasoline at refineries not segregated until Dec. 31, 1929.

⁷ 1931-34 includes pipe-line and bulk-terminal stocks.

⁸ Not available.

⁹ Includes equivalents for wax, coke, and asphalt in barrels.

**CRUDE PETROLEUM
CRUDE-OIL ALLOCATIONS**

Federal and State allocations, and actual and potential production of crude petroleum in the principal producing States, in 1934

[Daily average in thousands of barrels of 42 gallons]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1934
Texas:													
State allowable ¹	885	928	956	961	1,035	1,065	1,035	992	1,010	946	955	977	982
Federal allowable.....	884	884	948	981	981	1,032	1,042	1,001	968	956	957	973	968
Actual production.....	961	991	1,023	1,064	1,084	1,107	1,103	1,077	1,114	1,046	988	984	1,045
Excess of production over Federal allowable.....	77	107	75	83	103	75	61	76	146	90	31	11	77
Potential production ²													
Oklahoma:													
State allowable.....	447	447	456	476	476	512	490	480	461	457	459	470	469
Federal allowable.....	447	447	456	476	476	512	490	480	461	457	459	470	469
Actual production.....	491	480	495	524	532	540	505	483	462	469	469	471	493
Excess of production over Federal allowable.....	44	33	39	48	56	28	15	3	1	12	10	1	24
Potential production ³	3,770	3,825	3,299	2,371	2,493	2,579	2,609	2,658	2,685	2,227	2,323	1,652	2,708
California:													
State allowable ⁴	442	437	458	470	464	503	514	487	460	455	461	475	469
Federal allowable.....	438	438	454	463	463	500	509	490	457	452	462	465	466
Actual production.....	454	447	472	477	483	512	514	490	465	463	474	476	478
Excess of production over Federal allowable.....	16	9	18	14	20	12	5		8	11	12	11	12
Potential production ⁴	1,211	1,216	1,220	1,251	1,307	1,349	1,380	1,387	1,425	1,448	1,491	1,534	1,352
Kansas:													
State allowable ⁵	110	110	112	122	122	130	135	131	121	124	125	130	123
Federal allowable.....	110	110	112	122	122	130	135	131	121	124	125	130	123
Actual production.....	110	114	131	134	135	137	136	131	124	127	124	125	127
Excess of production over Federal allowable.....		4	19	12	13	7	1		3	3	-1	-5	4
Potential production ⁵	315	309	330	335	366	300	323	345	368	342	323	369	336
Louisiana:													
State allowable.....	69	69	72	72	72	83	89	86	92	91	96	99	88
Federal allowable.....	69	69	72	72	72	83	89	87	87	88	90	97	81
Actual production.....	72	73	72	76	86	90	100	99	99	104	105	105	90
Excess of production over Federal allowable.....	3	4		4	14	7	11	12	12	16	15	8	9
Potential production ²													
New Mexico:													
State allowable.....	41	41	44	46	46	48	47	47	46	46	47	48	47
Federal allowable.....	41	41	44	46	46	48	47	47	46	46	47	48	47
Actual production.....	42	42	43	47	46	47	47	49	48	47	48	48	46
Excess of production over Federal allowable.....	1	1	-1	1		-1		2	2	1	1		-1
Potential production ⁶	1,287	1,305	1,550	1,720	1,841	1,860	1,953	2,005	1,998	2,085	2,106	2,028	1,784
Michigan:													
State allowable.....	29	29	29	31	31	33	33	33	29	29	29	28	30
Federal allowable.....	29	29	29	31	31	33	33	33	29	29	29	28	30
Actual production.....	26	28	27	29	32	31	30	31	31	29	26	28	29
Excess of production over Federal allowable.....	-3	-1	-2	-2	1	-2	-3	-2	2		-3		-1
Potential production ²													
United States:													
Federal allowable.....	2,183	2,183	2,283	2,366	2,366	2,528	2,530	2,449	2,342	2,326	2,340	2,384	2,358
Actual production.....	2,323	2,335	2,433	2,522	2,580	2,655	2,624	2,552	2,525	2,471	2,413	2,413	2,488
Excess of production over Federal allowable.....	140	152	150	156	214	127	94	103	183	145	73	29	130

¹ Railroad Commission of Texas.

² Not available.

³ Corporation Commission of Oklahoma.

⁴ Central Committee of California Oil Producers.

⁵ Corporation Commission of Kansas.

⁶ Oil Conservation Commission of New Mexico; Hobbs pool only.

DOMESTIC

Petroleum produced in the United

[Thousands of barrels

Year	New York	Pennsylvania	Ohio	West Virginia	California	Kentucky	Tennessee	Colorado	Indiana	Illinois	Kansas
1859-75	(3)	74,072									
1876	(3)	8,969	32	120	12						
1877	(3)	13,135	30	172	13						
1878	(3)	15,164	38	180	15						
1879	(3)	19,685	29	180	20						
1880	(3)	26,028	39	179	40						
1881	(3)	27,376	34	151	100						
1882	6,685	23,368	40	128	129						
1883	4,004	19,125	47	126	143	5 (3)					
1884	3,231	20,541	90	90	262	5 (3)					
1885	2,656	18,118	662	91	325	5 (3)					
1886	2,151	23,647	1,783	102	377	5 (3)					
1887	2,075	20,281	5,023	145	678	5 (3)		76			
1888	(3)	16,489	10,011	119	690	5 (3)		298			
1889	1,897	19,591	12,472	544	303	5 (3)		317	33	1	1
1890	(3)	28,458	16,125	493	307	6 (3)		369	64	1	1
1891	1,585	31,424	17,740	2,406	324	9 (3)		666	137	1	1
1892	1,273	27,149	16,363	3,810	385	7 (3)		824	698	1	5
1893	1,032	19,283	16,249	8,446	470	3 (3)		594	2,335	1	18
1894	942	18,078	16,792	8,577	706	2 (3)		516	3,689	(4)	40
1895	913	18,231	19,545	8,120	1,209	2 (3)		438	4,386	(4)	44
1896	1,205	19,379	23,941	10,020	1,253	2 (3)		361	4,861	(4)	114
1897	1,279	17,983	21,561	13,090	1,903	(3)		385	4,122	1	81
1898	1,205	14,743	18,739	13,615	2,257	6 (3)		444	3,731	(4)	72
1899	1,321	13,054	21,142	13,911	2,642	18 (3)		390	3,848	(4)	70
1900	1,301	13,258	22,363	16,196	4,325	62 (3)		317	4,874	(4)	75
1901	1,207	12,625	21,648	14,177	8,787	137 (3)		461	5,757	(4)	179
1902	1,120	12,064	21,014	13,513	13,984	185 (3)		397	7,481	(4)	332
1903	1,163	11,355	20,480	12,900	24,382	554 (3)		484	9,186		922
1904	1,113	11,126	18,877	12,645	29,649	998 (3)		501	11,339		4,251
1905	1,118	10,437	16,347	11,578	33,428	1,217 (3)		376	10,964	181	12,014
1906	1,243	10,257	14,788	10,121	33,099	1,214 (3)		328	7,674	4,397	21,718
1907	1,212	10,000	12,207	9,095	39,748	2,212 (3)		332	5,128	24,282	2,410
1908	1,160	9,424	10,859	9,523	44,855	728		380	3,283	33,686	1,801
1909	1,135	9,299	10,633	10,745	55,472	639		311	2,296	30,898	1,264
1910	1,054	8,795	9,916	11,753	73,011	469		240	2,160	33,143	1,128
1911	953	8,248	8,817	9,796	81,134	472		227	1,695	31,817	1,279
1912	874	7,838	8,969	12,129	87,269	484		206	970	28,602	1,593
1913	948	7,917	8,781	11,567	97,788	525		189	956	23,894	2,375
1914	939	8,170	8,536	9,680	99,775	503		223	1,336	21,920	3,104
1915	888	7,838	7,825	9,265	86,592	437		208	876	19,042	2,823
1916	874	7,593	7,744	8,731	90,952	1,202	1	197	769	17,714	8,738
1917	880	7,733	7,751	8,379	93,878	3,088	12	121	760	15,777	36,536
1918	809	7,408	7,285	7,867	97,532	4,368	8	143	878	13,366	45,451
1919	851	8,137	7,736	8,327	101,183	9,278	15	121	972	11,960	33,048
1920	906	7,438	7,400	8,249	103,377	8,738	14	111	945	10,774	39,005
1921	988	7,418	7,335	7,822	112,600	9,013	12	108	1,100	10,043	36,456
1922	1,000	7,425	6,781	7,021	138,468	8,973	10	97	1,087	9,383	31,766
1923	1,260	7,609	7,085	6,358	262,876	8,069	8	86	1,043	8,707	28,250
1924	1,440	7,486	6,811	5,920	228,933	7,407	10	445	935	8,081	28,836
1925	1,695	8,097	7,212	5,763	232,492	6,759	24	1,226	829	7,863	38,357
1926	1,956	8,961	7,272	5,946	224,673	6,274	43	2,768	808	7,760	41,498
1927	2,242	9,526	7,593	6,023	231,196	6,719	60	2,831	852	6,994	41,069
1928	2,603	9,956	7,015	5,661	231,811	7,359	46	2,774	1,052	6,462	38,596
1929	3,377	11,820	6,743	5,574	292,534	7,775	19	2,368	981	6,319	42,813
1930	3,647	12,303	6,486	5,071	227,329	7,389	21	1,656	994	5,736	41,638
1931	3,363	11,892	5,327	4,472	188,830	6,456	6	1,545	840	5,039	37,018
1932	3,508	12,412	4,644	3,876	178,128	6,287	5	1,136	806	4,673	34,848
1933	3,181	12,624	4,235	3,815	172,010	4,808	5	1,919	737	4,244	41,972
1934	3,804	14,478	4,284	4,095	174,305	4,660	10	1,139	838	4,479	46,482
Total	789,258	892,838	567,276	388,468	4,210,968	134,156	329	30,639	120,983	416,742	750,106
Percent of total production	0.5	5.4	3.4	2.3	25.4	0.8		0.2	0.7	2.5	4.5

¹ 1889-99, Missouri; 1900-1906, Michigan and Missouri; 1907-11, Michigan, Missouri, and Utah; 1912, 1917, 1918, Alaska and Michigan; 1913 and 1919, Alaska, Michigan, Missouri, and New Mexico; 1914-16, Alaska, Michigan, and Missouri; 1920, Alaska, Arkansas, Missouri, New Mexico, and Utah; 1921-23, Alaska, Missouri, and New Mexico; 1924-31, Alaska and Utah; 1932, Alaska, Missouri, and Utah; 1933, Alaska, Mississippi, Missouri, and Utah; 1934, Mississippi, Missouri, and Utah.

² New York included with Pennsylvania.

³ Tennessee included with Kentucky, 1883-1907, inclusive.

PRODUCTION

States, 1859-1934, by States

of 42 gallons]

Texas	Oklahoma	Wyoming	Michigan	Louisiana	New Mexico	Montana	Arkansas	Other ¹	Total		
									Quantity	Value at wells	
										Total (thousands of dollars)	Average per barrel
									74,072	215,781	\$2.91
									9,133	22,983	2.52
									13,350	31,789	2.38
									15,397	18,045	1.17
									19,914	17,211	.86
									26,286	24,601	.94
									27,661	25,448	.92
									30,350	23,631	.78
									23,450	25,790	1.10
									24,218	20,596	.85
									21,859	19,198	.88
									28,065	19,996	.71
									28,283	18,877	.67
									27,612	17,948	.65
									35,164	26,963	.77
									45,824	35,365	.77
									54,298	30,527	.56
									50,515	25,907	.51
									48,431	28,950	.60
									49,344	35,522	.72
									52,892	57,632	1.09
									60,960	58,519	.96
									60,476	40,874	.68
									55,364	44,193	.80
									57,071	64,604	1.13
								2	63,621	76,989	1.19
								2	69,389	66,417	.96
								1	38,767	71,179	.80
								3	100,461	94,694	.94
								3	117,081	101,175	.86
								3	134,717	84,157	.62
								3	126,494	92,445	.73
								4	166,095	120,107	.72
								15	178,527	129,079	.72
								6	183,171	128,329	.70
								4	209,557	127,900	.61
								8	220,449	134,045	.61
								4	222,935	164,213	.74
								11	248,446	237,121	.95
								8	265,763	214,125	.81
								14	281,104	179,463	.64
								8	300,767	330,900	1.10
								10	335,316	522,635	1.56
								8	355,928	703,944	1.98
								12	378,367	760,266	2.01
								13	442,929	1,360,745	3.07
								12	472,183	814,745	1.73
								12	2,449	12,712	
								13	557,531	895,111	1.61
								18	732,407	978,430	1.34
								13	713,940	1,022,683	1.43
								12	763,743	1,284,960	1.68
								8	770,874	1,447,760	1.88
								7	901,129	1,172,830	1.30
								6	901,474	1,054,880	1.17
								7	1,007,323	1,280,417	1.27
								7	898,011	1,070,200	1.19
								7	851,091	550,630	.66
								16	785,159	680,460	.87
								30	905,656	608,000	.67
								41	908,065	904,825	1.00
3,796,825	3,694,370	387,288	* 38,814	545,806	* 75,674	49,582	407,983	339	16,598,444	20,415,809	1.23
22.9	22.3	2.3	0.2	3.3	0.5	0.3	2.5		100.0		

⁴ Less than 500 barrels. (See Mineral Resources, 1916, pt. 2, pp. 684-685.)

⁵ Included under "Other."

⁶ Oklahoma included with Kansas in 1905 and 1906.

⁷ Early production in New York included with Pennsylvania.

⁸ Figures represent 1925-34 production only. Earlier years included under "Other."

⁹ Figures represent 1924-34 production only. Earlier years included under "Other."

Production of crude petroleum by districts and States and daily average production in principal fields and States in 1934, by months

[Quantity in thousands of barrels of 42 gallons; value in thousands of dollars]

TOTAL PRODUCTION

	January	February	March	April	May	June	July	August	September	October	November	December	Total		
													Quantity	Value at wells	
Appalachian:															
New York.....	306	240	314	295	320	314	335	333	319	351	335	336	3,804	9,340	
Pennsylvania.....	1,157	941	1,216	1,175	1,293	1,285	1,268	1,272	1,184	1,270	1,210	1,207	14,478	35,200	
West Virginia.....	340	291	364	332	351	343	336	367	337	373	327	334	4,095	8,600	
East and southeast Ohio.....	269	225	280	260	299	273	279	285	269	296	284	249	3,258	5,550	
Kentucky.....	362	330	380	338	352	433	428	448	445	460	438	441	4,860	5,640	
Tennessee.....	1	1	-----	1	1	1	1	-----	-----	1	1	1	10	10	
Total Appalachian.....	2,435	2,034	2,554	2,401	2,616	2,654	2,647	2,706	2,544	2,751	2,595	2,568	30,505	64,340	
Lima-Indiana:															
Northwestern Ohio.....	89	56	85	85	95	89	80	85	77	91	75	69	976	1,280	
Northeastern Indiana.....	2	2	2	2	2	2	2	2	2	2	2	2	24	30	
Michigan.....	807	797	849	877	984	925	932	946	918	909	789	870	10,603	10,820	
Total Lima-Indiana.....	898	855	936	964	1,081	1,016	1,014	1,033	997	1,002	866	941	11,603	12,130	
Illinois-Indiana:															
Southwest Indiana.....	72	52	70	66	76	73	73	77	71	66	58	60	814	930	
Illinois.....	393	337	399	373	416	397	398	407	381	352	305	321	4,479	4,990	
Total Illinois-Indiana.....	465	389	469	439	492	470	471	484	452	418	363	381	5,293	5,920	
Mid-Continent:															
Kansas.....	3,404	3,193	4,048	4,030	4,181	4,116	4,210	4,051	3,714	3,930	3,716	3,889	46,482	47,850	
Oklahoma.....	15,229	13,444	15,344	15,705	16,491	16,214	15,970	14,970	13,845	14,550	14,059	14,586	180,107	183,700	
Texas:															
West Texas.....	3,994	3,591	4,097	4,071	4,391	4,167	4,347	4,591	4,551	4,155	3,987	4,330	50,272	38,450	
East Texas.....	14,092	13,285	15,519	15,832	16,315	16,512	16,717	15,138	15,752	15,489	13,474	13,435	181,540	181,000	
Rest of State, exclusive of coastal Texas.....	6,770	6,385	7,167	7,201	7,665	7,511	8,018	8,214	7,865	7,691	7,371	7,091	89,549	81,500	
Southeast New Mexico.....	1,283	1,149	1,305	1,369	1,388	1,383	1,426	1,499	1,414	1,415	1,414	1,443	16,488	12,300	
Arkansas.....	963	860	926	929	944	971	902	954	884	935	869	855	11,182	8,000	
Northern Louisiana.....	854	763	801	767	767	711	751	753	708	741	725	734	8,450	8,450	
Mississippi and Missouri.....	3	2	3	3	3	4	4	3	3	3	3	3	37	31	
Total Mid-Continent.....	46,592	42,652	49,210	49,907	52,145	51,589	52,135	50,173	48,736	48,909	45,618	47,066	584,732	561,281	

Gulf coast:																			
Texas Gulf coast.....	4,936	4,493	4,921	4,820	5,230	5,025	5,108	5,433	5,254	5,076	4,805	5,054	60,155	60,600					
Louisiana Gulf coast.....	1,389	1,272	1,420	1,526	1,900	1,974	2,341	2,812	2,256	2,472	2,416	2,516	23,794	23,400					
Total Gulf coast.....	6,325	5,765	6,341	6,346	7,130	6,999	7,449	7,745	7,510	7,548	7,221	7,570	83,949	84,000					
Rocky Mountain:																			
Montana.....	221	203	213	240	274	287	332	387	343	375	368	360	3,603	4,380					
Wyoming.....	899	869	955	916	1,117	1,131	1,205	1,238	1,076	1,097	1,029	1,024	12,556	10,550					
Colorado.....	85	81	79	84	96	86	107	115	108	101	103	94	1,139	1,060					
Northwest New Mexico.....	30	33	32	28	37	30	31	29	29	37	29	31	4	400					
Utah.....						1	1	1	1				7	4					
Total Rocky Mountain.....	1,235	1,186	1,279	1,268	1,524	1,535	1,676	1,770	1,557	1,610	1,529	1,509	17,678	16,394					
California.....	14,067	12,502	14,637	14,320	14,978	15,373	15,947	15,194	13,963	14,355	14,207	14,762	174,305	160,760					
Total United States: 1934.....	72,017	65,383	75,426	75,645	79,966	79,636	81,339	79,105	75,759	76,593	72,399	74,797	908,065	904,825					
1933.....	65,159	61,252	75,185	65,709	86,638	84,386	85,321	85,485	78,321	76,077	69,966	72,157	905,656	608,000					
Total Ohio.....	358	281	365	345	394	362	359	370	336	387	359	318	4,234	6,830					
Total Indiana.....	74	54	72	68	78	75	75	79	73	68	60	62	838	960					
Total Texas.....	29,792	27,734	31,704	31,924	33,601	33,215	34,190	33,376	33,422	32,411	29,637	30,510	381,516	361,550					
Total Louisiana.....	2,243	2,035	2,221	2,293	2,667	2,685	3,092	3,065	2,964	3,213	3,141	3,260	32,869	31,850					
Total New Mexico.....	1,313	1,182	1,337	1,397	1,425	1,413	1,457	1,528	1,443	1,452	1,443	1,474	16,864	12,700					

DAILY AVERAGE PRODUCTION

California.....	454	447	472	477	483	512	514	490	465	463	474	476	478	-----
Kettleman Hills.....	52	50	55	56	59	61	67	64	61	59	59	59	59	-----
Long Beach.....	58	57	62	63	66	72	67	62	59	59	61	61	62	-----
Santa Fe Springs.....	42	41	42	43	42	42	41	40	37	36	38	39	40	-----
Kansas.....	110	114	131	134	135	137	136	131	124	127	124	125	127	-----
Louisiana.....	72	73	72	76	86	90	100	99	99	104	105	105	90	-----
New Mexico.....	42	42	43	47	46	47	47	49	43	47	48	48	46	-----
Hobbs.....	34	34	34	37	35	37	36	37	35	33	33	32	35	-----
Oklahoma.....	491	480	495	524	532	540	505	483	462	469	469	471	493	-----
Oklahoma City.....	179	165	172	194	200	202	175	155	154	154	157	159	172	-----
Seminole.....	107	102	105	106	107	116	110	107	97	99	99	101	105	-----
Texas.....	961	991	1,023	1,064	1,084	1,107	1,103	1,077	1,114	1,046	988	984	1,045	-----
Gulf coast.....	159	160	159	161	169	168	165	175	175	164	160	163	165	-----
West Texas.....	129	128	132	136	142	139	140	148	152	134	133	140	138	-----
East Texas.....	455	474	501	518	526	550	539	488	525	500	449	453	497	-----
Wyoming.....	29	31	31	31	36	38	39	40	36	35	34	35	34	-----
Salt Creek.....	17	18	18	18	18	18	18	18	17	19	18	18	18	-----
Other States.....	164	157	166	169	178	184	180	183	177	180	171	171	175	-----
United States: 1934.....	2,923	2,335	2,433	2,522	2,580	2,655	2,624	2,552	2,525	2,471	2,413	2,413	2,488	-----
1933.....	2,102	2,188	2,425	2,190	2,795	2,813	2,762	2,758	2,611	2,454	2,332	2,328	2,481	-----

*Pennsylvania-grade crude oil produced, 1924-34, by States*¹

[Thousands of barrels of 42 gallons]

State	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
New York.....	1,440	1,695	1,956	2,242	2,603	3,377	3,647	3,363	3,508	3,181	3,804
Pennsylvania.....	7,486	8,097	8,961	9,526	9,956	11,820	12,736	11,876	12,396	12,607	14,462
West Virginia.....	5,920	5,765	5,946	6,023	5,661	5,574	5,068	4,470	3,875	3,815	4,095
Central and eastern Ohio.....	2,168	2,242	2,011	2,346	2,877	2,654	2,742	2,184	1,741	1,594	1,597
Total.....	17,014	17,797	18,874	20,137	21,097	23,425	24,243	21,893	21,520	21,197	23,958

¹ Pennsylvania Grade Crude Oil Association, 1924-29.

Production of crude petroleum in Arkansas, 1924-34, by districts

[Thousands of barrels of 42 gallons]

Year	Bradley	Champagnolle	El Dorado	Irma	Lisbon	Miller	Mount Holly	Smackover	Stephens	Urbana	Total
1924.....			4,760	450				40,000	818		46,028
1925.....			4,247	334				72,144	673		77,398
1926.....	52		2,722	763	2,125			52,063	607		58,332
1927.....	44	(1)	2,433	774	1,054			35,201	499		40,005
1928.....	31	3,522	2,456	536	566			24,569	416		32,096
1929.....	24	2,651	1,987	409	492		(2)	18,991	363		24,917
1930.....	19	1,436	1,424	330	399		34	15,405	319	236	19,702
1931.....	5	944	1,186	266	288		4	11,504	272	322	14,791
1932.....		623	1,132	234	143			9,510	213	146	12,051
1933.....		488	1,231	264	95	100		8,882	127	499	11,686
1934.....		486	991	300	89	364		7,916	210	826	11,182

¹ Champagnolle included with El Dorado.

² Mount Holly included with Smackover.

Production of crude petroleum in Arkansas in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	Petroleum transported from producing properties												Oil consumed on leases plus net change in producers' stocks, Jan. 1-Dec. 31	Production	
	January	February	March	April	May	June	July	August	September	October	November	December			Total
Champagnolle.....	32	33	37	36	39	35	32	33	30	33	43	87	470	16	486
El Dorado.....	87	89	96	81	99	84	73	80	73	79	80	71	997	6	991
Irma.....	37	16	2	22	23	40	35	37	18	24	19	27	300		300
Lisbon.....	7	6	6	7	8	6	7	6	7	6	6	7	79		89
Miller.....	24	19	30	20	19	27	42	37	39	36	28	33	354		364
Smackover.....	674	600	661	689	671	700	692	664	627	663	689	628	7,858	58	7,916
Stephens.....	20	16	18	18	20	18	19	19	17	17	14	14	210		210
Urbana.....	87	59	63	64	72	69	74	75	71	74	68	70	826		826
Total: 1934.....	948	838	913	937	951	979	979	951	882	932	847	937	11,094	88	11,182
1933.....	981	828	963	947	971	1,034	973	960	1,080	1,023	922	942	11,624	62	11,686

Production of crude petroleum in California in 1934, by districts and months ¹

[Thousands of barrels of 42 gallons]

District	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
San Joaquin Valley:													
Belridge.....	260	242	289	262	281	228	245	237	206	212	215	239	2,916
Buena Vista.....	619	527	613	605	707	676	707	656	629	662	620	607	7,628
Coalinga.....	486	414	510	482	530	612	655	591	568	577	551	549	6,525
Elk Hills.....	351	291	342	327	277	256	270	243	248	247	237	249	3,338
Fruitvale.....	115	96	111	112	121	120	121	99	102	100	107	109	1,313
Kern.....	267	251	286	276	302	311	328	331	315	327	312	318	3,624
Kettleman Hills.....	1,597	1,394	1,702	1,682	1,834	1,840	2,080	1,987	1,822	1,838	1,771	1,844	21,391
Lost Hills.....	85	72	105	107	116	130	144	135	135	139	135	139	1,442
McKittrick.....	77	77	97	97	95	94	95	88	86	90	86	94	1,076
Midway-Mari-copa.....	1,007	894	1,057	1,022	1,053	1,039	1,053	998	989	1,006	931	974	12,023
Mount Pose.....	238	219	245	251	260	310	316	293	283	302	293	338	3,348
Mountain View.....	75	102	122	177	193	225	196	222	278	301	348	342	2,581
Other.....	169	154	201	167	185	183	183	158	176	185	192	203	2,156
Total San Joa-quin.....	5,346	4,733	5,680	5,567	5,954	6,024	6,393	6,038	5,837	5,986	5,798	6,005	69,361
Coastal district:													
Elwood.....	388	358	380	352	360	339	361	387	285	294	298	298	4,100
Santa Maria.....	149	128	144	144	149	152	153	158	137	148	145	142	1,749
Ventura Avenue.....	993	885	987	823	827	801	887	846	702	711	728	725	9,865
Other.....	196	195	211	210	228	243	258	277	259	280	329	342	3,008
Total coastal.....	1,726	1,516	1,722	1,529	1,564	1,535	1,659	1,668	1,363	1,433	1,500	1,507	18,722
Los Angeles Basin:													
Brea Olinda.....	272	245	281	278	319	347	366	347	308	315	319	323	3,720
Coyote.....	306	281	322	336	334	398	393	377	334	339	341	351	4,112
Dominguez.....	504	452	552	617	531	606	617	608	518	529	545	571	6,650
Huntington Beach:	1,180	1,082	1,214	1,183	1,315	1,421	1,446	1,353	1,179	1,205	1,167	1,261	15,006
Inglewood.....	282	250	288	274	242	283	307	292	278	283	285	300	3,364
Long Beach.....	1,805	1,586	1,927	1,903	2,059	2,159	2,089	1,927	1,781	1,841	1,815	1,896	22,788
Montebello.....	153	141	157	150	156	161	170	169	166	179	171	190	1,908
Playa del Rey.....	279	241	276	284	274	259	269	257	218	223	272	264	3,116
Richfield.....	222	203	226	232	239	244	259	260	238	245	240	248	2,856
Santa Fe Springs.....	1,292	1,153	1,295	1,282	1,292	1,251	1,273	1,241	1,123	1,128	1,137	1,195	14,682
Seal Beach.....	268	233	271	263	245	232	232	198	181	198	186	208	2,715
Torrance-Formosa.....	199	179	198	193	214	216	223	223	214	220	206	213	2,498
Other.....	233	207	228	229	240	237	251	236	225	231	225	230	2,772
Total Los Angeles.....	6,995	6,253	7,235	7,224	7,460	7,814	7,895	7,488	6,763	6,936	6,909	7,250	86,222
Total California.....	14,067	12,502	14,637	14,320	14,978	15,373	15,947	15,194	13,963	14,355	14,207	14,762	174,305

¹ Central Committee of California Oil Producers.

Production of crude petroleum in Colorado, 1924-34, by districts

[Thousands of barrels of 42 gallons]

Year	Boul-der	Flor-ence	Fort Col-lins ¹	Grease-wood	Iles	Moffat	Rangely	Tow Creek	Total
1924.....	4	70	86	-----	-----	256	29	-----	445
1925.....	3	97	430	-----	17	605	32	42	1,226
1926.....	2	148	1,222	-----	24	1,199	33	140	2,768
1927.....	(²)	291	1,260	-----	263	-----	469	278	2,831
1928.....	(²)	430	1,030	-----	626	-----	434	190	2,774
1929.....	(²)	344	824	-----	546	-----	436	35	2,358
1930.....	(²)	200	485	(³)	382	-----	394	47	1,656
1931.....	(²)	135	355	173	391	-----	321	49	1,545
1932.....	(²)	111	290	108	245	-----	248	33	1,136
1933.....	(²)	91	226	56	213	-----	212	43	919
1934.....	(²)	83	186	37	529	-----	173	60	1,339

¹ Includes Wellington.

² Included with Rangely.

³ Includes Canon City.

⁴ Includes Boulder and Walden.

⁵ Includes Berthoud, Boulder, and Walden.

⁶ Includes Berthoud, Boulder, Greasewood, and Walden.

Production of crude petroleum in Colorado in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	Petroleum transported from producing properties												Oil consumed on leases plus net change in producers' stocks, Jan. 1-Dec. 31	Production
	January	February	March	April	May	June	July	August	September	October	November	December			Total
Florence ¹	8	7	8	7	7	6	7	7	7	6	6	7	83	83
Fort Collins ²	19	15	17	16	16	15	16	18	14	14	14	14	188	186
Greasewood.....	4	3	3	4	4	3	3	3	3	3	2	2	35	37
Iles.....	28	32	28	27	40	36	59	62	56	56	51	49	524	529
Moffat.....	17	13	14	12	17	14	12	13	15	10	16	12	165	173
Rangely ³	3	3	3	3	3	3	3	5	6	5	7	4	48	60
Tow Creek.....	6	5	8	7	7	7	5	5	5	5	5	6	71	71
Total: 1934.....	85	78	81	76	94	84	105	113	106	99	101	92	1,114	1,139
1933.....	84	70	83	67	80	73	79	73	69	73	75	73	899	919

¹ Includes Canon City.

² Includes Wellington.

³ Includes Berthoud, Boulder, and Walden.

Production of crude petroleum in Illinois, 1924-34, by months

[Thousands of barrels of 42 gallons]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1924.....	631	650	734	619	713	691	722	689	684	710	623	615	8,081
1925.....	662	604	728	586	661	665	690	647	667	677	639	637	7,863
1926.....	635	600	729	579	650	662	680	670	657	651	616	631	7,760
1927.....	589	558	698	536	601	602	576	607	577	557	562	531	6,994
1928.....	510	516	635	468	573	550	551	573	506	558	508	514	6,462
1929.....	508	455	603	457	552	517	561	572	532	566	506	490	6,319
1930.....	487	478	532	511	540	513	531	523	409	428	378	406	5,736
1931.....	411	376	374	378	384	456	463	439	437	444	430	447	5,039
1932.....	433	415	502	391	450	428	398	407	376	285	299	289	4,673
1933.....	297	262	316	284	314	359	409	413	415	408	389	378	4,244
1934.....	393	337	399	373	416	397	398	407	381	352	305	321	4,479

Production of crude petroleum in Indiana, 1924-34, by months

[Thousands of barrels of 42 gallons]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Southwestern Indiana:													
1924.....	52	55	52	61	62	58	62	55	54	57	49	49	666
1925.....	56	53	50	58	54	58	59	51	54	54	49	53	649
1926.....	54	55	50	54	57	56	56	54	54	53	56	59	658
1927.....	55	59	55	53	59	60	60	66	63	66	64	66	726
1928.....	70	75	71	75	81	78	81	86	82	88	87	89	963
1929.....	83	81	77	76	78	71	72	75	71	78	78	78	918
1930.....	74	80	77	87	87	85	89	88	69	70	67	68	941
1931.....	70	66	58	66	66	75	72	64	67	67	64	68	803
1932.....	69	70	66	72	73	75	71	71	62	49	50	49	777
1933.....	48	45	51	49	50	61	66	68	70	74	72	69	723
1934.....	72	52	70	66	76	73	73	77	71	66	58	60	814
Northeastern Indiana:													
1924.....	18	22	24	27	27	26	26	23	22	22	16	16	269
1925.....	15	15	18	18	16	17	17	16	14	12	11	11	180
1926.....	10	13	14	13	13	14	14	14	13	12	9	11	150
1927.....	9	12	12	12	12	13	11	10	10	9	8	8	126
1928.....	7	8	7	8	9	8	7	8	7	8	6	6	89
1929.....	4	4	6	6	6	7	5	5	5	5	5	5	63
1930.....	4	4	4	5	6	5	5	4	5	5	3	3	53
1931.....	4	4	3	3	4	3	2	3	3	3	3	2	37
1932.....	3	2	3	3	3	3	2	2	2	2	1	2	29
1933.....	1	1	1	1	1	1	2	2	1	1	1	1	14
1934.....	2	2	2	2	2	2	2	2	2	2	2	2	24
Total Indiana:													
1924.....	70	77	76	88	89	84	88	78	76	79	65	65	935
1925.....	71	68	68	76	70	75	76	67	68	66	60	64	829
1926.....	64	68	64	67	70	70	70	68	67	65	65	70	808
1927.....	64	71	67	65	71	73	71	76	73	75	72	74	852
1928.....	77	83	78	83	90	86	88	94	89	96	93	95	1,052
1929.....	87	85	83	82	84	78	77	80	76	83	83	83	981
1930.....	78	84	81	92	93	90	94	92	74	75	70	71	994
1931.....	74	70	61	69	70	78	74	67	70	70	67	70	840
1932.....	72	72	69	75	76	78	73	73	64	51	52	51	806
1933.....	49	46	52	50	51	62	68	70	71	75	73	70	737
1934.....	74	54	72	68	78	75	75	79	73	68	60	62	838

Production of crude petroleum in Kansas, 1924-34, by months

[Thousands of barrels of 42 gallons]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1924.....	2,113	2,131	2,276	2,341	2,513	2,399	2,460	2,678	2,609	2,630	2,431	2,255	28,836
1925.....	2,455	2,534	2,835	2,942	3,448	3,563	3,613	3,604	3,424	3,458	3,267	3,214	38,557
1926.....	3,199	2,932	3,248	3,395	3,522	3,624	3,740	3,685	3,498	3,610	3,461	3,584	41,498
1927.....	3,575	3,342	3,608	3,496	3,586	3,452	3,374	3,357	3,283	3,441	3,277	3,278	41,069
1928.....	3,362	3,248	3,561	3,422	3,444	3,274	3,283	3,222	2,912	3,073	2,828	2,967	38,596
1929.....	2,939	2,717	3,093	3,385	3,812	3,795	4,323	4,194	3,963	3,681	3,427	3,484	42,813
1930.....	3,149	3,103	3,477	3,520	3,948	4,087	3,618	3,414	3,439	3,432	3,252	3,199	41,638
1931.....	3,102	3,030	3,299	3,195	3,244	2,999	2,862	2,825	3,105	3,114	3,060	3,183	37,018
1932.....	3,014	2,774	2,932	2,951	2,973	2,774	2,948	3,039	2,960	2,945	2,846	2,692	34,848
1933.....	2,932	2,919	3,611	3,527	3,280	3,453	4,061	3,909	3,831	3,807	3,666	3,480	41,976
1934.....	3,404	3,193	4,048	4,030	4,181	4,116	4,210	4,051	3,714	3,930	3,716	3,889	46,482

Production of crude petroleum in Kansas in 1934, by districts and months ¹

[Thousands of barrels of 42 gallons]

District	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Barton.....	21	21	30	35	39	44	47	45	36	42	39	47	446
Butler:													
Eldorado.....	166	155	170	165	168	162	173	170	162	167	156	160	1,974
Leon-Weaver.....	71	65	72	70	69	67	73	71	67	72	67	70	834
Towanda.....	69	61	66	68	72	69	70	70	65	69	63	65	807
Other.....	311	286	324	313	331	318	335	327	303	318	288	297	3,751
Cowley.....	153	133	151	138	143	134	143	144	133	139	133	137	1,681
Ellsworth.....	95	83	107	105	103	95	96	105	94	91	92	95	1,161
Greenwood-Woodson:													
Seeley.....	108	98	108	105	106	103	101	101	98	100	98	101	1,227
Teeter.....	68	56	67	64	65	63	62	65	61	68	63	65	767
Virgil.....	133	115	132	126	147	135	130	127	117	123	117	120	1,522
Other.....	74	66	75	73	76	73	70	76	67	72	70	70	862
Harvey.....	275	276	417	401	414	297	301	253	215	188	186	203	3,426
Kingman.....	10	25	51	54	56	54	44	40	40	36	31	37	478
McPherson:													
Nikkell.....	104	107	176	190	178	219	241	215	170	182	154	160	2,096
Ritz-Canton.....	386	379	447	434	440	436	441	395	334	313	284	355	4,644
Voshell.....	227	199	223	230	229	208	213	198	172	187	156	171	2,413
Other.....	48	51	63	61	66	66	67	67	57	67	63	68	744
Reno.....	78	80	97	118	171	166	182	204	205	270	344	418	2,333
Rice:													
Chase.....	83	79	132	132	138	157	170	152	145	161	179	173	1,701
Sharpe.....	13	21	50	66	77	96	117	95	82	89	84	91	881
Other.....	107	97	134	139	131	138	149	155	129	156	158	166	1,659
Russell.....	173	154	209	198	198	203	226	235	214	245	247	246	2,548
Sedgwick:													
Eastborough.....	36	38	45	45	44	42	42	43	40	41	37	40	493
Greenwich.....	59	69	88	94	88	89	73	70	75	82	64	64	917
Wright.....	58	53	66	67	69	67	65	62	54	62	63	64	750
Other.....	37	32	36	37	34	35	53	65	57	60	78	81	605
Stafford.....	18	20	31	32	33	47	54	36	36	46	43	48	444
Sumner.....	93	84	102	96	97	94	90	91	101	104	91	95	1,138
Other.....	287	270	289	284	301	294	295	294	278	301	274	285	3,452
	3,361	3,173	3,958	3,940	4,083	3,971	4,123	3,971	3,607	3,851	3,722	3,994	45,754

¹Oil and Gas Journal.

Production of petroleum in Kentucky, 1924-34, by months

[Thousands of barrels of 42 gallons]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1924.....	586.4	596.3	636.4	643.4	647.7	611.4	677.4	615.6	625.2	631.6	566.3	569.3	7,407
1925.....	575.7	544.4	592.4	579.5	530.6	567.2	598.6	556	561.6	552.8	534.2	516	6,759
1926.....	499	485	531	517	522	526	549	540	532	536	521	516	6,274
1927.....	509	490	549	540	559	558	586	612	587	588	586	555	6,719
1928.....	542	558	623	618	653	563	681	662	594	660	608	597	7,359
1929.....	585	511	560	584	636	547	710	676	722	810	724	710	7,775
1930.....	665	604	625	643	663	609	676	610	621	608	524	541	7,339
1931.....	551	525	688	515	477	486	478	461	555	591	615	514	6,456
1932.....	524	468	518	473	547	535	550	579	648	592	490	453	6,287
1933.....	438	336	379	351	362	320	428	382	414	423	389	386	4,698
1934.....	362	330	380	338	352	438	428	448	445	460	438	441	4,680

Production of crude petroleum in Louisiana, 1924-34, by districts

[Thousands of barrels of 42 gallons]

District	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
Gulf coast:											
Anse la Butte.....	12	17	17	17	16	14	9	12	11	(1)	(1)
Bayou Bouillon.....					205	72	78	15			422
Black Bayou.....						(1)	177	477	353	292	1,036
Bosco.....											1,748
Caillou Island.....								(1)	(1)	(1)	419
Cameron Meadows.....								104	146	100	324
Choctaw.....								109	63	50	65
Egderly.....	166	185	207	467	358	245	161	109	195	165	110
Gueydan.....				42	1,149	1,783	1,213	1,399	2,149	1,938	1,911
Hackberry.....									489	3,396	5,300
Iowa.....									332	400	444
Jennings.....	213	273	342	299	250	515	495	169	332	3,021	1,894
Lake Barre.....						46	388	1,021	2,722	154	368
Lake Washington.....								39	152	154	368
Leesville.....								154	273	359	4,487
Lockport.....	128	471	1,343	2,038	1,445	1,369	1,131	1,906	989	938	714
Port Barre.....						33	970	450	577	956	937
Roanoke.....											241
Sorrento.....					289	110	30	53	13	15	(1)
Starks.....				262	186	170	206	260	289	328	262
Sulphur.....				(1)	890	1,374	1,362	567	822	910	1,256
Sweet Lake.....			(1)	77	661	93	193	459	271	335	385
Vinton.....	1,968	2,274	2,215	1,786	1,569	1,484	1,768	1,940	1,514	1,302	1,168
White Castle.....						(1)	300	329	200	192	191
Other.....		2	16	62	35	146	129	97	56	93	112
Total Gulf coast.....	2,487	3,227	4,140	5,050	7,053	7,454	8,610	9,560	11,616	15,306	23,794
Northern:											
Bellevue.....	1,749	1,129	788	472	323	255	233	98			85
Caddo.....	4,319	4,067	4,749	5,789	4,798	4,589	4,120	3,054	2,486	2,248	2,200
Converse.....											865
Cotton Valley.....	1,211	3,348	2,914	1,968	1,731	1,040	880	509	353	307	290
De Soto.....	353	305	321	541	463	276	247	192	469	411	398
Elm Grove.....	217	212	222	222	185	178	172	149	109	107	116
Haynesville.....	6,720	4,604	3,328	2,600	2,150	1,806	1,743	1,902	1,534	1,402	1,379
Holly.....							308	189	99	74	65
Homer.....	2,837	2,296	2,033	1,785	1,548	1,405	1,278	1,083	1,021	991	980
Pleasant Hill.....						(1)	178	115	85	(2)	(3)
Red River (Bull Bayou, Crichton).....	1,231	1,074	1,037	1,070	1,109	987	838	713	257	190	145
Sarepta.....						(2)	888	259	119	242	(3)
Urania.....		10	3,669	3,321	2,487	2,155	1,976	1,448	1,208	883	1,077
Zwolle.....						409	1,801	2,538	2,451	3,007	1,675
Total northern.....	13,637	17,045	19,061	17,768	14,794	13,100	14,662	12,244	10,191	9,862	9,075
Total Louisiana.....	21,124	20,272	23,201	22,818	21,847	20,554	23,272	21,804	21,807	25,168	32,869

1 Included under "Other."
 2 Caddo includes Carterville and Sarepta.
 3 Converse includes Pleasant Hill and Sarepta.
 4 Zwolle includes Pleasant Hill.
 5 Sarepta includes Carterville and Pleasant Hill.
 6 Includes Carterville.

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Production of crude petroleum in Louisiana in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	Petroleum transported from producing properties												Oil consumed on leases plus net change in producers' stocks Jan. 1-Dec. 31	Production	
	January	February	March	April	May	June	July	August	September	October	November	December			Total
Gulf coast:															
Black Bayou.....	27	27	25	27	47	38	31	38	43	28	29	28	398	24	422
Bosco.....					12	38	66	95	111	158	227	305	1,012	24	1,036
Caillou Island.....	87	80	91	134	141	132	176	163	164	172	175	204	1,719	29	1,748
Cameron Meadows.....	11	8	3	13	53	49	50	40	46	45	40	41	8		419
Choctaw.....	33	25	28	33	35	28	22	36	28	27	15	14	324		324
Egderly.....	3	4	2	5	4	3	4	3	7	15	10	10	65		65
Gueydan.....	6	7	7	11	7	8	6	6	6	7	4	7	82	28	110
Hackberry.....	148	130	118	127	150	137	168	181	166	188	152	163	1,828	83	1,911
Iowa.....	356	327	381	376	433	443	515	499	441	485	516	528	5,900		5,300
Jennings.....	34	30	32	25	25	41	45	51	47	43	35	32	440		444
Lake Barre.....	160	126	123	114	149	144	188	181	172	175	175	179	1,886		1,894
Lake Washington.....	20	16	28	27	26	36	30	39	36	35	34	41	363		368
Leesville.....	74	107	164	224	373	430	551	496	507	549	603	477	4,455	32	4,487
Lockport.....	59	48	46	47	64	57	55	67	63	60	60	70	696	18	714
Port Barre.....	57	54	63	61	60	51	83	76	100	106	106	107	924	13	937
Roanoke.....						34	28	25	24	44	52	238		241	
Starks.....	21	19	19	23	22	18	23	30	19	22	15	15	246	16	252
Sulphur.....	103	89	103	101	102	105	112	67	48	54	79	36	999	257	1,256
Sweet Lake.....	29	27	35	30	41	29	26	44	24	31	29	27	372	13	385
Vinton.....	100	91	103	101	103	105	97	99	88	89	90	86	1,152	16	1,168
White Castle.....	19	18	21	17	16	12	13	12	9	17	9	14	177	14	191
Other.....	2		2	1	1	1	1			5	29	40	82	30	112
Total Gulf coast:															
1934.....	1,349	1,233	1,394	1,497	1,865	1,944	2,291	2,262	2,140	2,338	2,386	2,475	23,174	620	23,794
1933.....	1,025	902	1,116	1,213	1,249	1,197	1,320	1,417	1,404	1,443	1,379	1,350	15,015	291	15,306
Northern:															
Bellevue.....				1			8	15	15	18	12	16	85		85
Caddo.....	184	162	176	177	179	172	173	192	183	196	195	215	2,204	—4	2,200
Converse ¹	42	41	46	53	55	56	63	66	60	60	49	51	642	23	665
Cotton Valley.....	29	23	27	26	25	24	23	24	22	25	20	24	292	—2	298
De Soto.....	35	31	31	33	33	35	35	36	34	34	31	31	399	—1	390
Elm Grove.....	10	10	11	9	11	11	10	11	10	10	10	9	122	—6	116
Haynesville.....	123	104	118	117	125	111	120	117	107	121	108	114	1,385	—6	1,379
Holly.....	5	6	6	5	6	5	6	5	5	5	5	6	65		65
Homer.....	85	75	80	82	80	80	84	83	81	85	82	83	980		980
Red River (Bull Bayou-Crichton)	15	12	13	12	13	11	12	12	11	13	10	11	145		145
Urania.....	102	78	83	85	87	86	89	98	93	91	89	93	1,074	3	1,077
Zwolle.....	220	218	207	171	151	128	126	97	85	91	82	79	1,655	20	1,675
Total northern:															
1934.....	850	760	798	771	765	719	749	756	706	749	693	732	9,043	27	9,075
1933.....	921	771	922	891	818	754	762	785	796	819	787	805	9,831	31	9,862
Total Louisiana:															
1934.....	2,199	1,993	2,192	2,268	2,630	2,663	3,040	3,018	2,846	3,087	3,079	3,207	32,222	647	32,869
1933.....	1,946	1,673	2,038	2,104	2,067	1,951	2,082	2,202	2,200	2,262	2,166	2,155	24,846	322	25,168

¹ Includes Pleasant Hill and Sarepta.

Production of crude petroleum in Michigan, 1925-34, by districts

[Thousands of barrels of 42 gallons]

Year	Mount Pleasant	Muskegon	Porter	Saginaw	Vernon	Yost-Jasper	Other	Total
1925				4				4
1926				94				94
1927		(¹)		1 439				439
1928	(²)	338		² 256				594
1929	1,394	3,019		115				4,528
1930	2,599	1,223		89				3,911
1931	2,608	577		59	³ 244		301	3,789
1932	³ 5,796	³ 479		³ 64	³ 322	19	230	6,910
1933 ³	3,129	276	3,354	55	539	219	370	7,942
1934 ³	1,513	159	7,168	48	907	276	532	10,603

- ¹ Muskegon included with Saginaw.
- ² Mount Pleasant included with Saginaw.
- ³ Department of Conservation, Michigan.

Production of crude petroleum in Michigan in 1934,¹ by districts and months

[Thousands of barrels of 42 gallons]

District	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Mount Pleasant	162	135	146	133	131	125	124	120	112	113	107	105	1,513
Muskegon	15	15	15	16	16	14	11	14	11	12	10	10	159
Porter	486	521	537	587	684	632	652	661	639	625	534	610	7,168
Saginaw	3	7	2	4	3	9	4	2	4	3	3	4	48
Vernon	80	68	87	73	82	78	74	78	78	78	67	64	907
Yost-Jasper	15	20	24	27	26	27	23	23	27	23	19	22	276
Other	46	31	33	37	42	40	44	48	47	55	49	55	532
Total: 1934	807	797	849	877	984	925	932	946	918	909	789	870	10,603
1933	546	407	439	442	524	488	563	879	905	962	895	892	7,942

- ¹ Department of Conservation, Michigan.

Production of crude petroleum in Montana, 1924-34, by districts

[Thousands of barrels of 42 gallons]

Year	Border	Cat Creek	Cut Bank	Dry Creek	Elk Basin	Kevin-Sunburst	Lake Basin	Pondera	Other	Total
1924		1,572			24	1,217			2	2,815
1925		1,255			21	2,780	31		4	4,081
1926		1,015			19	6,630	63			7,727
1927		¹ 779			17	4,214	48			5,058
1928		¹ 613			20	3,189	43	150		4,015
1929		¹ 497			19	2,378	29	1,057		3,980
1930	120	418		15	16	1,998	23	739	20	3,349
1931	178	359		164	16	1,557	25	525	6	2,830
1932	113	311		195	11	1,337	18	436	36	2,457
1933	51	266	238	125	3	1,237	18	308	27	2,273
1934	70	236	1,204	(²)	16	1,628	16	353	70	3,003

- ¹ Includes small amounts from Bannatyne and Devils Basin.
- ² Included with "Other."

Production of crude petroleum in Montana in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	Petroleum transported from producing properties												Oil consumed on leases plus net change in producers' stocks, Jan. 1—Dec. 31	Production
	January	February	March	April	May	June	July	August	September	October	November	December			Total
Border.....	6	5	7	7	6	6	5	6	5	7	5	5	70	70
Cat Creek.....	21	19	20	21	19	18	19	19	18	20	20	22	236	236
Cut Bank.....	51	45	54	61	78	80	100	124	130	147	150	161	1,181	1,204
Kevin-Sunburst.....	111	95	100	115	131	138	165	174	152	153	145	120	1,599	1,628
Pondera.....	30	24	27	25	28	35	28	27	28	38	39	42	371	363
Other ¹	9	8	7	8	9	7	12	25	13	7	6	7	118	102
Total: 1934.....	228	196	215	237	271	284	329	375	346	372	365	357	3,575	28
1933.....	166	135	163	164	180	200	197	196	193	201	215	187	2,197	76

¹ Includes Bannatyne, Bear's Den, Devil's Basin, Dry Creek, Elk Basin, Lake Basin, Soap Creek, and Sweet Grass Hills.

Production of crude petroleum in New Mexico, 1924-34, by districts

[Thousands of barrels of 42 gallons]

Year	Artesia	Hobbs	Hogback	Lea	Rattle-snake ¹	Total
1924.....				86	12	98
1925.....	748			187	125	1,060
1926.....	1,016			221	427	1,666
1927.....	582			223	39	1,226
1928.....	410			169	69	943
1929.....	323	(²)		120	899	1,330
1930.....	261	6,525		159	2,782	10,139
1931.....	426	12,788		176	1,490	15,227
1932.....	480	10,237		133	1,345	12,455
1933.....	596	11,543		77	1,609	14,116
1934.....	898	12,628		76	2,962	16,864

¹ Includes Bloomfield in 1925; Bloomfield and Table Mesa in 1926; Hospah and Table Mesa in 1929; Table Mesa in 1930-32; and Aztec and Table Mesa in 1933-34.

² Maljamar only.

³ Included with Lea.

⁴ Includes Hobbs, Jal, Maljamar, and other pools in Lea County.

⁵ Includes Jal, Maljamar, and other pools in Lea and Eddy Counties.

Production of crude petroleum in New Mexico in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	Petroleum transported from producing properties												Oil consumed on leases plus net change in producers' stocks, Jan. 1-Dec. 31	Production	
	January	February	March	April	May	June	July	August	September	October	November	December			Total
Artesia.....	68	61	73	71	82	64	80	83	77	88	78	73	898	-----	898
Hobbs.....	1,055	947	1,050	1,106	1,101	1,093	1,107	1,134	1,023	1,019	986	977	12,598	30	12,628
Hogback.....	6	6	7	6	6	6	6	6	5	8	6	8	76	-----	76
Lea ¹	157	137	186	190	219	220	238	281	293	317	329	382	2,949	13	2,962
Rattlesnake ²	23	26	25	20	31	24	25	23	24	29	23	23	296	4	300
Total: 1934.....	1,309	1,177	1,341	1,393	1,439	1,407	1,456	1,527	1,422	1,461	1,422	1,463	16,817	47	16,864
1933.....	996	1,017	1,166	1,071	1,095	1,147	1,272	1,276	1,235	1,283	1,261	1,266	14,085	31	14,116

¹ Includes Jal, Maljamar, and other pools in Lea and Eddy Counties.

² Includes Aztec and Table Mesa.

Production of crude petroleum in New York, 1924-34, by months

[Thousands of barrels of 42 gallons]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1924.....	106	106	117	119	128	118	130	118	133	129	114	122	-1,440
1925.....	125	122	139	134	138	146	150	143	147	152	144	150	1,695
1926.....	147	141	168	165	156	162	174	167	171	176	153	181	1,956
1927.....	169	169	195	185	191	189	184	200	192	189	187	192	2,242
1928.....	185	181	195	192	211	225	200	230	219	249	251	265	2,603
1929.....	262	240	267	277	295	284	301	285	282	288	281	315	3,377
1930.....	314	327	369	373	392	326	275	213	263	285	248	262	3,647
1931.....	251	241	264	269	268	286	275	257	299	324	291	338	3,363
1932.....	323	294	303	301	313	307	298	304	277	266	259	263	3,508
1933.....	254	240	272	245	223	256	256	280	286	292	279	298	3,181
1934.....	306	246	314	295	320	314	335	333	319	351	335	336	3,804

Production of crude petroleum in Ohio, 1924-34, by months

[Thousands of barrels of 42 gallons]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Central and east- ern Ohio:													
1924	368	358	393	409	408	391	419	401	411	440	386	409	4,793
1925	409	393	438	447	428	453	458	447	450	460	423	466	5,272
1926	410	406	471	447	438	472	463	464	452	449	449	471	5,392
1927	454	453	536	502	527	512	487	518	492	482	473	448	5,884
1928	445	441	480	455	492	471	462	473	416	466	418	415	5,434
1929	431	388	442	441	456	431	489	430	422	463	423	438	5,269
1930	446	423	436	464	463	450	457	402	417	441	367	408	5,174
1931	391	356	389	375	368	364	313	290	345	355	322	344	4,212
1932	286	281	304	316	321	324	289	304	294	283	280	282	3,579
1933	266	246	269	260	256	250	267	295	275	299	266	254	3,203
1934	269	225	280	260	299	273	279	285	259	296	284	249	3,258
Northwestern Ohio:													
1924	144	159	178	182	183	185	181	169	172	180	141	144	2,018
1925	151	150	165	172	166	181	176	166	165	161	141	146	1,940
1926	147	145	165	158	163	181	169	160	156	154	137	145	1,789
1927	131	144	158	144	149	158	145	149	143	144	123	121	1,709
1928	117	122	138	129	154	149	152	137	122	133	110	117	1,581
1929	104	95	122	119	128	145	159	148	120	129	110	105	1,484
1930	101	112	109	120	123	120	121	107	109	108	86	86	1,312
1931	105	91	93	93	93	100	98	82	95	98	78	99	1,115
1932	83	81	81	98	99	103	91	94	89	85	72	79	1,065
1933	86	69	84	79	82	88	95	99	95	96	80	79	1,032
1934	89	56	85	85	95	89	80	85	77	91	75	69	976
Total Ohio:													
1924	512	517	571	591	591	576	600	570	583	620	527	553	6,811
1925	560	543	603	619	594	634	634	613	615	621	564	612	7,212
1926	557	551	636	605	601	653	632	624	608	603	586	616	7,272
1927	585	597	694	646	676	670	632	667	655	626	596	569	7,593
1928	562	564	618	584	646	620	614	610	538	599	528	532	7,015
1929	535	483	564	560	584	576	648	578	542	597	533	543	6,743
1930	547	535	545	584	586	570	578	509	526	549	453	504	6,486
1931	496	447	482	468	461	464	411	372	440	453	400	433	5,327
1932	379	362	395	414	420	427	380	398	383	373	352	361	4,044
1933	352	315	353	339	338	338	362	394	370	395	346	333	4,235
1934	358	281	365	345	394	362	359	370	336	387	359	318	4,234

Production of crude petroleum in Oklahoma, 1924-34, by months

[Thousands of barrels of 42 gallons]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1924	12,109	12,448	13,262	13,850	14,181	14,262	15,041	16,032	16,109	15,713	15,258	15,273	173,538
1925	15,002	13,989	14,776	14,818	14,775	14,684	14,777	14,797	15,228	15,020	14,789	14,113	176,768
1926	13,787	12,706	14,345	14,466	14,924	14,424	14,793	14,844	14,335	15,891	16,829	17,851	179,195
1927	18,596	19,951	22,341	21,407	23,400	23,516	26,810	26,377	24,424	24,704	23,767	22,482	277,775
1928	21,040	19,166	19,980	18,921	19,745	19,009	19,175	21,363	22,796	23,862	22,040	22,760	249,857
1929	22,856	20,235	21,213	20,689	21,803	20,802	22,874	22,805	20,739	19,249	20,234	255,004	
1930	20,276	17,643	19,361	19,919	21,204	19,570	17,967	17,010	16,553	16,882	15,095	15,006	216,486
1931	15,044	14,160	17,088	17,437	18,026	17,683	16,233	9,117	8,414	13,724	16,649	16,999	180,574
1932	13,758	12,453	13,361	13,403	13,839	12,936	13,051	12,619	12,051	12,006	11,912	11,850	153,244
1933	12,955	12,774	15,669	11,957	13,243	15,545	18,813	19,043	16,607	15,479	14,936	15,230	182,251
1934	15,229	13,444	15,344	15,705	16,491	16,214	15,670	14,970	13,845	14,550	14,059	14,586	180,107

Production of crude petroleum in Oklahoma in 1934, by districts and months¹

[Thousands of barrels of 42 gallons]

District	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Allen.....	269	249	282	262	260	252	258	255	249	246	239	244	3,065
Beebe.....	111	118	128	143	145	138	167	156	125	122	119	123	1,595
Bristow-Slick.....	341	293	317	320	318	308	328	323	317	326	288	301	3,780
Burbank.....	307	301	474	400	421	434	501	569	544	565	595	574	5,685
Chandler.....	126	226	215	180	209	196	216	208	183	189	186	189	2,323
Cleveland-Key- stone.....	282	244	258	245	258	246	189	220	202	207	199	205	2,755
Crescent.....	18	19	41	140	137	163	141	120	111	123	109	115	1,237
Cromwell.....	148	132	148	140	145	141	147	143	133	138	137	138	1,690
Cushing-Shamrock.....	433	383	428	411	427	412	462	430	414	417	408	419	5,044
Duncan - Walters - Comanche.....	141	125	142	138	147	141	141	140	130	143	124	140	1,652
Fish.....	86	84	86	84	85	114	113	158	114	122	126	209	1,381
Fitts.....	4	6		8	15	14	22	35	29	37	63	84	329
Glenn - Sapulpa - Kiefer-Olive.....	168	156	173	167	170	164	162	158	151	157	151	159	1,936
Haldton.....	285	259	287	279	284	275	291	293	279	289	278	287	3,386
Hewitt.....	155	145	154	150	154	149	157	158	144	155	144	153	1,818
Lucien.....	201	146	166	317	307	257	232	263	266	233	241	274	2,903
Nowata County.....	176	162	188	180	188	183	195	201	185	208	193	199	2,258
Oklahoma City.....	5,367	4,420	5,080	5,545	5,966	6,042	5,255	4,711	4,487	4,496	4,625	4,840	60,834
Okmulgee.....	174	160	181	179	186	178	178	171	156	163	145	159	2,030
Osage (outside Bur- bank).....	677	669	775	750	763	751	820	803	778	807	760	834	9,187
Seminole Field: Bowlegs.....	307	287	317	299	301	336	335	358	302	315	308	296	3,761
Carr City.....	177	157	188	170	182	206	170	180	156	150	147	156	2,039
Earlsboro - South Earlsboro.....	318	292	331	332	324	354	362	372	327	288	296	292	3,888
East Earlsboro.....	383	342	360	350	350	344	331	314	258	255	244	261	3,792
Little River.....	470	421	487	446	448	471	495	481	427	426	416	383	5,371
Mission.....	132	117	128	121	117	114	103	100	95	89	90	86	1,292
St. Louis-Pearson.....	680	625	698	644	673	743	810	741	623	576	623	648	8,084
Seminole City.....	321	289	343	319	327	355	354	341	285	294	281	270	3,779
Other.....	354	316	356	347	364	356	352	349	325	328	325	324	4,096
Sholem-Alecham.....	141	125	142	135	139	134	136	132	124	130	122	126	1,586
Tatums.....	266	226	229	210	218	211	193	179	166	175	164	170	2,407
Tulsa.....	126	115	127	123	126	120	120	120	117	133	117	121	1,465
Wewoka.....	141	137	138	134	140	132	139	130	128	142	132	136	1,629
Other.....	1,768	1,599	1,788	1,710	1,774	1,702	1,786	1,757	1,650	1,712	1,626	1,703	20,575
Total.....	15,053	13,345	15,167	15,378	16,068	16,136	15,661	15,069	13,980	14,156	14,021	14,618	178,652

¹ Oil and Gas Journal.

Production of crude petroleum in Pennsylvania, 1924-34, by months

[Thousands of barrels of 42 gallons]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1924.....	560	562	626	659	669	638	665	628	638	692	566	583	7,486
1925.....	613	593	684	697	669	700	708	704	701	710	651	667	8,097
1926.....	654	650	726	748	748	777	784	783	772	802	760	757	8,961
1927.....	718	728	842	799	812	824	789	830	805	820	793	766	9,526
1928.....	768	770	842	792	884	836	838	860	795	893	828	850	9,956
1929.....	851	805	913	943	1,020	953	1,037	1,043	972	1,120	1,053	1,110	11,820
1930.....	1,162	1,127	1,217	1,298	1,312	1,109	939	862	911	1,008	946	912	12,803
1931.....	936	850	924	935	942	937	935	941	1,087	1,204	1,072	1,129	11,892
1932.....	1,053	972	1,042	1,109	1,136	1,122	1,028	1,055	970	977	964	984	12,412
1933.....	972	900	1,041	993	1,045	1,061	1,080	1,113	1,108	1,188	1,086	1,074	12,624
1934.....	1,157	941	1,216	1,175	1,293	1,285	1,268	1,272	1,184	1,270	1,210	1,207	14,478

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Production of crude petroleum in Texas, 1924-34, by districts

[Thousands of barrels of 42 gallons]

District	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
Gulf coast:											
Agua Dulce										(1)	107
Arriola										(1)	446
Barbers Hill	(2)	(2)	(2)	(2)	(2)	4,552	7,441	7,651	7,320	8,082	6,820
Batson	464	432	456	462	550	444	418	330	268	208	246
Big Creek	293	310	520	1,243	811	1,496	1,390	858	425	413	365
Blue Ridge	278	313	486	1,210	2,205	1,194	644	378	328	295	299
Boling		40	1,175	753	814	580	378	269	188	126	209
Buckeye									105	272	75
Clay Creek								553	356	334	266
Cleveland										(1)	172
Conroe									2,630	21,215	17,761
Corpus Christi							(1)	152	486	861	775
Damon Mound	520	416	341	312	291	224	224	282	219	(3)	113
Dayton	36	20	(1)	(1)	(1)	214	406	202	100	55	74
Esperson						(1)	819	712	509	481	452
Fannette					(1)	292	350	180	151	146	195
Goose Creek	* 3,967	* 3,464	* 3,501	* 3,102	* 2,726	2,154	1,690	1,460	1,232	1,163	1,203
Greta										1,195	3,936
Hankamer						(1)	546	798	691	547	378
High Island		121	60	96	163	449	331	255	1,547	2,534	2,747
Hull	7,074	6,944	7,058	5,685	4,055	3,376	3,128	2,264	1,894	1,946	3,453
Humble	2,224	1,864	1,568	1,485	1,242	2,990	5,859	3,022	2,144	1,722	1,188
Keeran										96	118
Kingsville				146	153	120	41	29	28	26	23
Livingston										435	744
Lost Lake						99	209	96	127	84	67
Louise											178
Manvel									160	586	1,020
Markham	66	41	51	109	112	133	98	218	516	351	389
Moss Bluff							(1)	154	38	(1)	
Mykawa									(1)	70	133
Nash			207	395	491	193	110	187	55	(3)	16
O'Connor										(1)	112
Orange	3,958	4,816	3,458	1,803	1,415	1,006	790	618	451	312	289
Orchard			75	22	44	44	636	495	496	413	457
Pierce Junction	154	265	948	2,954	3,899	5,160	3,847	2,831	1,763	1,524	1,196
Port Neches						242	672	503	553	383	557
Raccoon Bend				1	98	2,094	3,893	2,704	1,814	1,544	1,489
Refugio					(1)	1,990	11,485	9,274	3,424	2,105	1,489
Saratoga	543	514	482	413	343	333	380	360	326	302	291
Sourlake	1,588	1,444	2,004	1,593	1,185	946	806	675	570	453	484
South Liberty		4,416	1,992	1,084	1,398	2,137	1,503	694	369	255	155
Spindletop	359	412	13,441	20,751	14,150	10,037	6,176	3,301	1,387	1,149	1,052
Sugarland					390	3,948	4,274	4,216	3,487	2,532	2,183
Thompson								808	4,201	4,906	4,245
Tomball										233	990
West Columbia	4,536	4,031	3,197	3,291	2,800	2,298	1,827	1,310	1,295	* 1,441	1,038
Other	22	22	115	94	301	917	695	193	200	207	160
Total Gulf coast	26,082	29,885	41,135	47,004	39,636	49,652	61,066	48,032	41,850	61,002	60,155
East Texas:											
East Texas proper 4								109,561	121,449	204,954	181,540
Boggy Creek				15	331	1,120	1,133	618	378	* 292	* 243
Cayuga											589
Van						144	7,330	15,598	17,201	17,077	14,621
Other	59	58	36	(6)	(6)	101	1,009	69	56	49	38
Total east Texas	59	58	36	* 15	* 331	1,365	8,572	125,846	139,084	222,372	197,031
Central Texas:											
Darst Creek						243	11,552	8,196	6,084	4,565	3,374
Hilbig										(1)	291
Luling	11,134	8,979	7,699	6,169	5,443	4,948	3,692	2,964	2,625	2,368	2,187
Lytton Springs		2,603	1,783	784	846	600	489	378	323	405	557
Mexia 6	49,272	42,353	20,494	12,417	8,353	5,969	4,621	3,201	2,259	2,064	1,947
Pettus							1,730	2,360	1,715	978	1,128
Rockdale-Chapman	235	255	535	508	337	251	1,906	1,305	565	371	368
Salt Flat (Bruner)					(7)	13,286	7,305	4,372	2,944	2,020	1,637
Somerset-Medina	1,109	873	791	767	738	659	566	576	518	521	527
Other	187	98	52	* 72	* 75	47	12	19	17	238	50
Total central Texas	61,937	55,161	31,354	* 20,717	* 15,792	26,003	31,873	23,371	17,050	13,530	12,066
North Texas 10	42,487	46,013	49,932	54,806	49,459	52,046	44,301	29,811	26,475	26,293	31,558
Panhandle 11	272	1,132	25,551	40,253	25,286	30,632	31,777	21,851	18,263	16,673	20,280
Southwest Texas 12	2,215	2,688	4,150	3,056	3,276	3,850	4,138	5,002	6,421	7,395	10,154

See footnotes at end of table.

Production of crude petroleum in Texas, 1924-34, by districts—Continued

[Thousands of barrels of 42 gallons]

District	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
West Texas:											
Andrews.....										(1)	217
Big Lake.....	1,056	8,900	10,937	8,986	6,753	6,460	7,050	9,444	8,265	6,535	4,476
Chalk-Roberts ¹²	414	811	1,372	2,437	5,736	15,633	11,999	10,413	7,264	6,257	6,563
Crane-Upton.....			2,204	30,607	25,529	16,852	14,451	8,524	7,444	6,396	6,145
Crockett County ¹⁴			237	516	796	673	693	550	459	355	310
Ector.....							3,168	2,597	1,657	1,944	2,625
Fisher.....					(1)	418	532	270	198	944	1,635
Hendricks.....				3,641	62,045	50,179	26,404	15,510	10,998	8,263	7,612
Loving County.....							663	1,237	1,134	949	806
Ward County.....						453	931	1,152	1,761	2,559	3,479
West Yates ¹⁵					461	1,389	502	299	221	394	
Yates.....			(1)	5,329	22,429	41,905	41,338	28,226	23,717	20,723	15,991
Other.....				8	22	252	294	112	99	198	21
Total west Texas.....	1,470	9,711	14,758	51,538	123,540	133,328	108,730	78,524	63,335	55,344	50,272
Total Texas.....	134,522	144,648	166,916	217,389	257,320	296,876	290,457	332,437	312,478	402,609	381,516

¹ Included under "Other."² Barbers Hill included with Goose Creek.³ West Columbia includes Damon Mound and Nash.⁴ Joiner, Kilgore, Lathrop, and other pools in Cherokee, Gregg, Rusk, Smith, and Upshur Counties.⁵ Includes Long Lake.⁶ "Other" in east Texas included under "Other" in central Texas.⁷ Salt Flat included with Luling.⁸ Includes Corsicana, Nigger Creek, Powell, Richland, Wortham, and other fields in Falls, Freestone, Limestone, and Navarro Counties.⁹ Includes Tuleta.¹⁰ Includes the districts in and between Wilbarger, Wichita, Clay, Montague, and Cooke Counties on the north and Runnels, Coleman, Brown, and Comanche Counties on the south.¹¹ Carson, Gray, Hutchinson, Moore, Potter, and Wheeler Counties.¹² Includes fields in Duval, Jim Hogg, Jim Wells, Starr, Webb, and Zapata Counties.¹³ Includes Westbrook and other fields in Howard and Mitchell Counties.¹⁴ Includes World.¹⁵ Includes Taylor-Link.

Production of crude petroleum in Texas in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	Petroleum transported from producing properties												Total	Oil consumed on leases plus net change in producers' stocks, Jan. 1-Dec. 31	Production	
	January	February	March	April	May	June	July	August	September	October	November	December				
Gulf coast:																
Agua Dulce.....		1	1		5	2	2	21	19	19	19	18	107		107	
Arriola.....	33	37	49	48	67	54	37	25	18	28	26	24	446		446	
Barbers Hill.....	556	522	543	519	567	513	577	624	589	596	596	605	6,807	13	6,820	
Batson.....	16	17	20	22	22	20	21	21	18	24	22	24	247	-1	246	
Big Creek.....	30	23	22	32	33	42	34	35	28	30	26	27	362	3	365	
Blue Ridge.....	23	18	26	24	27	23	25	26	23	26	24	32	297	2	299	
Boling.....	10	9	11	10	25	21	22	30	26	12	13	14	203	6	209	
Clay Creek.....	22	19	22	21	22	21	21	21	22	21	24	26	262	4	266	
Cleveland.....	15	6	5	4	4	3	18	25	34	34	13	12	173	-1	172	
Conroe.....	1,640	1,392	1,547	1,514	1,677	1,630	1,507	1,514	1,543	1,325	1,176	1,269	17,734	27	17,761	
Corpus Christi.....	60	51	55	57	57	64	66	74	78	71	63	76	777	-2	775	
Damon Mound.....	7	7	5	6	5	4	4	4	3	15	14	25	99	14	113	
Esperson.....	30	29	37	38	34	36	40	37	37	37	38	39	432	20	452	
Fannette.....	14	9	12	16	24	21	19	18	12	19	16	15	195		195	
Goose Creek.....	100	88	97	111	100	101	106	99	96	108	92	98	1,196	7	1,203	
Greta.....	241	233	252	259	301	289	296	437	427	393	381	397	3,906	30	3,936	
Hankamer.....	31	28	28	33	32	29	29	31	27	34	35	28	365	13	378	
High Island.....	214	210	231	221	229	220	241	273	262	210	202	229	2,742	5	2,747	
Hull.....	272	273	288	287	314	305	329	333	314	260	219	224	3,418	35	3,453	
Humble.....	106	101	99	97	101	94	98	97	96	101	95	99	1,184	4	1,188	
Livingston.....	53	48	53	53	66	66	67	73	64	68	68	65	744		744	
Louise.....	8	9	11	12	10	14	14	18	19	21	22	18	176	2	178	
Manvel.....	53	56	61	59	61	60	72	102	109	124	121	142	1,020		1,020	
Markham.....	22	18	20	16	29	30	34	37	40	42	42	42	372	17	389	
Mykawa.....	4	3	17	17	11	11	12	10	3	4	3	3	98	35	133	
O'Connor.....	6	6	8	9	5	10	10	11	10	11	11	9	97	15	112	
Orange.....	21	21	23	26	27	23	22	25	22	27	23	23	263	6	269	
Orchard.....	47	39	40	36	33	41	41	43	38	37	35	28	458	-1	457	
Pierce Junction.....	109	89	99	95	92	83	98	97	79	126	105	100	1,172	24	1,196	
Port Neches.....	37	41	46	45	45	40	40	42	54	50	42	47	529	28	557	
Raccoon Bend.....	109	99	109	107	128	132	130	138	124	126	132	139	1,473	16	1,489	
Refugio.....	125	101	115	109	104	106	130	122	128	144	155	154	1,493	-4	1,489	
Saratoga.....	22	20	25	25	23	26	26	25	22	26	22	24	286	5	291	
Sourlake.....	34	30	31	32	33	32	43	50	47	56	58	54	480	4	484	
South Liberty.....	15	13	15	12	13	15	10	14	13	13	11	11	155		155	
Spindletop.....	99	89	101	99	88	87	81	78	68	92	88	82	1,052		1,052	

Sugarland.....	186	169	186	180	184	177	185	186	180	187	180	185	2,185	-2	2,183
Thompsons.....	365	331	363	354	367	357	365	372	344	302	360	360	4,240	5	4,245
Tomball.....	48	60	73	70	73	69	76	89	82	93	109	132	974	16	990
West Columbia ¹	92	83	92	93	108	83	84	86	81	81	78	74	1,055	19	1,054
Other.....	23	22	30	29	41	48	43	37	42	50	49	56	470	47	517
Total Gulf coast.....	4,898	4,420	4,868	4,797	5,187	5,002	5,075	5,400	5,241	5,043	4,782	5,031	59,744	411	60,155
East Texas:															
East Texas proper.....	14,072	13,165	15,469	15,757	16,265	16,407	16,707	15,138	15,627	15,549	13,469	13,415	181,040	500	181,540
Boggy Creek ²	18	16	19	18	18	18	19	18	22	21	22	32	241	2	243
Cayuga.....					36	62	46	77	86	88	87	92	574	15	589
Marion-Panola.....	4	3	3	4	3	3	3	3	3	3	3	3	38		38
Van.....	1,156	1,041	1,159	1,206	1,353	1,380	1,326	1,325	1,297	1,084	1,039	1,248	14,614	7	14,621
Total east Texas.....	15,250	14,225	16,650	16,985	17,675	17,870	18,101	16,561	17,035	16,745	14,620	14,790	196,507	524	197,031
Central Texas:															
Darst Creek.....	301	265	299	278	278	270	283	284	276	284	274	270	3,371	3	3,374
Hilbig.....	23	21	26	23	24	23	25	25	24	25	25	27	291		291
Luling.....	191	170	195	172	203	181	173	194	171	184	178	171	2,183	4	2,187
Lytton Springs.....	49	49	52	51	54	47	49	45	38	45	37	35	551	6	557
Mexia ³	166	155	164	158	167	162	166	170	153	169	156	161	1,947		1,947
Pettus ⁴	63	60	70	70	73	72	96	112	116	128	124	129	1,113	15	1,128
Chapman ⁵	29	20	25	32	40	34	35	30	31	28	31	27	362	6	368
Salt Flat (Bruner).....	141	127	144	137	139	133	139	139	134	143	128	129	1,633	4	1,637
Somerset ⁶	46	46	44	43	45	44	42	45	39	42	46	44	526	1	527
Other.....	1		1	1	1	1	2	2	9	7	8	15	48	2	50
Total central Texas.....	1,010	913	1,020	965	1,024	967	1,010	1,046	991	1,055	1,007	1,017	12,025	41	12,066
North Texas.....	2,612	2,361	2,681	2,596	2,693	2,617	2,803	2,881	2,643	2,603	2,484	2,599	31,553	5	31,558
Panhandle.....	1,314	1,471	1,671	1,660	1,770	1,741	1,841	1,813	1,736	1,774	1,699	1,780	20,270	10	20,280
Southwest Texas:															
Jacobs.....	11	10	16	13	16	16	17	17	17	24	29	21	207	4	211
Government Wells.....	327	268	349	436	459	461	619	769	735	762	706	609	6,500	20	6,520
Sam Fordyce.....										8	28	72	108	2	110
Other.....	272	288	285	299	288	271	298	274	264	284	252	253	3,308	5	3,313
Total southwest Texas.....	610	566	650	748	763	748	934	1,060	1,016	1,058	1,015	955	10,123	31	10,154

¹ Includes Nash.² Includes Long Lake.³ Includes Corsicana, Nigger Creek, Powell, Richland, Wortham, and other fields in Falls, Freestone, Limestone, and Navarro Counties.⁴ Includes Tuleta.⁵ Includes Minerva-Thrall.⁶ Includes Medina.

Production of crude petroleum in Texas in 1934, by districts and months—Continued

[Thousands of barrels of 42 gallons]

District	Petroleum transported from producing properties												Total	Oil consumed on leases plus net change in producers' stocks, Jan. 1—Dec. 31	Production
	January	February	March	April	May	June	July	August	September	October	November	December			
West Texas:															
Andrews.....	15	25	7	11	16	18	14	18	14	18	14	17	187	30	217
Big Lake.....	448	381	403	377	366	361	357	340	353	364	367	369	4,486	-10	4,476
Chalk-Roberts ⁷	490	415	564	562	588	562	593	619	586	506	489	549	6,523	40	6,563
Crane-Upton.....	454	419	477	470	511	498	580	599	580	551	486	505	6,130	15	6,145
Crockett County ⁸	23	21	26	26	28	27	28	27	25	26	26	27	310		310
Ector.....	205	176	237	225	229	236	230	232	229	202	195	226	2,622	3	2,625
Fisher.....	102	103	110	118	138	135	148	148	152	157	161	161	1,633		1,633
Hendricks.....	623	580	629	610	641	604	674	668	639	659	639	639	7,605	7	7,612
Loving County.....	63	59	75	72	72	67	70	67	71	64	62	64	806		806
Ward County.....	183	170	249	255	240	239	286	361	357	376	357	393	3,466	13	3,479
West Yates ⁹	27	25	31	36	35	34	35	35	35	36	33	32	394		394
Yates.....	1,349	1,199	1,309	1,330	1,527	1,368	1,322	1,477	1,451	1,186	1,160	1,348	16,026	-35	15,991
Other.....	1	2	2	2	2	1	2	2	2	2	1	2	21		21
Total west Texas.....	3,983	3,575	4,119	4,094	4,393	4,150	4,339	4,593	4,494	4,147	3,990	4,332	50,209	63	50,272
Total Texas: 1934.....	29,677	27,531	31,659	31,845	33,505	33,095	34,103	33,354	33,156	32,425	29,577	30,504	380,431	1,085	381,516
1933.....	26,441	24,966	33,476	27,165	46,755	42,165	38,397	37,731	33,625	32,984	28,020	29,446	401,201	1,408	402,609

⁷ Includes Westbrook and other fields in Howard and Mitchell Counties.⁸ Includes World and other pools.⁹ Includes Taylor-Link.

CRUDE PETROLEUM AND PETROLEUM PRODUCTS

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Production of crude petroleum in West Virginia, 1924-34, by months

[Thousands of barrels of 42 gallons]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1924	479	481	495	512	508	495	524	488	490	541	441	466	5,920
1925	475	446	488	491	477	511	501	476	485	503	436	474	5,763
1926	449	440	497	493	490	510	518	504	518	519	489	519	5,946
1927	475	474	550	509	518	517	496	523	505	507	484	465	6,023
1928	460	460	502	451	519	471	481	489	444	506	444	434	5,661
1929	458	403	466	465	492	452	482	477	453	511	454	461	5,574
1930	462	443	449	471	475	451	444	355	372	417	350	382	5,071
1931	379	346	376	376	373	380	365	347	381	415	352	382	4,472
1932	333	304	325	347	345	356	318	336	306	323	287	296	3,876
1933	302	262	281	287	313	317	323	357	339	373	335	326	3,815
1934	340	291	364	332	351	343	336	367	337	373	327	334	4,095

Production of crude petroleum in Wyoming, 1924-34, by districts

[Thousands of barrels of 42 gallons]

Year	Big Muddy	Byron-Grey-bull-Torchlight	Elk Basin	Frankie	Garland	Grass Creek	Hamilton-Dome-Warm Springs	La Barge	Lance Creek	Lander-Dallas-Derby Dome	Lost Soldier ¹	Mule Creek
1924	1,272	33	409	-----	-----	1,113	239	-----	786	133	1,775	178
1925	1,223	30	314	-----	-----	1,240	264	-----	360	152	1,746	129
1926	1,215	(²)	273	-----	-----	1,025	319	70	540	165	2,059	-----
1927	1,072	28	337	-----	-----	974	313	341	269	246	1,341	188
1928	962	25	360	-----	-----	871	298	490	217	247	1,442	142
1929	802	26	285	-----	-----	778	355	805	87	209	1,311	141
1930	711	49	264	(²)	-----	729	300	747	60	252	1,271	29
1931	649	3	250	214	-----	746	87	466	94	358	1,349	-----
1932	610	7	190	161	379	787	308	381	38	375	1,003	-----
1933	650	(²)	203	85	³ 181	274	254	349	41	330	632	(²)
1934	634	(²)	177	615	³ 364	356	322	488	128	316	605	(²)

Year	Notches	Oregon Basin	Osage	Pilot Butte	Poison Spider-South Casper	Rex Lake	Rock Creek	Salt Creek	Teapot	Other	Total
1924	39	-----	146	29	229	41	1,181	30,874	1,004	17	39,498
1925	35	-----	109	25	297	20	1,087	21,445	632	65	29,173
1926	34	-----	113	20	⁴ 376	53	1,029	18,010	426	49	25,776
1927	24	-----	107	17	247	44	982	14,399	314	64	21,307
1928	-----	882	133	19	327	18	928	14,023	-----	77	21,461
1929	-----	1,540	166	18	⁴ 446	36	842	11,377	-----	110	19,314
1930	-----	1,285	385	16	⁴ 323	6	770	10,520	11	140	17,868
1931	-----	393	419	14	⁴ 199	-----	682	8,834	-----	77	14,894
1932	-----	130	394	12	91	-----	477	8,006	-----	67	13,418
1933	-----	252	241	12	167	4	464	7,009	-----	79	11,227
1934	-----	880	289	8	177	9	540	6,520	-----	128	12,556

¹ Includes Ferris.

² Included under "Other".

³ Garland includes Byron.

⁴ Includes Iron Creek and Simpson Ridge.

⁵ Includes Simpson Ridge.

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Production of crude petroleum in Wyoming in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	Petroleum transported from producing properties												Total	Oil consumed on leases plus net change in producers' stocks, Jan. 1-Dec. 31	Production
	January	February	March	April	May	June	July	August	September	October	November	December			
Big Muddy.....	55	46	53	50	56	51	55	55	52	55	51	52	631	3	634
Elk Basin.....	15	14	15	16	16	18	16	16	14	12	10	15	177	-----	177
Frannie.....	21	34	33	34	56	70	70	70	65	58	57	47	615	-----	615
Garland ¹	1	29	24	7	11	30	87	57	51	34	21	6	358	-----	364
Grass Creek.....	20	18	20	20	42	41	27	42	37	3	50	35	355	-----	356
Hamilton Dome- Warm Springs.....	8	27	28	18	29	29	29	53	14	20	39	25	319	-----	322
La Barge.....	30	26	28	29	48	51	53	54	42	43	41	38	483	-----	488
Lander-Dallas.....	23	22	23	23	29	29	29	30	22	28	28	28	314	-----	316
Lost Soldier-Ferris.....	47	42	53	46	50	49	49	52	49	53	52	63	605	-----	605
Oregon Basin.....	16	20	14	42	89	101	113	123	81	111	85	80	875	-----	880
Osage.....	40	15	20	29	29	26	26	23	27	22	16	16	289	-----	289
Rock Creek.....	46	43	40	41	62	46	43	47	45	42	42	44	541	-----	540
Salt Creek.....	504	500	569	542	576	537	538	556	511	580	537	540	6,490	-----	6,520
South Casper ²	2	2	2	5	24	23	25	24	24	25	4	2	162	-----	180
Other.....	17	7	22	15	25	25	20	21	17	16	7	19	211	-----	270
Total: 1934.....	845	845	944	917	1,142	1,126	1,180	1,223	1,051	1,102	1,040	1,010	12,425	-----	12,556
1933.....	1,000	859	984	898	945	975	923	948	941	907	905	998	11,283	-----	11,227

¹ Includes Byron.

² Includes Poison Spider.

WORLD PRODUCTION

World production of petroleum, in 1934 compared with 1933 and total, 1857-1934, by countries

[Compiled by L. M. Jones, of the Bureau of Mines]

Country	1934			1933			1857-1934 ¹	
	Thousands of barrels of 42 gallons	Thousands of metric tons	Percent of total by volume	Thousands of barrels of 42 gallons	Thousands of metric tons	Percent of total by volume	Thousands of barrels of 42 gallons	Percent of total by volume
United States.....	908,065	122,931	59.7	905,656	122,536	62.8	16,598,444	64.6
U. S. S. R. (Russia) ²	174,318	23,909	11.6	154,840	21,237	10.9	3,203,134	12.5
Sakhalin.....	2,881	427		2,338	346		15,006	
Venezuela.....	136,103	20,112	8.9	117,720	17,293	8.2	1,004,811	3.9
Rumania.....	62,063	8,473	4.1	54,020	7,377	3.7	602,235	2.3
Iran.....	57,851	7,658	3.8	54,392	7,200	3.8	595,619	2.3
Netherland India.....	46,925	6,055	3.1	42,606	5,527	3.0	641,350	2.5
Mexico.....	38,172	5,667	2.5	34,001	5,087	2.4	1,737,434	6.8
Colombia.....	17,341	2,417	1.1	13,158	1,834	.9	149,503	.6
Peru.....	16,314	2,162	1.1	13,257	1,762	.9	170,445	.7
Argentina.....	14,024	1,998	.9	13,691	1,951	.9	123,234	.5
Trinidad.....	10,894	1,533	.7	9,561	1,345	.7	104,146	.4
India, British.....	10,503	1,450	.7	8,743	1,207	.6	245,016	1.0
Iraq.....	7,689	1,031	.5	917	123	.1	13,100	.1
British Borneo (Sarawak and Brunei).....	5,140	674	.3	4,490	623	.3	63,347	.2
Poland.....	3,913	529	.3	4,072	551	.3	239,926	.9
Germany.....	2,187	315	.2	1,665	239	.1	28,220	.1
Japan (including Taiwan).....	1,834	261	.1	1,455	207	.1	67,882	.3
Ecuador.....	1,637	232	.1	1,620	230	.1	12,089	
Egypt.....	1,546	221	.3	1,663	238	.2	28,287	.3
Canada.....	1,417	179		1,145	145		35,146	
France.....	557	78		562	79		8,116	
Bahrein Island.....	285	39		31	4		317	
Czechoslovakia.....	178	26		122	18		1,805	
Bolivia.....	159	20		112	14		396	
Italy.....	151	20		204	27		2,166	
Other countries ³	96	14		71	10		1,173	
	1,522,243	208,431	100.0	1,442,112	197,210	100.0	25,692,347	100.0

¹ For detailed statement of petroleum production 1857 to 1930, inclusive, by years and by countries, see Mineral Resources of the United States, 1930, pt. 2, pp. 824-25.

² Exclusive of Sakhalin, which is shown separately.

³ Partly estimated.

CONSUMPTION AND DISTRIBUTION

Summary of demand for crude petroleum, 1930-34

[Thousands of barrels of 42 gallons]

	1930	1931	1932	1933	1934
Production.....	898,011	851,081	785,159	905,656	908,065
Imports.....	62,129	47,250	44,682	31,893	35,558
Changes in stocks east of California and in stocks of light crude in California.....	-19,636	-40,963	-30,479	+15,437	-16,969
Total demand.....	979,776	939,294	860,320	922,112	960,592
Runs to stills.....	927,447	894,608	819,997	861,254	895,636
Exports ¹	23,705	25,535	27,393	36,584	41,127
Consumed as fuel on producing properties ²	1,643	1,628	1,701	1,834	1,523
Consumed as fuel in operation of pipe lines ²	1,621	1,866	1,454	1,847	1,835
Consumed as fuel, losses, etc.....	25,360	15,657	9,775	20,593	20,471
Total demand.....	979,776	939,294	860,320	922,112	960,592

¹ Includes shipments to Alaska, Hawaii, and Puerto Rico.

² East of California.

Runs to stills of crude petroleum in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	January	February	March	April	May	June	July	August	September	October	November	December	Total
East coast:													
Domestic.....	11,260	10,693	11,734	11,476	11,619	11,357	12,624	12,104	11,262	12,318	11,422	12,047	139,916
Foreign.....	2,711	2,050	2,730	2,716	3,101	2,952	2,859	3,026	2,489	2,571	2,489	2,123	31,817
Total, east coast.....	13,971	12,743	14,464	14,192	14,720	14,309	15,483	15,130	13,751	14,889	13,911	14,170	171,733
Appalachian.....	2,746	2,527	2,720	3,117	3,226	3,076	3,242	3,159	3,019	3,060	2,849	3,068	35,809
Indiana, Illinois, Kentucky, etc.....	9,006	8,793	9,146	9,249	10,334	10,374	10,674	11,244	9,871	10,533	10,213	9,729	119,166
Oklahoma, Kansas, and Missouri.....	7,381	7,137	7,637	7,821	8,389	8,179	8,659	8,382	7,465	7,679	7,832	8,445	95,006
Texas inland.....	4,813	4,562	4,756	5,221	5,284	4,930	5,550	5,537	6,119	6,476	4,612	4,081	61,941
Texas Gulf coast:													
Domestic.....	14,389	13,260	14,298	14,583	14,337	14,515	15,269	15,979	14,614	14,022	15,344	16,991	177,601
Foreign.....	31	21	73	23	69	114	76	69	86	427	270	568	1,817
Total, Texas Gulf coast.....	14,420	13,281	14,371	14,606	14,396	14,629	15,345	16,048	14,700	14,449	15,614	17,559	179,418
Louisiana Gulf coast:													
Domestic.....	3,257	3,208	3,425	3,358	3,283	3,418	3,440	3,511	3,070	3,215	3,202	3,728	40,115
Foreign.....	60	44	117	95	69	164	171	126	119	89	137	35	1,226
Total, Louisiana Gulf coast.....	3,317	3,252	3,542	3,453	3,352	3,582	3,611	3,637	3,189	3,304	3,339	3,763	41,341
Arkansas and Louisiana inland.....	1,601	1,498	1,479	1,445	1,617	1,770	1,875	1,668	1,537	1,525	1,465	1,370	18,850
Rocky Mountain.....	1,169	968	1,004	1,303	1,118	1,529	1,506	1,720	1,376	1,460	1,492	1,392	16,037
California.....	13,088	11,709	12,688	13,156	13,822	13,676	14,120	13,403	12,584	12,616	12,457	13,016	156,335
Total domestic.....	68,710	64,355	68,887	70,729	73,029	72,824	76,959	76,707	70,917	72,904	70,888	73,867	860,776
Total foreign.....	2,802	2,115	2,920	2,834	3,229	3,230	3,106	3,221	2,694	3,087	2,896	2,726	34,860
Total United States: 1934.....	71,512	66,470	71,807	73,563	76,258	76,054	80,065	79,928	73,611	75,991	73,784	76,593	895,636
1933.....	66,093	61,042	67,984	68,822	74,340	74,619	79,525	79,151	75,316	75,461	68,461	70,440	861,254
Daily average, 1934.....	2,307	2,374	2,316	2,452	2,460	2,535	2,583	2,578	2,454	2,451	2,459	2,471	2,454

Indicated deliveries of crude petroleum to domestic consumers in 1934, by months

[Thousands of barrels of 42 gallons]

District	January	February	March	April	May	June	July	August	September	October	November	December	Total
Domestic petroleum, by fields of origin:													
Appalachian:													
Pennsylvania grade.....	1,921	1,982	1,977	2,078	2,134	2,160	2,077	2,045	2,097	2,126	1,945	2,140	24,682
Other (including Kentucky).....	496	391	519	524	558	625	636	652	700	644	537	553	6,835
Lima-northeast Indiana-Michigan.....	951	811	964	1,001	1,071	1,058	1,080	1,119	1,018	945	1,078	990	12,086
Illinois-southwest Indiana.....	290	531	459	495	383	495	389	377	401	340	467	387	5,014
Mid-Continent:													
North Louisiana and Arkansas.....	1,805	1,954	1,961	1,767	1,888	1,964	2,031	1,826	1,614	1,764	1,889	1,745	22,208
West Texas and southeast New Mexico.....	6,223	5,548	6,066	6,094	6,166	5,407	6,324	5,825	5,288	5,982	5,431	5,350	69,694
East Texas.....	14,909	13,015	15,423	16,053	17,515	17,007	18,692	17,741	17,273	18,095	15,970	14,702	196,395
Other (Oklahoma, Kansas, north Texas, etc.).....	24,375	23,939	23,230	24,728	26,217	26,713	29,077	29,436	26,819	26,077	27,464	29,872	317,947
Gulf coast.....	6,154	6,189	6,932	6,757	6,008	6,232	5,657	7,391	7,346	7,599	7,247	7,645	81,157
Rocky Mountain.....	1,165	982	1,058	1,351	1,089	1,611	1,601	1,853	1,546	1,624	1,680	1,537	17,097
California.....	13,707	12,348	13,318	13,839	14,747	14,467	14,882	14,233	13,306	13,255	13,424	13,902	165,428
Total demand.....	71,996	67,690	71,907	74,687	77,766	77,739	82,446	82,498	77,408	78,451	77,132	78,823	918,543
Exports ¹	2,288	2,511	2,582	3,942	3,724	3,794	4,128	3,696	4,068	3,277	4,680	2,437	41,127
Foreign petroleum.....	69,708	65,179	69,325	70,745	74,042	73,945	78,318	78,802	73,340	75,174	72,452	76,386	877,416
Total domestic demand.....	72,516	67,253	72,203	73,601	77,298	77,195	81,447	82,025	76,040	78,244	75,329	79,087	912,238

¹ Includes shipments to Alaska, Hawaii, and Puerto Rico.

Distribution of crude petroleum in 1934, by States

[Thousands of barrels of 42 gallons]

State	Production	Imports	Receipts from other States		Runs to stills	Exports ¹	Deliveries to other States		Net change in stocks, losses, and used as fuel
			Quantity	State			Quantity	State	
Arkansas.....	11,182		1,711	Tex.....	7,552		5,701	Ind., La., Tex.....	-360
California.....	174,305			Tex.....	156,335	11,254		Utah.....	+6,716
Colorado.....	1,139		440	N. Mex., Wyo.....	1,098		325	Utah.....	+156
Georgia.....		353	1,712	Tex.....	² 3,514			Mich.....	² +128
Illinois.....	4,479		30,333	Ind., Kans., Ky., La., Mich., N. Mex., Okla., Tex.	33,541	464	404	Mich.....	+403
Indiana.....	838		54,559	Ark., Kans., La., Mich., N. Mex., Okla., Tex.	54,781		796	Ill., Ky.....	-180
Kansas.....	46,482		8,697	Okla., Tex.....	36,668	47	15,691	Ill., Ind., Mo., Okla., Pa.....	+2,773
Kentucky and Tennessee.....	4,870		2,182	Ind., Okla.....	6,545	10	597	Ill., W. Va.....	-100
Louisiana.....	³ 32,871	1,335	⁴ 38,844	Ark., Okla., Tex.....	⁴ 52,639		18,150	Ill., Ind., N. J., Ohio, Pa., Tex.....	² +2,261
Maryland.....		2,707	9,397	N. Mex., Tex.....	12,029			Ill., Ind., Ohio.....	+75
Massachusetts.....		1,578	⁵ 12,546	N. Mex., Tex.....	⁵ 14,651			Ill., Ind., Ohio.....	-61
Michigan.....	10,603		3,305	Ill., Okla.....	7,232	321	5,396	Ill., Ind., Ohio.....	+959
Missouri.....	35		⁶ 5,046	Kans., Okla., Tex.....	⁶ 5,021			Wyo.....	+60
Montana.....	2,603		1,361	Wyo.....	2,922	1,702	16	Wyo.....	+324
New Jersey.....		14,192	50,509	La., N. Mex., N. Y., Okla., Pa., Tex., W. Va.	64,249			Wyo.....	+452
New Mexico.....	16,864		202	Tex.....		1,318	16,241	Colo., Ill., Ind., Md., Mass., N. J., Pa., Tex., Utah.	-493
New York.....	3,804	3,342	6,109	Okla., Pa., Tex.....	13,587		289	N. J., Pa.....	-621
Ohio.....	4,234		23,009	La., Mich., Okla., Tex., W. Va.....	26,463	65	1,251	Pa., W. Va.....	-536
Oklahoma.....	180,107		2,532	Kans., Tex.....	53,317	6,932	123,304	Ill., Ind., Kans., Ky., La., Mich., Mo., N. J., N. Y., Ohio, Pa., Tex., W. Va.	-914
Pennsylvania.....	14,478	7,733	67,091	Kans., La., N. Mex., N. Y., Ohio, Okla., Tex., W. Va.	86,295		4,059	N. J., N. Y.....	-1,052
Rhode Island.....		486	(⁷)	Tex.....	(⁷)				(⁷)
South Carolina.....		543	(⁸)	Tex.....	(⁸)				(⁸)
Texas.....	381,616	2,275	43,721	Ark., La., N. Mex., Okla.....	241,359	20,188	170,940	Ala., Ark., Ga., Ill., Ind., Kans., La., Md., Mass., Mo., N. J., N. Mex., N. Y., Ohio, Okla., Pa., R. I., Utah.	-4,975
Utah.....	4		2,111	Colo., N. Mex., Tex., Wyo.....	2,098				+17
Virginia.....		⁷ 1,034			(⁹)				(⁹)
West Virginia.....	4,095		2,612	Ky., Ohio, Okla.....	3,821		1,685	N. J., Ohio, Pa.....	+1,201
Wyoming.....	12,556		16	Mont.....	⁶ 8,601	144	3,200	Colo., Mont., Utah.....	+627
	908,065	35,558	368,045		895,636	41,127	368,045		+6,860

¹ Includes shipments to Alaska, Hawaii, and Puerto Rico.² Georgia includes Delaware, South Carolina, and Virginia.³ Includes Mississippi.⁴ Includes Alabama and Mississippi.⁵ Massachusetts includes Rhode Island.⁶ Includes Iowa.⁷ Includes Delaware.⁸ Includes Nebraska and South Dakota.

STOCKS

Stocks of crude petroleum in 1934, by districts and months

[Thousands of barrels of 42 gallons]

	Jan. 1	Jan. 31	Feb. 28	Mar. 31	Apr. 30	May 31	June 30	July 31	Aug. 31	Sept. 30	Oct. 31	Nov. 30	Dec. 31
At refineries, by location of storage:													
East coast:													
Domestic.....	9,556	9,419	9,455	9,173	9,783	10,943	10,540	10,744	11,885	11,587	11,356	10,420	10,006
Foreign.....	2,415	2,435	3,203	2,859	2,694	2,578	3,069	2,781	2,434	2,537	2,303	2,447	2,683
Appalachian.....	1,875	1,825	1,755	1,819	1,741	1,714	1,599	1,454	1,403	1,331	1,270	1,331	1,249
Indiana, Illinois, Kentucky, etc.....	4,554	4,391	4,241	4,467	4,342	4,487	4,458	4,511	4,047	4,063	4,064	3,955	4,048
Oklahoma, Kansas, and Missouri.....	6,223	6,161	6,007	6,245	6,288	6,286	6,122	5,786	5,676	5,780	6,093	5,822	5,996
Texas inland.....	2,296	1,892	1,865	2,226	2,090	1,947	1,872	1,909	1,962	2,052	2,081	1,968	1,708
Texas Gulf coast:													
Domestic.....	12,683	11,688	11,108	11,605	10,651	11,018	10,804	10,353	9,731	10,461	10,330	10,704	10,677
Foreign.....	102	71	197	126	177	120	147	305	304	494	469	448	496
Louisiana Gulf coast:													
Domestic.....	3,274	3,517	3,588	3,732	3,640	3,591	3,631	3,559	3,612	3,543	3,522	3,544	3,424
Foreign.....	538	541	604	651	654	583	602	604	475	410	483	398	612
Arkansas and Louisiana inland.....	1,027	996	893	771	730	715	711	616	612	584	847	679	738
Rocky Mountain.....	12,505	12,522	12,666	12,809	12,692	13,087	13,183	13,337	13,291	13,403	13,521	13,537	13,882
California.....	9,001	9,041	8,341	9,144	9,235	9,292	8,916	8,413	9,036	9,196	9,720	9,601	9,080
Total at refineries.....	66,049	64,499	63,923	65,527	64,715	66,361	65,654	64,372	64,468	65,441	66,059	64,854	64,099
At refineries, by fields of origin:													
Appalachian:													
Pennsylvania grade.....	1,699	1,722	1,518	1,502	1,458	1,481	1,388	1,345	1,288	1,191	1,151	1,203	1,104
Other Appalachian (including Kentucky).....	604	598	580	579	569	601	622	585	583	552	604	620	624
Lima-northeastern Indiana-Michigan.....	489	557	506	483	444	475	544	471	307	427	487	365	282
Illinois-southwestern Indiana.....	120	116	160	154	172	152	134	111	130	119	124	104	104
North Louisiana and Arkansas.....	2,515	2,923	2,569	2,706	2,622	2,286	2,013	2,152	2,192	2,255	2,090	1,785	1,982
West Texas and southeastern New Mexico.....	4,014	4,247	3,845	4,007	3,638	3,898	4,203	4,029	4,082	3,817	3,927	4,064	3,274
East Texas.....	9,609	8,892	9,500	9,518	9,241	9,291	7,604	7,443	8,055	8,758	7,871	6,586	6,238
Oklahoma, Kansas, north Texas, etc.....	17,441	15,905	15,057	15,923	15,757	16,846	17,065	16,147	15,630	15,738	16,922	16,801	16,610
Gulf coast.....	5,015	4,950	5,203	5,193	5,395	5,704	6,198	6,681	6,792	6,578	6,450	6,923	7,654
Rocky Mountain.....	12,487	12,501	12,640	12,782	12,661	13,054	13,149	13,305	13,280	13,369	13,488	13,509	13,346
California.....	9,001	9,041	8,341	9,144	9,233	9,292	8,916	8,413	9,036	9,196	9,720	9,601	9,080
Foreign.....	3,055	3,047	4,004	3,536	3,525	3,281	3,818	3,690	3,213	3,441	3,255	3,293	3,791
Total at refineries.....	66,049	64,499	63,923	65,527	64,715	66,361	65,654	64,372	64,468	65,441	66,059	64,854	64,099

CRUDE PETROLEUM AND PETROLEUM PRODUCTS

Stocks of crude petroleum in 1934, by districts and months—Continued

[Thousands of barrels of 42 gallons]

	Jan. 1	Jan. 31	Feb. 28	Mar. 31	Apr. 30	May 31	June 30	July 31	Aug. 31	Sept. 30	Oct. 31	Nov. 30	Dec. 31
Pipe-line and tank-farm stocks, by fields of origin:													
Appalachian:													
Pennsylvania grade	3,882	3,875	3,675	3,738	3,659	3,621	3,635	3,691	3,791	3,751	3,805	3,824	3,760
Other Appalachian (including Kentucky)	827	832	903	909	870	787	732	715	669	589	504	530	554
Lima-northeastern Indiana-Michigan	1,280	1,155	1,247	1,247	1,252	1,231	1,107	1,109	1,197	1,056	1,073	963	992
Illinois-southwestern Indiana	11,061	11,243	11,052	11,100	11,001	11,140	11,138	11,238	11,326	11,378	11,456	11,367	11,351
North Louisiana and Arkansas	9,359	8,957	8,969	8,597	8,636	8,815	8,836	8,409	8,265	8,190	8,287	8,257	7,999
West Texas and southeastern New Mexico	28,766	27,581	27,161	26,369	26,112	25,500	25,323	24,946	25,168	26,040	25,528	25,351	26,564
East Texas	36,562	36,472	36,034	36,092	36,098	34,838	35,950	34,156	30,976	28,657	27,028	25,837	24,928
Oklahoma, Kansas, north Texas, etc.	136,872	139,528	139,381	141,806	144,136	145,220	146,083	145,816	144,260	142,585	141,523	139,249	135,907
Gulf coast	11,275	11,486	10,750	10,143	9,531	10,319	10,592	11,871	12,084	12,392	12,359	11,860	11,034
Rocky Mountain	15,056	15,072	15,110	15,192	15,228	15,300	15,129	15,028	14,970	14,857	14,734	14,577	14,702
California	¹ 25,103	24,823	25,009	24,949	24,656	24,429	24,886	25,834	25,624	25,805	25,895	26,137	26,834
Total pipe-line and tank-farm	¹ 280,043	281,024	279,291	280,142	281,179	281,200	283,411	282,813	278,330	275,300	272,192	267,952	264,625
Producers' stocks	8,131	8,119	8,427	8,398	8,456	8,322	8,386	8,340	8,294	8,666	8,549	8,597	8,530
Total United States: 1934	¹ 354,223	353,642	351,641	354,067	354,350	355,883	357,451	355,525	351,092	349,407	346,800	341,403	337,254
1933	339,875	337,483	337,107	344,253	339,140	348,103	352,756	355,263	359,945	359,904	356,849	355,199	355,812

¹New basis; for comparison with 1934.

Stocks of crude petroleum in 1934, by States and months

[Thousands of barrels of 42 gallons]

State	Location ¹												Origin ²	
	Jan. 1	Jan. 31	Feb. 28	Mar. 31	Apr. 30	May 31	June 30	July 31	Aug. 31	Sept. 30	Oct. 31	Nov. 30	Dec. 31	Dec. 31
Arkansas	5,663	5,510	5,328	5,112	5,216	5,139	4,741	4,530	3,994	3,823	3,645	3,567	3,924	6,380
California.....	36,879	35,645	35,148	35,842	35,659	35,467	35,507	35,881	36,279	36,672	37,209	37,290	37,529	37,529
Colorado.....	317	331	340	322	356	396	379	369	380	379	408	428	439	504
Georgia ³	596	468	604	577	548	613	759	666	543	584	455	658	713	-----
Illinois.....	11,952	11,951	11,837	12,034	12,060	12,272	12,270	12,197	12,193	12,016	12,136	11,631	11,719	11,533
Indiana.....	3,445	3,320	2,926	3,183	3,254	3,093	3,275	3,395	3,018	2,915	3,021	2,846	3,122	49
Kansas.....	14,921	14,836	14,771	15,141	15,237	14,813	14,778	14,742	14,344	14,198	14,229	13,839	13,350	5,108
Kentucky ⁴	1,161	1,140	1,104	1,089	1,045	1,078	1,011	969	951	1,002	962	1,000	1,035	1,049
Louisiana ⁵	12,696	12,370	11,845	12,094	11,824	12,248	12,636	12,586	12,258	12,038	11,917	11,405	11,181	8,833
Maryland.....	1,123	1,154	1,415	1,423	1,211	1,387	1,309	1,258	1,246	1,351	1,126	1,316	1,144	-----
Massachusetts ⁶	1,152	1,161	1,359	1,316	1,220	1,338	1,310	1,022	1,195	1,137	850	900	1,078	-----
Michigan.....	1,090	1,071	1,148	1,101	1,103	1,086	1,022	1,015	970	860	906	769	810	800
Missouri ⁷	3,480	3,602	3,565	3,616	3,668	3,630	3,677	3,693	3,782	3,736	3,521	3,215	3,351	-----
Montana.....	623	641	666	741	710	728	786	781	846	934	983	1,001	1,075	1,074
New Jersey.....	5,250	5,765	5,399	5,211	5,432	5,818	6,366	6,263	6,223	6,113	6,375	6,310	5,676	-----
New Mexico.....	437	438	479	478	458	453	500	480	511	554	542	560	536	4,807
New York.....	2,007	1,954	1,861	1,772	1,738	1,764	1,508	1,485	1,498	1,293	1,206	1,194	1,206	446
Ohio.....	8,885	8,831	8,902	8,890	8,758	8,798	8,949	8,779	8,422	8,447	8,431	8,271	8,079	1,047
Oklahoma.....	84,029	85,142	85,506	87,059	88,387	89,921	90,138	89,855	88,775	87,943	86,087	85,177	82,614	108,037
Pennsylvania.....	5,888	5,388	5,770	5,605	6,140	6,423	6,074	6,502	7,396	7,420	7,385	6,354	6,533	2,531
Texas.....	124,320	123,478	122,095	121,710	120,696	119,536	120,694	119,292	116,735	116,534	116,014	114,418	113,001	114,918
Utah.....	270	204	291	328	336	322	315	304	284	290	284	272	282	-----
West Virginia.....	2,420	2,417	2,371	2,382	2,341	2,215	2,206	2,122	2,047	2,042	2,078	2,129	2,124	1,909
Wyoming ⁸	26,719	26,825	26,911	27,041	26,953	27,345	27,241	27,339	27,202	27,126	27,030	26,853	26,733	26,909
Foreign.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,791
Total United States.....	354,223	353,642	351,641	354,067	354,350	355,883	357,451	355,525	351,092	349,407	346,800	341,403	337,254	337,254

¹ Segregated by States of location regardless of origin.

² Segregated by States of production (origin) regardless of location.

³ Georgia includes Delaware, South Carolina, and Virginia.

⁴ Includes Tennessee.

⁵ Includes Alabama and Mississippi.

⁶ Includes Rhode Island.

⁷ Includes Iowa.

⁸ Includes Nebraska and South Dakota.

Stocks of crude petroleum, January to June 1934, by grades and weeks ¹

(Thousands of barrels of 42 gallons)

Grades	Jan. 6	Jan. 13	Jan. 20	Jan. 27	Feb. 3	Feb. 10	Feb. 17	Feb. 24	Mar. 3	Mar. 10	Mar. 17	Mar. 24	Mar. 31
Pennsylvania grade.....	5,305	5,366	5,361	5,264	5,283	5,161	5,073	5,124	4,973	5,094	5,021	4,966	4,911
Other Appalachian, including Kentucky.....	1,241	1,259	1,280	1,228	1,248	1,276	1,276	1,313	1,303	1,362	1,347	1,349	1,353
Lima-northeast Indiana-Michigan.....	1,660	1,710	1,706	1,653	1,577	1,607	1,570	1,616	1,599	1,619	1,571	1,607	1,595
Illinois-southwest Indiana.....	11,242	11,320	11,403	11,442	11,269	11,332	11,353	11,150	11,176	11,130	11,204	11,292	11,239
North Louisiana and Arkansas.....	11,938	12,077	12,012	11,955	11,839	11,860	11,640	11,512	11,477	11,530	11,423	11,368	11,276
West Texas and southeast New Mexico.....	32,007	31,873	31,706	31,893	31,889	31,668	31,305	31,130	30,482	30,405	30,472	30,422	29,846
East Texas.....	43,929	44,065	43,842	44,325	44,278	43,502	43,962	43,785	43,921	43,565	43,582	43,663	44,180
Other midcontinent (Kansas, Oklahoma, and all of Texas except west Texas, east Texas, and coastal Texas).....	153,597	154,199	154,484	154,196	153,585	153,603	153,932	153,735	153,222	153,375	154,308	154,967	155,899
Gulf coast (Texas and Louisiana).....	16,437	16,455	16,306	16,356	16,046	15,826	16,206	15,727	15,739	15,512	15,266	15,517	15,504
Rocky Mountain.....	27,263	27,192	27,206	27,195	27,229	27,309	27,255	27,381	27,452	27,533	27,584	27,584	27,619
California.....	34,526	34,240	33,952	33,968	34,124	34,237	34,041	33,752	33,860	33,563	33,619	33,894	34,391
Total domestic crude.....	339,235	339,756	339,238	339,455	338,367	337,381	337,623	336,225	335,204	334,688	335,397	336,629	337,813
Total foreign crude.....	3,077	3,138	3,082	2,962	3,100	3,250	3,534	3,478	3,912	3,803	3,590	3,452	3,550
Total crude ²	342,312	342,894	342,320	342,417	341,467	340,631	341,157	339,703	339,116	338,491	338,987	340,081	341,363

Grades	Apr. 7	Apr. 14	Apr. 21	Apr. 28	May 5	May 12	May 19	May 26	June 2	June 9	June 16	June 23	June 30
Pennsylvania grade.....	4,978	4,884	4,758	4,837	4,860	4,798	4,746	4,758	4,822	4,744	4,646	4,666	4,676
Other Appalachian, including Kentucky.....	1,346	1,368	1,293	1,322	1,323	1,329	1,322	1,303	1,252	1,224	1,203	1,180	1,232
Lima-northeast Indiana-Michigan.....	1,594	1,642	1,613	{ 1,003 } { 1,543 }	1,550	1,555	1,611	1,605	1,613	1,606	1,480	1,473	1,495
Illinois-southwest Indiana.....	11,176	11,188	11,201	{ 11,118 } { 11,097 }	11,159	11,218	11,279	11,279	11,308	11,255	11,310	11,343	11,236
North Louisiana and Arkansas.....	11,166	11,105	11,134	11,106	11,097	10,993	10,971	10,861	11,008	10,991	10,951	10,875	10,866
West Texas and southeast New Mexico.....	30,309	30,047	29,787	29,520	29,570	29,359	29,175	28,918	29,340	29,764	28,879	29,115	29,216
East Texas.....	43,800	43,538	43,761	43,601	43,386	42,656	42,273	41,931	42,171	41,478	41,825	42,095	41,256
Other midcontinent (Kansas, Oklahoma, and all of Texas except west Texas, east Texas, and coastal Texas).....	156,253	157,633	157,701	157,791	158,762	159,254	159,732	159,408	160,345	161,090	161,561	161,104	161,705
Gulf coast (Texas and Louisiana).....	15,445	15,258	14,873	15,091	14,885	15,312	15,345	15,609	16,389	16,277	16,662	16,330	16,699
Rocky Mountain.....	27,610	27,494	27,437	27,489	27,611	27,649	27,731	27,685	27,785	27,883	27,871	27,878	27,826
California.....	34,463	34,138	34,327	33,986	34,325	34,063	33,717	33,505	33,830	34,046	33,856	33,845	33,938
Total domestic crude.....	338,140	338,295	337,885	{ 337,464 } { 337,404 }	338,528	338,186	337,902	336,862	339,863	339,970	340,244	339,904	340,145
Total foreign crude.....	3,826	3,627	3,461	3,254	3,579	3,533	3,492	3,459	3,258	3,231	3,244	3,212	3,562
Total crude ²	341,966	341,922	341,346	{ 340,718 } { 340,658 }	342,107	341,719	341,394	340,321	343,121	343,201	343,488	343,116	343,707

Stocks of crude petroleum, July to December 1934, by grades and weeks ¹

[Thousands of barrels of 42 gallons]

Grades	July 7	July 14	July 21	July 28	Aug. 4	Aug. 11	Aug. 18	Aug. 25	Sept. 1	Sept. 8	Sept. 15	Sept. 22	Sept. 29
Pennsylvania grade.....	4, 632	4, 619	4, 676	4, 696	4, 670	4, 747	4, 743	4, 684	4, 732	4, 744	4, 723	4, 641	4, 624
Other Appalachian, including Kentucky.....	1, 247	1, 265	1, 225	1, 188	1, 188	1, 167	1, 163	1, 137	1, 118	1, 141	1, 124	1, 116	1, 174
Lima-northeast Indiana-Michigan.....	1, 537	1, 478	1, 471	1, 445	1, 515	1, 435	1, 419	1, 438	1, 403	1, 368	1, 356	1, 361	1, 391
Illinois-southwest Indiana.....	11, 280	11, 331	11, 362	11, 356	11, 382	11, 352	11, 378	11, 523	11, 537	11, 394	11, 448	11, 503	11, 515
North Louisiana and Arkansas.....	10, 843	10, 692	10, 665	10, 447	10, 269	10, 204	10, 280	10, 158	10, 217	10, 240	10, 338	10, 403	10, 325
West Texas and southeast New Mexico.....	29, 353	29, 576	29, 151	29, 138	29, 433	29, 441	29, 750	29, 399	29, 311	29, 530	29, 480	29, 557	29, 600
East Texas.....	41, 184	40, 866	39, 802	39, 480	39, 390	38, 044	37, 651	37, 107	36, 891	35, 948	35, 520	35, 159	35, 098
Other midcontinent (Kansas, Oklahoma, and all of Texas except west Texas, east Texas and coastal Texas).....	161, 722	161, 367	160, 815	160, 641	160, 417	160, 846	159, 762	159, 593	158, 410	157, 810	157, 179	156, 732	156, 862
Gulf coast (Texas and Louisiana).....	16, 887	17, 628	17, 704	17, 657	17, 802	17, 769	17, 359	17, 703	18, 205	18, 265	18, 094	18, 196	18, 542
Rocky Mountain.....	27, 887	27, 864	27, 816	27, 846	27, 942	27, 839	27, 770	27, 022	27, 743	27, 706	27, 697	27, 646	27, 706
California.....	33, 841	33, 828	34, 153	33, 973	34, 186	34, 277	34, 386	34, 346	{ 34, 729 33, 874 }	{ 33, 719 33, 675 }	33, 675	33, 780	33, 696
Total domestic crude.....	340, 413	340, 504	338, 840	337, 867	338, 194	337, 121	335, 661	334, 110	{ 334, 296 333, 441 }	{ 331, 865 330, 634 }	330, 634	330, 094	330, 533
Total foreign crude.....	3, 679	3, 638	3, 771	3, 446	3, 421	3, 266	3, 101	2, 834	2, 898	2, 620	2, 780	2, 881	3, 019
Total crude ²	344, 092	344, 187	342, 611	341, 313	341, 615	340, 387	338, 762	336, 944	{ 337, 194 336, 339 }	{ 334, 485 333, 414 }	333, 414	332, 975	333, 552

Grades	Oct. 6	Oct. 13	Oct. 20	Oct. 27	Nov. 3	Nov. 10	Nov. 17	Nov. 24	Dec. 1	Dec. 8	Dec. 15	Dec. 22	Dec. 29
Pennsylvania grade.....	4, 657	4, 620	4, 628	4, 687	4, 652	4, 623	4, 661	4, 641	4, 668	4, 595	4, 567	4, 523	4, 468
Other Appalachian, including Kentucky.....	1, 151	1, 156	1, 165	1, 159	1, 125	1, 099	1, 124	1, 120	1, 071	1, 022	975	1, 000	978
Lima-northeast Indiana-Michigan.....	1, 395	1, 456	1, 432	1, 449	1, 417	1, 335	1, 278	1, 219	1, 208	1, 154	1, 340	1, 382	1, 151
Illinois-southwest Indiana.....	11, 488	11, 415	11, 412	11, 443	11, 453	11, 401	11, 339	11, 382	11, 393	11, 429	11, 507	11, 470	11, 454
North Louisiana and Arkansas.....	10, 243	10, 159	10, 059	10, 058	10, 115	10, 001	9, 830	9, 776	9, 709	9, 729	9, 861	9, 857	9, 781
West Texas and southeast New Mexico.....	29, 888	30, 254	30, 067	29, 639	29, 990	29, 704	29, 985	29, 789	29, 799	30, 222	30, 100	30, 245	30, 095
East Texas.....	34, 616	33, 512	33, 084	33, 318	32, 957	31, 675	30, 355	30, 840	31, 156	30, 674	30, 544	29, 969	29, 698
Other midcontinent (Kansas, Oklahoma, and all of Texas except west Texas, east Texas, and coastal Texas).....	156, 967	157, 402	157, 091	156, 147	156, 017	155, 898	155, 541	154, 251	153, 768	152, 853	152, 072	151, 969	150, 927
Gulf coast (Texas and Louisiana).....	18, 518	18, 390	18, 304	18, 015	18, 488	18, 433	18, 847	18, 855	18, 419	18, 473	18, 263	18, 004	18, 282
Rocky Mountain.....	27, 752	27, 746	27, 697	27, 722	27, 720	27, 679	27, 637	27, 551	27, 602	27, 545	27, 475	27, 425	27, 430
California.....	33, 914	34, 010	34, 209	34, 530	34, 947	34, 253	33, 996	33, 980	34, 919	35, 106	34, 602	34, 480	34, 679
Total domestic crude.....	330, 589	330, 090	329, 148	328, 167	328, 881	326, 106	324, 593	323, 404	323, 712	322, 843	321, 306	320, 324	318, 943
Total foreign crude.....	2, 922	2, 728	2, 833	2, 779	2, 995	2, 966	3, 083	2, 919	3, 045	3, 127	2, 954	3, 412	3, 319
Total crude ²	333, 511	332, 818	331, 981	330, 946	331, 876	329, 072	327, 676	326, 323	326, 757	325, 970	324, 260	323, 736	322, 262

¹ Data obtained weekly by the Petroleum Administrative Board and compiled by the Bureau of Mines.

² Represents approximately 98 percent of total stocks in the United States, exclusive of lease (producers') stocks.

³ New basis.

IMPORTS AND EXPORTS

Crude petroleum imported into and exported from United States¹ in 1934, by months

[Quantity in thousands of barrels of 42 gallons; value in thousands of dollars]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
													Quantity	Value
Imports (Bureau of Foreign and Domestic Commerce)	3,011	2,416	2,272	2,806	3,082	3,365	2,356	2,169	2,731	1,892	2,653	2,374	31,127	21,968
Imports (Bureau of Mines):														
By countries:														
In bond:														
Colombia.....										211	331	183	548	1,273
Venezuela.....	203	140	305	213	110	522	497	516	319	395	282	88	3,590	
	203	140	305	213	110	522	497	516	530	726	465	636	4,863	
Duty paid:														
Colombia.....	666	304	510	351	497	485	108						2,921	
Mexico.....	612	824	277	340	432	924	478	375	525	240	811	467	5,855	
Venezuela.....	1,240	1,763	1,318	1,941	1,923	1,856	1,895	1,855	1,873	1,918	2,139	2,096	21,817	
Other countries.....	79						23						102	
	2,597	2,891	2,105	2,632	2,902	3,265	2,504	2,230	2,398	2,158	2,450	2,563	30,695	
Total imports.....	2,800	3,031	2,410	2,845	3,012	3,787	3,001	2,746	2,928	2,884	2,915	3,199	35,558	
By districts:														
Atlantic coast.....	2,731	2,779	2,319	2,562	2,906	3,451	2,575	2,878	2,584	2,324	2,613	2,336	31,948	
Gulf coast.....	69	252	91	283	16	336	426	68	344	560	302	863	3,610	
	2,800	3,031	2,410	2,845	3,012	3,787	3,001	2,746	2,928	2,884	2,915	3,199	35,558	
Exports:														
By countries:														
Domestic crude oil:														
Argentina.....					182		195	101	192		99		769	1,003
Belgium.....							102						102	119
Canada.....	1,118	1,096	1,102	1,914	1,980	1,971	2,576	2,190	2,543	2,140	2,159	1,174	21,963	26,462
Canary Islands.....		78									78		156	168
France.....	726	797	952	1,091	759	1,170	806	576	803	772	1,121	631	10,294	12,563
Germany.....			21				68	91			112	88	380	448
Italy.....		73	59	154	75	85							446	660
Japan.....	442	464	379	675	724	566	466	605	525	326	982	539	6,693	7,944
Mexico.....	2	1	1	79	2	2	2	4	4	4	3	3	107	122
Other countries.....		2	68	29	2		15	27	1	35	126	2	307	267
	2,288	2,511	2,582	3,942	3,724	3,794	4,128	3,696	4,068	3,277	4,680	2,437	41,127	49,756
By districts:														
Atlantic coast.....											75		75	56
Gulf coast.....	726	884	1,042	1,790	1,934	2,081	2,150	1,876	2,123	1,866	2,159	719	19,350	22,658
Mexican border.....	2	1	56	61	1	60	2	4	4	63	3	3	260	332
Pacific coast.....	722	894	691	1,193	932	848	1,027	883	1,013	570	1,543	935	11,251	11,992
Northern border.....	838	732	793	898	857	805	949	933	928	778	900	780	10,191	14,718
	2,288	2,511	2,582	3,942	3,724	3,794	4,128	3,696	4,068	3,277	4,680	2,437	41,127	49,756

¹ Exclusive of Alaska, Hawaii, and Puerto Rico.
² Includes 33,000 barrels, valued at \$24,000, withdrawn from bond.

PRICES AND VALUES

Value of crude petroleum at the wells, 1924 and 1931-34, by States

[Totals in thousands of dollars; averages in dollars per barrel]

State	1924		1931		1932		1933		1934	
	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average
Arkansas.....	43,130	0.94	7,200	0.49	7,690	0.64	4,850	0.42	8,000	0.72
California.....	274,653	1.20	135,960	.72	144,600	.81	143,300	.83	160,760	.92
Colorado.....	490	1.10	825	.53	880	.77	540	.59	1,060	.93
Illinois.....	14,220	1.76	4,500	.89	4,720	1.01	3,690	.87	4,990	1.11
Indiana:										
Southwestern.....	1,200	1.80	730	.91	810	1.04	641	.89	930	1.14
Northeastern.....	520	1.93	20	.54	18	.62	9	.64	30	1.25
Total Indiana.....	1,720	1.84	750	.89	828	1.03	650	.88	960	1.15
Kansas.....	44,400	1.54	25,500	.69	31,720	.91	27,700	.66	47,850	1.03
Kentucky.....	14,592	1.97	5,295	.82	5,906	.94	3,780	.82	5,640	1.16
Louisiana:										
Gulf coast.....	4,050	1.63	6,370	.67	9,380	.81	9,580	.63	23,400	.98
Northern.....	26,290	1.41	7,850	.64	9,170	.90	5,700	.58	8,450	.93
Total Louisiana.....	30,340	1.44	14,220	.65	18,550	.85	15,280	.61	31,850	.97
Michigan.....			2,840	.75	5,260	.76	7,150	.90	10,820	1.02
Montana.....	3,754	1.33	2,730	.96	2,560	1.04	2,220	.98	4,380	1.22
New Mexico:										
Northwestern.....	127	1.30	450	.86	365	.93	320	.87	400	1.06
Southeastern.....			6,040	.41	7,285	.60	6,170	.45	12,300	.75
Total New Mexico.....	127	1.30	6,490	.43	7,650	.61	6,490	.46	12,700	.75
New York.....	5,245	3.64	6,800	2.02	6,630	1.89	5,960	1.87	9,340	2.46
Ohio:										
Central and eastern.....	13,135	2.74	4,600	1.09	4,230	1.18	3,490	1.09	5,550	1.70
Northwestern.....	4,030	2.00	1,010	.91	1,200	1.13	1,050	1.02	1,280	1.31
Total Ohio.....	17,165	2.52	5,610	1.05	5,430	1.17	4,540	1.07	6,830	1.61
Oklahoma.....	272,450	1.57	119,200	.66	137,920	.90	120,800	.66	183,700	1.02
Pennsylvania.....	27,025	3.61	23,550	1.98	23,400	1.89	23,590	1.87	35,200	2.43
Tennessee.....	18	1.80	5	.83	4	.80	(?)	(?)	(?)	(?)
Texas:										
Gulf coast.....	40,570	1.56	31,620	.66	34,100	.81	40,500	.66	60,600	1.01
East Texas proper.....	163,300	1.51	50,430	.46	114,200	.94	115,500	.56	181,000	1.00
West Texas.....			37,270	.47	40,860	.65	24,000	.43	38,450	.76
Rest of State.....			51,630	.54	70,540	.82	45,000	.55	81,500	.91
Total Texas.....	203,870	1.52	170,850	.51	259,700	.83	225,000	.56	361,550	.95
West Virginia.....	20,840	3.52	7,070	1.58	6,050	1.56	5,860	1.54	8,600	2.10
Wyoming.....	48,600	1.23	11,120	.75	10,942	.82	6,570	.59	10,550	.84
Other ¹	44	3.38	15	2.14	20	1.25	30	.86	45	.88
United States.....	1,022,683	1.43	550,630	.65	680,460	.87	608,000	.67	904,825	1.00

¹ California State Mining Bureau.

² Included under "Other."

³ Alaska and Utah, 1924 and 1931; Alaska, Missouri, and Utah, 1932; Alaska, Mississippi, Missouri, Tennessee, and Utah, 1933; Mississippi, Missouri, Tennessee, and Utah, 1934.

Average monthly prices per barrel for selected grades of crude petroleum at wells in 1934

Month	Pennsylvania grade		Lima, Ohio	Illinois	Oklahoma-Kansas 36°-36.9°	Pan-handle, Tex. (Carson and Hutchinson Counties. 35°-35.9°)	West Texas	Gulf-coast grade B, 30°-30.9°	California (Long Beach, 27°-27.9°)
	Bradford	South-west Pennsylvania							
January	\$2.45	\$2.12	\$1.30	\$1.14	\$1.00	\$0.71	\$0.75	\$1.04	\$1.00
February	2.45	2.12	1.30	1.13	1.00	.71	.75	1.04	1.00
March	2.45	2.12	1.30	1.13	1.00	.71	.75	1.04	1.00
April	2.45	2.12	1.30	1.13	1.00	.71	.75	1.04	1.00
May	2.55	2.22	1.30	1.13	1.00	.71	.75	1.04	1.00
June	2.55	2.22	1.30	1.13	1.00	.71	.75	1.04	1.00
July	2.55	2.22	1.30	1.13	1.00	.71	.75	1.04	1.00
August	2.55	2.22	1.30	1.13	1.00	.71	.75	1.04	1.00
September	2.55	2.22	1.30	1.13	1.00	.71	.75	1.04	1.00
October	2.55	2.22	1.30	1.13	1.00	.71	.75	1.04	1.00
November	2.34	2.01	1.30	1.13	1.00	.71	.75	1.04	1.00
December	2.09	1.76	1.30	1.13	1.00	.71	.75	1.04	1.00
Average for year	2.46	2.13	1.30	1.13	1.00	.71	.75	1.04	1.00

Posted price per barrel of petroleum at wells in 1934, by grades, with dates of change

Date	Pennsylvania grade		Corning grade in Buckeye Pipe Line Co. lines ²	Western Kentucky ³	Lima, Ohio ³	Illinois and Princeton, Ind. ³	Mid-land, Mich. ⁴	Oklahoma-Kansas ⁵	
	Bradford and Allegany districts ¹	In South-west Pennsylvania Pipe lines ²						34°-34.9°	36°-36.9°
Jan. 1	\$2.45	\$2.12	\$1.32	\$1.18	\$1.30	\$1.23	\$1.02	\$0.96	\$1.00
Jan. 5						1.13			
May 1	2.55	2.22		1.08					
May 26									
Nov. 6	2.30	1.97							
Dec. 6	2.05	1.72							
	2.46	2.13	1.32	1.12	1.30	1.13	1.02	.96	1.00

Date	Pan-handle, Tex. (Carson and Hutchinson Counties 35°-35.9°) ³	West Texas ⁴	Hobbs, N. Mex. ⁵	Dart, Tex. ⁶	South-west Texas, Mirando ⁶	Van, Tex., 34°-34.9° ⁴	East Texas ⁷	Gulf coast	
								Conroe, 38°-38.9° ⁸	Grade B, 30°-30.9° ⁸
Jan. 1	\$0.71	\$0.75	\$0.75	\$0.87	\$0.80	\$0.96	\$1.00	\$1.15	\$1.04

Date	North Louisiana, 34°-34.9° ⁹	Smack-over, Ark. ⁹	Salt Creek, Wyo., 36°-36.9° ¹⁰	Sun-burst, Mont. ³	California ¹¹				
					Kettle-man Hills, 38°-38.9°	Long Beach, 27°-27.9°	Mid-way-Sunset, 19°-19.9°	Playa del Rey, 22°-22.9°	Santa Fe Springs, 33°-33.9°
Jan. 1	\$0.83	\$0.70	\$1.00	\$1.35	\$1.08	\$1.00	\$0.64	\$0.90	\$1.16
Mar. 17	.91								
	.89	.70	1.00	1.35	1.08	1.00	.64	.90	1.16

¹ The Tide-Water Pipe Co., Ltd.
² The Joseph Seep Purchasing Agency.
³ The Ohio Oil Co.
⁴ The Pure Oil Co.
⁵ The Texas Co.
⁶ Humble Oil & Refining Co.

⁷ Magnolia Petroleum Co.
⁸ Gulf Pipe Line Co.
⁹ Standard Oil Co. of Louisiana.
¹⁰ Stanolind Oil & Gas Co.
¹¹ Standard Oil Co. of California.

WELLS

Oil and gas wells in 1934

State	Producing oil wells		Wells drilled ¹				Estimated average daily initial production per well (barrels)
	Approximate number, Dec. 31	Average production per well per day (barrels)	Oil	Gas	Dry	Total	
Arkansas.....	2,800	10.8	35		52	87	261
California ²	11,750	42.0	452	(³)	247	699	1,262
Colorado.....	190	18.4	7	4	13	24	2,372
Illinois.....	14,630	.8	6	1	9	16	20
Indiana:							
Southwestern.....	1,130	2.0	63	26	74	163	32
Northeastern.....	100	.6	6	15	2	23	11
Total Indiana.....	1,230	1.9	69	41	76	186	30
Kansas.....	18,550	6.9	591	22	222	835	509
Kentucky.....	13,900	1.0	236	9	107	352	69
Louisiana:							
Gulf coast.....	560	138.7	250	3	118	371	770
Northern.....	2,580	9.2	139	77	180	396	95
Total Louisiana.....	3,140	28.4	389	80	298	767	528
Michigan ⁴	980	32.1	272	47	150	469	800
Montana.....	1,400	7.0	127	21	36	184	104
New Mexico.....	640	78.3	107	13	24	144	2,417
New York.....	19,330	.6	(⁵)	(⁵)	(⁵)	(⁵)	(⁵)
Ohio:							
Central.....	19,880	.4	402	412	242	1,056	22
Northwestern.....	12,770	.2	48	21	34	103	20
Total Ohio.....	32,650	.4	450	433	276	1,159	22
Oklahoma.....	56,650	8.7	1,161	91	465	1,717	580
Pennsylvania.....	80,200	.5	⁵ 1,535	⁵ 61	⁵ 36	⁵ 1,632	⁵ 2
Texas:							
Gulf coast.....	3,700	49.2	758	82	369	1,209	644
East Texas proper.....	15,500	36.3	3,441	5	71	3,517	⁶ 1,884
West Texas.....	3,470	42.2	443	5	114	562	2,308
Rest of State.....	29,630	8.2	2,218	199	1,605	4,022	213
Total Texas.....	52,300	20.8	6,860	291	2,159	9,310	1,234
West Virginia.....	19,200	.6	171	243	96	510	27
Wyoming.....	3,410	10.1	44	9	14	67	186
Other.....	7,120			⁷ 7	⁸ 32	⁸ 39	
Total.....	333,070	7.5	12,512	1,373	4,312	18,197	861

¹ From Oil and Gas Journal, except California and Michigan.

² Producing wells, from Central Committee of California Oil Producers; wells completed, from American Petroleum Institute.

³ California gas wells not reported.

⁴ Department of Conservation, Michigan.

⁵ New York included with Pennsylvania.

⁶ Based on short gages generally ranging from 15 to 30 minutes.

⁷ Mississippi, Missouri, Tennessee, and Utah.

⁸ Alabama, Mississippi, Missouri, Tennessee, and Utah.

Wells drilled for oil and gas in the United States in 1934, by months

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
													Number	Per cent
Oil.....	902	812	929	924	1,100	1,137	1,187	1,210	1,053	1,171	1,036	1,051	12,512	69
Gas ¹	113	93	77	75	99	121	93	135	134	162	154	117	1,373	7
Dry.....	330	285	280	285	375	362	392	387	367	466	406	377	4,312	24
Total: 1934.....	1,345	1,190	1,286	1,284	1,574	1,620	1,672	1,732	1,554	1,799	1,596	1,545	18,197	100
1933.....	1,014	911	844	794	794	699	869	999	1,333	1,409	1,357	1,289	12,312	-----

¹ California dry gas wells not reported.**PRODUCTION AND ROYALTIES FROM WELLS ON FEDERAL AND INDIAN LANDS***Crude petroleum produced on Government lands in 1934, under operation of the Leasing Act of Feb. 25, 1920*

[From U. S. Geological Survey]

State and land office	Production (barrels)	Royalty	
		Barrels	Value
California:			
Los Angeles.....	1,353,486.66	121,958.21	\$92,379.60
Sacramento (including Visalia), outside naval reserves.....	12,382,244.05	1,411,394.60	1,571,246.25
Sacramento (including Visalia), inside naval reserves.....	3,582,889.17	673,630.12	546,198.67
Total.....	17,318,619.88	2,206,982.93	2,209,824.52
Colorado: Denver.....	631,689.77	51,138.81	46,441.92
Louisiana: Baton Rouge.....	2,155.72	269.38	277.12
Montana:			
Billings.....	199,981.68	11,188.13	21,105.03
Great Falls.....	115,307.23	7,013.94	9,475.83
Total.....	315,288.91	18,202.07	30,580.86
New Mexico:			
Las Cruces.....	2,870,932.91	209,968.28	177,478.52
Santa Fe.....	5,122.89	256.15	563.17
Total.....	2,876,055.80	210,224.43	178,041.69
Oklahoma: Guthrie.....	258,826.94	30,650.38	32,980.33
Utah: Salt Lake City.....	908.69	61.68	77.72
Wyoming:			
Buffalo.....	140,517.04	8,517.49	7,906.47
Cheyenne, outside naval reserves.....	8,149,274.89	1,067,727.43	1,162,781.19
Evanston.....	460,195.21	35,382.95	30,555.17
Total.....	8,749,987.14	1,111,627.87	1,201,242.83
Grand total.....	30,153,432.85	3,629,157.55	3,699,466.99

Royalty receipts from production of oil and gas and bonuses paid for sale of leases on Indian reservations, fiscal year ended June 30, 1934

[From Bureau of Indian Affairs]

Reservation	Oil and gas land leased during year (acres)	Receipts	
		Bonus from sale of leases	Royalty from production
Five Civilized Tribes:			
Oil.....	17,302	\$75,589	\$1,097,188
Gas.....				93,390
Blackfeet: Oil.....	1,400	1,960	9,930
Crow: Oil.....			279
Isabella: Oil.....			601
Kiowa:			
Oil.....	5,215	1,600	3,817
Gas.....			1,005
Navajo (northern): Oil.....			49,070
Osage:			
Oil.....	23,865	1,177,763	1,879,856
Gas.....			296,031
Pawnee:			
Oil.....	160	240	35,118
Gas.....			1,291
Seneca:			
Oil.....			1,066
Gas.....			5,500
Shawnee:			
Oil.....	3,705	30,269	39,058
Gas.....			2,126
Shoshone: Oil.....			5,341
Ute Mountain:			
Oil.....			101
Gas.....			2,414
	51,647	1,287,421	3,523,182

PETROLEUM PRODUCTS

DETAILED STATISTICS, BY PRODUCTS

MOTOR FUEL AND GASOLINE

Comparative analyses of statistics for motor fuel in 1934, by months

[Thousands of barrels of 42 gallons]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Production.....	33,915	31,202	33,606	35,056	35,642	35,356	37,535	38,164	35,042	36,381	35,413	36,489	423,801
Daily average.....	1,094	1,114	1,084	1,169	1,150	1,179	1,211	1,231	1,168	1,174	1,180	1,177	1,161
Imports.....	1												1
Exports.....	1,940	2,025	2,538	2,713	1,907	1,994	1,718	2,165	1,876	1,965	2,210	1,635	24,686
Daily average.....	63	72	82	90	62	66	55	70	63	63	74	53	68
Stocks, end of period.....	62,422	66,289	66,780	66,387	62,051	58,983	57,334	54,228	52,725	49,467	47,672	51,945	51,945
Days' supply.....	62	68	63	56	48	46	45	41	43	39	38	50	44
Domestic demand.....	29,489	25,310	30,577	32,736	33,071	36,430	37,466	39,105	34,669	37,674	34,998	30,581	407,106
Daily average:													
1934.....	951	904	986	1,091	1,228	1,214	1,209	1,261	1,156	1,215	1,167	986	1,115
1933.....	852	833	907	993	1,087	1,257	1,099	1,206	1,153	1,065	1,010	922	1,033

Production of motor fuel in 1934, by months

[Thousands of barrels of 42 gallons]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Refinery gasoline:													
Straight-run.....	16,444	15,877	16,905	17,635	17,811	17,916	18,236	18,277	16,591	17,140	16,527	16,978	206,337
Cracked.....	14,657	12,793	13,820	14,563	15,099	14,678	16,500	16,965	15,492	16,014	15,592	16,260	182,433
Natural gasoline:													
Production.....	3,057	2,826	3,049	2,950	2,938	2,864	2,971	3,057	3,074	3,267	3,240	3,263	36,556
Deduct losses.....	381	435	338	255	390	273	302	258	231	160	67	143	3,233
Benzol.....	138	141	170	163	184	171	130	123	116	120	121	131	1,708
Total motor fuel:													
1934.....	33,915	31,202	33,606	35,056	35,642	35,356	37,535	38,164	35,042	36,381	35,413	36,489	423,801
1933.....	30,926	28,320	32,387	32,619	35,162	35,765	37,337	37,220	36,776	36,181	33,063	32,176	407,923

Production and total stocks of motor fuel in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Production:													
East coast.....	5,975	4,801	5,837	6,033	5,615	5,299	6,140	6,014	5,404	5,918	5,616	6,103	68,755
Appalachian.....	1,590	1,475	1,538	1,729	1,596	1,634	1,679	1,691	1,660	1,753	1,571	1,736	19,652
Indiana, Illinois, Kentucky, etc.	4,821	5,114	4,940	5,181	5,536	5,470	5,713	6,040	5,557	5,948	5,678	5,454	65,452
Oklahoma, Kansas, and Missouri.....	4,539	4,277	4,607	4,762	5,083	4,896	5,155	4,997	4,664	4,885	4,936	5,150	57,951
Texas inland.....	2,973	2,800	2,962	3,253	3,379	3,231	3,382	3,341	3,656	3,751	3,278	3,061	39,067
Texas Gulf coast.....	5,905	5,058	5,871	5,924	6,087	6,424	6,835	7,401	6,593	6,454	6,746	7,061	76,359
Louisiana Gulf coast.....	1,366	1,220	1,294	1,365	1,377	1,297	1,306	1,237	1,068	1,115	1,130	1,373	15,148
Arkansas and Louisiana inland.....	737	725	785	792	858	880	898	895	797	813	780	700	9,640
Rocky Mountain.....	731	585	671	789	639	851	793	902	780	812	856	829	9,238
California.....	5,278	5,147	5,121	5,228	5,472	5,374	5,634	5,646	4,863	4,932	4,822	5,022	62,539
Total, 1934.....	33,915	31,202	33,606	35,056	35,642	35,356	37,535	38,164	35,042	36,381	35,413	36,489	423,801
Daily average.....	1,094	1,114	1,084	1,169	1,150	1,179	1,211	1,231	1,168	1,174	1,180	1,177	1,161
Total, 1933.....	30,926	28,320	32,387	32,619	35,162	35,765	37,337	37,220	36,776	36,181	33,063	32,176	407,932
													<i>Dec. 31, 1933¹</i>
Total stocks, end of period:													
East coast.....	16,453	18,110	18,925	19,064	17,701	16,623	16,098	14,896	14,368	13,140	12,465	13,561	15,670
Appalachian.....	2,670	2,649	2,567	2,517	2,453	2,365	2,244	2,153	2,217	2,289	2,349	2,495	2,755
Indiana, Illinois, Kentucky, etc.	9,072	9,812	10,123	10,030	9,111	8,650	8,005	7,440	7,220	6,855	6,747	7,660	8,686
Oklahoma, Kansas, and Missouri.....	6,510	6,635	6,878	6,793	6,646	6,128	5,990	5,585	5,052	4,500	4,308	4,952	6,584
Texas inland.....	1,912	2,085	2,149	2,432	2,450	2,236	2,218	2,152	2,073	1,870	1,947	1,967	2,079
Texas Gulf coast.....	6,219	6,648	6,838	6,822	5,426	5,381	4,730	4,608	4,777	5,188	5,279	6,337	5,684
Louisiana Gulf coast.....	1,977	1,896	1,508	1,519	1,280	1,182	1,462	1,328	1,450	1,200	1,024	1,104	1,934
Arkansas and Louisiana inland.....	258	341	388	346	409	372	364	378	319	311	329	398	264
Rocky Mountain.....	1,606	1,647	1,578	1,549	1,241	1,184	872	727	629	540	603	750	1,532
California.....	15,745	16,466	15,826	15,315	15,334	14,862	15,351	14,961	14,620	13,594	12,621	12,721	14,747
Total, 1934.....	62,422	66,289	66,780	66,387	62,051	58,983	57,334	54,228	52,725	49,467	47,672	51,945	59,935
1933.....	56,325	59,354	61,250	60,824	60,151	55,599	55,558	53,420	53,741	54,128	53,977	55,933	59,935

¹ For comparison with 1934.

Stocks of motor fuel in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	Jan. 1 ¹	Jan. 31	Feb. 28	Mar. 31	Apr. 30	May 31	June 30	July 31	Aug. 31	Sept. 30	Oct. 31	Nov. 30	Dec. 31
Motor fuel stocks:													
Gasoline:													
At refineries:													
East coast.....	5,479	6,115	7,190	7,415	7,338	6,220	5,383	5,757	5,208	4,742	4,145	3,860	4,358
Appalachian.....	1,544	1,597	1,718	1,630	1,566	1,267	1,080	963	799	823	827	748	968
Indiana, Illinois, Kentucky, etc.....	4,398	5,260	6,512	7,190	7,269	6,095	5,393	4,671	3,932	3,613	2,943	2,523	3,161
Oklahoma, Kansas, and Missouri.....	4,032	4,099	4,506	4,534	4,509	4,266	3,715	3,481	3,187	2,913	2,565	2,569	3,027
Texas inland.....	1,610	1,561	1,758	1,758	1,903	1,771	1,461	1,502	1,452	1,419	1,352	1,448	1,555
Texas Gulf coast.....	4,952	5,180	5,138	5,835	5,628	4,416	4,129	3,776	3,788	4,053	4,208	4,554	5,517
Louisiana Gulf coast.....	1,380	1,331	1,138	948	929	602	573	895	830	828	750	652	668
Arkansas and Louisiana inland.....	217	183	262	283	272	331	292	307	245	239	230	231	232
Rocky Mountain.....	1,501	1,566	1,600	1,540	1,511	1,195	1,143	828	691	593	491	559	705
California.....	10,192	11,271	11,980	11,249	10,778	10,776	10,916	11,010	10,289	9,726	8,750	8,057	8,120
Total.....	35,305	38,163	42,291	42,382	41,703	36,939	34,085	33,190	30,421	28,949	26,261	25,201	28,311
Bulk terminal and pipe line:													
East coast.....	10,038	10,138	10,753	11,282	11,482	11,278	11,027	10,087	9,429	9,343	8,672	8,403	9,027
Appalachian.....	1,132	975	801	785	779	1,016	1,142	1,169	1,261	1,322	1,368	1,558	1,451
Indiana, Illinois, Kentucky, etc.....	4,229	3,759	3,259	2,878	2,720	2,953	3,212	3,288	3,461	3,546	3,875	4,161	4,428
Oklahoma, Kansas, and Missouri.....	1,999	1,852	1,636	1,819	1,718	1,732	1,685	1,757	1,645	1,483	1,385	1,352	1,570
Texas inland.....	183	101	59	142	85	76	71	58	54	94	78	81	71
Texas Gulf coast.....	477	758	881	801	944	843	1,069	773	643	603	782	621	656
Louisiana Gulf coast.....	554	646	758	560	590	657	588	567	488	613	450	372	436
Arkansas and Louisiana inland.....	21	48	53	73	44	53	57	22	55	38	44	69	65
California.....	2,317	2,089	2,022	2,142	2,063	2,093	1,481	1,981	2,123	2,297	2,140	2,140	2,190
Total.....	20,950	20,366	20,222	20,482	20,425	20,701	20,332	19,593	19,017	19,165	18,951	18,757	19,894
Total gasoline stocks.....	56,255	58,529	62,513	62,864	62,128	57,640	54,417	52,783	49,438	48,114	45,212	43,958	48,205
Natural gasoline ²	3,680	3,893	3,776	3,916	4,259	4,411	4,566	4,651	4,790	4,611	4,255	3,714	3,740
Total motor fuel stocks.....	59,935	62,422	66,289	66,780	66,387	62,051	58,983	57,334	54,228	52,725	49,467	47,672	51,945

¹ New basis.

² For details of refinery stocks, see p. 439; for details of all stocks of natural gasoline, see Statistical Appendix to Minerals Yearbook, 1935.

Allocations and actual production of gasoline in 1934, by districts¹

[Thousands of barrels of 42 gallons]

District	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
East coast:													
Allowable.....	5,300	4,890	5,773	5,500	5,500	5,720	6,575	6,108	5,176	5,863	5,640	6,013	68,063
Actual production.....	5,625	4,979	5,871	5,640	5,522	5,506	6,029	6,021	5,343	6,021	5,862	6,026	68,145
Excess of production over allowable.....	325	89	-107	140	22	-546	-46	-87	167	158	222	13	82
Appalachian:													
Allowable.....	1,200	1,140	1,395	1,475	1,475	1,550	1,640	1,573	1,434	1,490	1,438	1,541	17,351
Actual production.....	1,432	1,286	1,386	1,550	1,511	1,486	1,628	1,581	1,542	1,586	1,462	1,591	18,041
Excess of production over allowable.....	232	146	-9	75	36	-64	-12	8	108	96	24	50	690
Indiana, Illinois, etc:													
Allowable.....	4,400	4,580	4,957	4,890	4,890	5,365	5,750	6,066	5,531	6,011	5,648	5,574	63,662
Actual production.....	5,086	5,089	5,013	5,249	5,672	5,537	5,789	6,048	5,586	6,033	5,825	5,555	66,482
Excess of production over allowable.....	686	509	56	359	782	172	39	-18	55	22	177	-19	2,820
Oklahoma, Kansas, and Missouri:													
Allowable.....	3,700	3,420	4,251	4,400	4,400	4,765	5,100	4,668	4,268	4,607	4,649	5,115	53,343
Actual production.....	4,470	4,146	4,329	4,322	4,882	4,663	4,854	4,738	4,446	4,706	4,932	5,107	55,545
Excess of production over allowable.....	770	726	78	-78	482	-102	-246	70	178	99	283	-8	2,202
Texas inland:													
Allowable.....	2,100	2,010	2,248	2,555	2,555	2,410	3,020	2,897	2,473	2,704	3,002	-865	30,839
Actual production.....	2,689	2,533	2,545	2,761	2,826	2,722	3,033	2,916	3,120	3,344	2,903	2,504	33,896
Excess of production over allowable.....	589	523	297	206	271	312	13	19	647	640	-99	-361	3,057
Texas Gulf coast:													
Allowable.....	5,200	4,990	5,620	5,300	5,300	6,300	6,550	7,197	6,614	6,565	7,199	7,061	73,896
Actual production.....	5,956	5,419	5,912	6,045	5,850	6,190	6,872	7,213	6,609	6,741	7,054	7,473	77,369
Excess of production over allowable.....	756	429	292	745	550	-110	322	218	-5	176	-145	412	3,473
Louisiana Gulf coast:													
Allowable.....	1,150	980	1,205	1,100	1,100	1,300	1,325	1,278	1,100	1,092	1,022	1,375	14,027
Actual production.....	1,387	1,232	1,292	1,289	1,404	1,295	1,283	1,247	1,079	1,091	1,070	1,472	15,141
Excess of production over allowable.....	237	252	87	189	304	-5	-42	-31	-21	1	48	97	1,114
Arkansas and Louisiana inland:													
Allowable.....	550	550	646	900	900	840	865	854	742	793	759	668	9,067
Actual production.....	696	673	722	738	796	835	742	727	746	772	727	628	8,802
Excess of production over allowable.....	146	123	76	-162	-104	-5	-123	-127	4	-21	-32	-40	-265
Rocky Mountain:													
Allowable.....	675	590	629	660	660	700	850	870	718	788	822	803	8,765
Actual production.....	711	589	619	763	635	808	717	896	730	756	840	787	8,851
Excess of production over allowable.....	36	-1	-10	103	-25	108	-133	26	12	-32	18	-16	86
California:													
Allowable.....	4,325	3,990	5,062	5,130	5,130	5,650	5,525	5,164	4,508	4,793	4,798	4,846	58,921
Actual production.....	5,099	5,031	5,172	5,263	5,336	5,383	5,668	5,207	4,684	4,978	4,921	4,911	61,653
Excess of production over allowable.....	774	1,041	110	133	206	-267	143	43	176	185	123	65	2,732
United States:													
Allowable.....	28,600	27,140	31,791	31,910	31,910	34,600	37,200	36,675	32,564	34,706	34,977	35,861	397,934
Actual production.....	33,151	30,977	32,661	33,520	34,414	34,425	36,615	36,599	33,885	36,028	35,596	36,054	413,925
Excess of production over allowable.....	4,551	3,837	870	1,610	2,504	-175	-585	-76	1,321	1,322	619	193	15,991

¹ Allocations as established by the Planning and Coordination Committee; production of finished and unfinished gasoline as reported by the Bureau of Mines.

Production of gasoline in 1934, by methods of manufacture, districts, and months

[Thousands of barrels of 42 gallons]

Method and district	January	February	March	April	May	June	July	August	September	October	November	December	Total		
													Quantity	Percent	
Straight distillation:															
East coast.....	3,223	2,535	3,257	3,332	2,958	2,719	3,200	3,084	2,555	2,580	2,542	2,889	34,874	50.1	
Appalachian.....	694	705	698	798	698	758	720	766	694	808	714	815	8,868	49.3	
Indiana, Illinois, Kentucky, etc.....	1,911	2,284	2,170	2,227	2,364	2,367	2,557	2,610	2,299	2,566	2,452	2,303	28,110	41.8	
Oklahoma, Kansas, and Missouri.....	1,999	2,024	2,119	2,194	2,469	2,414	2,394	2,282	2,049	2,109	2,195	2,370	26,618	47.9	
Texas inland.....	1,573	1,448	1,491	1,789	1,793	1,652	1,673	1,659	2,019	2,093	1,441	1,227	19,858	59.2	
Texas Gulf coast.....	2,760	2,432	3,069	2,844	2,978	3,341	3,120	3,427	3,183	3,029	3,156	3,285	36,624	46.9	
Louisiana Gulf coast.....	681	748	763	826	861	759	736	734	627	668	693	789	8,885	58.4	
Arkansas and Louisiana inland.....	314	342	345	345	329	393	385	393	354	362	365	332	4,259	47.0	
Rocky Mountain.....	305	252	304	368	316	428	394	443	366	368	404	367	4,315	48.4	
California.....	2,984	3,107	2,689	2,912	3,045	3,085	3,057	2,879	2,445	2,557	2,565	2,601	33,926	55.1	
Total straight run.....	16,444	15,877	16,905	17,635	17,811	17,916	18,236	18,277	16,591	17,140	16,527	16,978	206,337	49.5	
Percent of total production.....	49.3	51.9	51.4	51.5	51.3	51.7	49.5	49.0	48.1	47.3	46.4	47.2	49.5	-----	
Cracking:															
East coast.....	2,717	2,230	2,537	2,660	2,610	2,537	2,907	2,899	2,820	3,308	3,043	3,181	33,449	48.0	
Appalachian.....	717	591	643	753	736	734	840	806	833	780	681	714	8,828	49.1	
Indiana, Illinois, Kentucky, etc.....	2,862	2,785	2,716	2,903	3,119	3,055	3,117	3,390	3,220	3,538	3,182	3,102	36,789	54.7	
Oklahoma, Kansas, and Missouri.....	1,863	1,663	1,805	1,856	1,922	1,845	2,109	2,064	1,931	2,015	1,970	2,019	23,132	41.6	
Texas inland.....	717	753	758	715	876	828	920	865	756	734	789	878	9,589	28.6	
Texas Gulf coast.....	3,119	2,600	2,775	3,048	3,073	3,042	3,672	3,927	3,364	3,375	3,539	3,725	39,259	50.2	
Louisiana Gulf coast.....	673	460	617	525	501	524	559	491	425	429	419	566	6,089	40.0	
Arkansas and Louisiana inland.....	334	300	329	350	443	397	422	414	351	353	309	261	4,263	47.1	
Rocky Mountain.....	327	248	274	328	231	335	309	367	322	334	353	362	3,790	42.5	
California.....	1,328	1,163	1,466	1,425	1,518	1,381	1,645	1,742	1,470	1,348	1,307	1,452	17,245	28.0	
Total cracked.....	14,657	12,793	13,820	14,563	15,099	14,678	16,500	16,965	15,492	16,014	15,592	16,260	182,433	43.8	
Percent of total production.....	44.0	41.8	42.1	42.5	43.5	42.4	44.7	45.5	44.1	43.8	45.2	45.2	43.8	-----	
Natural gasoline blended at refineries¹	2,222	1,939	2,136	2,038	1,813	2,054	2,142	2,054	2,405	3,128	3,472	2,759	28,162	6.7	
Percent of total production.....	6.7	6.3	6.5	6.0	5.2	6.9	5.8	5.5	7.0	8.6	9.8	7.6	6.7	-----	

¹ For details, see p. 439.

Production of gasoline in 1934, by methods of manufacture, districts, and months—Continued

[Thousands of barrels of 42 gallons]

Method and district	Janu- ary	Febru- ary	March	April	May	June	July	August	Sep- tem- ber	Octo- ber	No- vem- ber	De- cem- ber	Total		
													Quan- tity	Per- cent	
Total:															
East coast.....	6,086	4,891	5,839	6,107	5,608	5,284	6,166	6,019	5,467	6,050	5,849	6,264	69,630	-----	
Appalachian.....	1,435	1,313	1,358	1,569	1,451	1,516	1,580	1,595	1,547	1,614	1,435	1,567	17,980	-----	
Indiana, Illinois, Kentucky, etc.....	4,950	5,217	5,033	5,303	5,654	5,574	5,849	6,153	5,732	6,213	5,928	5,641	67,247	-----	
Oklahoma, Kansas, and Missouri.....	4,342	4,092	4,344	4,452	4,803	4,689	4,944	4,815	4,554	4,712	4,883	4,994	55,624	-----	
Texas inland.....	2,692	2,503	2,546	2,773	2,855	2,747	2,875	2,851	3,064	3,231	2,877	2,512	33,526	-----	
Texas Gulf coast.....	5,991	5,130	5,972	6,024	6,188	6,528	6,935	7,540	6,798	6,737	7,034	7,276	78,153	-----	
Louisiana Gulf coast.....	1,365	1,244	1,294	1,360	1,370	1,303	1,312	1,242	1,094	1,125	1,124	1,372	15,205	-----	
Arkansas and Louisiana inland.....	685	684	719	740	826	834	847	851	747	773	721	633	9,060	-----	
Rocky Mountain.....	702	559	644	760	606	829	764	881	753	776	834	800	8,908	-----	
California.....	5,075	4,976	5,112	5,148	5,362	5,344	5,606	5,349	4,732	5,051	4,906	4,938	61,599	-----	
Total, 1934.....	33,323	30,609	32,861	34,236	34,723	34,648	36,878	37,296	34,488	36,282	35,591	35,997	416,932	100.0	
Daily average.....	1,075	1,093	1,060	1,141	1,120	1,155	1,190	1,203	1,160	1,170	1,186	1,161	1,142	-----	
Total, 1933.....	30,465	27,678	31,608	31,961	34,298	35,309	36,666	36,619	36,581	35,945	32,891	31,570	401,591	-----	

Percentage yields of gasoline from crude oil in 1934, by districts and months

District	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
East coast.....	42.5	37.4	40.1	42.2	37.8	36.7	39.4	39.5	39.1	39.5	40.1	42.8	39.8
Appalachian.....	51.4	51.3	49.3	49.8	44.5	48.5	48.1	49.8	50.6	51.9	49.0	49.8	49.4
Indiana, Illinois, Kentucky, etc.....	53.0	57.6	53.4	55.5	53.1	52.3	53.2	53.4	55.9	56.1	55.2	55.6	54.5
Oklahoma, Kansas, and Mis- souri.....	52.3	51.7	51.4	51.8	53.2	52.1	52.0	51.8	53.3	53.7	53.2	52.0	52.4
Texas inland.....	47.6	48.2	47.3	48.0	50.5	50.3	46.7	45.6	45.4	43.7	43.4	51.6	47.5
Texas Gulf coast.....	40.8	37.9	40.7	40.3	42.0	43.6	44.3	45.8	44.5	44.3	42.9	39.9	42.3
Louisiana Gulf coast.....	40.8	37.1	36.1	39.1	40.6	35.8	35.9	33.7	33.0	33.2	33.3	36.0	36.2
Arkansas and Louisiana In- land.....	40.5	42.9	45.6	48.1	47.7	44.6	43.0	48.4	45.9	46.9	46.0	43.3	45.2
Rocky Mountain.....	54.1	51.7	57.6	53.4	48.9	49.9	46.7	47.1	50.0	48.1	50.7	52.4	50.5
California.....	33.9	36.5	32.7	33.0	33.0	32.7	33.3	34.5	31.1	31.0	31.1	31.1	32.7
United States: 1934.....	43.5	43.1	42.8	43.8	43.2	42.9	43.4	44.1	43.6	43.6	43.5	43.4	43.4
1933.....	42.7	42.5	43.8	43.8	43.8	44.6	43.8	43.7	45.4	45.7	44.1	41.7	43.7

Production of gasoline in 1934 by States

[Thousands of barrels of 42 gallons]

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Arkansas.....	236	235	255	240	259	253	264	261	245	271	254	209	2,982
California.....	5,075	4,976	5,112	5,148	5,362	5,344	5,606	5,349	4,732	5,051	4,906	4,938	61,599
Colorado.....	65	49	58	62	61	74	58	64	73	51	60	65	740
Georgia, Rhode Is- land, and South Carolina.....	142	119	137	138	125	122	121	110	116	118	120	142	1,510
Illinois.....	1,371	1,417	1,359	1,510	1,456	1,540	1,638	1,562	1,558	1,668	1,689	1,551	18,319
Indiana.....	2,352	2,504	2,402	2,479	2,791	2,620	2,741	3,101	2,787	3,045	2,821	2,751	32,394
Kansas and Mis- souri.....	1,817	1,756	1,912	1,920	2,154	2,075	2,198	2,101	1,988	2,079	2,114	2,316	24,430
Kentucky and Ten- nessee.....	244	326	288	297	289	313	326	318	264	316	271	267	3,519
Louisiana, Alabama, and Mississippi.....	1,814	1,693	1,758	1,860	1,937	1,884	1,895	1,832	1,596	1,627	1,591	1,796	21,283
Maryland.....	450	306	411	348	422	403	503	512	408	437	430	487	5,117
Massachusetts.....	475	435	479	434	453	453	495	440	401	379	355	366	5,215
Michigan.....	238	293	255	244	251	256	274	283	243	273	271	281	3,102
Montana.....	60	65	45	78	93	69	113	123	108	106	107	91	1,058
New Jersey.....	2,337	1,713	2,103	2,115	1,865	1,659	2,436	2,283	2,049	2,062	2,114	2,249	24,985
New Mexico and Utah.....	188	56	124	169	185	178	176	180	159	174	172	171	1,932
New York.....	448	411	441	402	420	433	450	450	408	436	350	414	5,063
Ohio.....	1,118	1,044	1,098	1,208	1,269	1,228	1,331	1,348	1,332	1,332	1,319	1,185	14,812
Oklahoma.....	2,525	2,336	2,432	2,532	2,649	2,614	2,746	2,714	2,566	2,633	2,769	2,678	31,194
Pennsylvania.....	3,158	2,791	3,125	3,606	3,219	3,172	3,099	3,170	3,014	3,640	3,311	3,595	38,900
Texas.....	8,683	7,633	8,518	8,797	9,043	9,275	9,810	10,391	9,862	9,968	9,911	9,788	111,679
West Virginia.....	138	122	132	148	153	175	181	190	166	171	161	184	1,921
Wyoming, Nebras- ka, and South Dakota.....	389	389	417	451	267	508	417	514	413	445	495	473	5,178
Total.....	33,323	30,609	32,861	34,236	34,723	34,648	36,878	37,296	34,488	36,282	35,591	35,997	416,932

Shipments of motor fuel by pipe lines in 1934, by months

[Thousands of barrels of 42 gallons]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Motor fuel turned into lines..	3,274	2,984	3,448	3,171	4,022	4,072	4,293	4,210	4,143	4,226	4,079	3,583	45,505
Motor fuel delivered from lines.....	3,357	2,951	3,333	3,271	4,005	4,134	4,191	4,221	4,047	4,287	4,051	3,535	45,383
Shortage.....	8	9	9	8	12	11	14	19	4	16	3	15	94
Stocks in lines and working tanks, end of month.....	1,226	1,250	1,356	1,248	1,253	1,192	1,280	1,250	1,342	1,265	1,290	1,343	1,343

1 Overage.

Consumption of gasoline, 1919-34, by States and years ¹

[Thousands of barrels of 42 gallons]

[The figures represent quantities of gasoline sold or offered for sale, as reported by wholesalers and dealers in the various States under provisions of the gasoline-tax or inspection laws. Such laws were not in operation in all States prior to 1930]

State	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 ²	1934
Alabama					898	2,070	2,548	3,046	3,505	4,007	4,242	4,108	3,873	3,248	3,188	3,692
Arizona			209	416	479	580	679	776	982	1,365	1,735	1,810	1,773	1,657	1,536	1,743
Arkansas			248	520	996	1,359	1,989	2,384	2,366	2,838	3,205	3,301	3,026	2,715	2,886	3,337
California					3,593	15,969	19,325	21,569	24,230	26,224	29,841	31,799	33,370	32,204	31,512	31,766
Colorado	701	1,091	1,536	1,651	1,756	2,194	2,351	2,676	3,076	3,381	3,703	4,068	4,202	3,783	3,808	4,113
Connecticut			530	1,748	2,096	2,553	3,020	3,202	3,808	4,341	4,818	5,317	5,927	5,838	5,908	6,070
Delaware					378	425	476	578	660	776	867	907	911	957	989	
District of Columbia					578	1,067	1,214	1,376	1,514	1,711	1,918	2,226	2,445	2,497	2,470	
Florida			667	1,513	2,121	2,992	5,047	6,833	5,904	5,402	5,336	5,421	5,523	4,974	4,894	5,638
Georgia			720	1,795	2,431	2,828	3,478	4,052	4,578	4,908	5,252	5,338	5,283	4,739	5,014	5,702
Idaho					472	649	763	939	1,008	1,194	1,312	1,459	1,423	1,247	1,246	1,566
Illinois										996		23,172	24,945	22,639	23,119	24,427
Indiana					3,432	5,760	6,602	7,285	8,333	9,249	10,288	10,596	11,464	10,429	10,453	11,082
Iowa								5,976	7,359	7,301	7,991	9,305	9,820	8,487	8,466	9,614
Kansas							5,041	5,734	6,443	7,516	8,594	9,208	11,559	8,347	8,332	9,019
Kentucky				1,241	1,620	1,885	2,376	2,472	2,816	3,210	3,686	4,007	4,195	3,906	3,959	4,390
Louisiana		401	1,050	99	1,324	1,825	2,378	3,210	3,723	3,610	4,025	4,209	4,399	4,475	3,953	3,884
Maine					681	1,242	1,388	1,480	1,779	1,957	2,287	2,588	2,767	2,636	2,562	2,786
Maryland				942	1,757	1,955	2,435	2,807	3,131	3,413	3,888	4,342	4,498	4,618	4,548	4,911
Massachusetts											11,950	12,764	13,743	13,542	13,361	13,995
Michigan								12,807	14,128	16,032	18,697	19,561	18,876	18,216	17,626	18,618
Minnesota							5,857	6,337	6,897	7,820	8,521	9,558	10,522	9,550	9,565	10,275
Mississippi				711	1,173	1,526	2,042	2,521	2,804	3,368	3,820	4,220	2,743	2,554	2,753	3,125
Missouri							6,171	6,899	7,692	8,452	9,356	10,601	11,728	10,921	11,092	11,652
Montana			412	590	766	819	943	1,157	1,268	1,485	1,845	1,801	1,616	1,663	2,035	
Nebraska								3,370	3,704	4,040	4,725	5,355	5,450	5,433	4,736	5,318
Nevada					138	184	220	258	303	342	424	443	561	555	491	588
New Hampshire					435	731	852	927	1,089	1,149	1,389	1,541	1,626	1,565	1,568	1,682
New Jersey										10,056	11,859	13,047	16,932	16,638	16,637	17,489
New Mexico											1,090	1,301	1,243	1,113	1,151	1,337
New York	103	137	255	375	379	445	500	589	730		23,319	36,000	38,704	37,800	36,714	37,548
North Carolina			1,205	1,924	2,935	3,655	4,380	4,635	5,228	5,859	6,312	5,968	6,088	5,526	5,748	6,662
North Dakota	836	426	849	378	955	1,200	1,580	1,809	2,111	2,790	2,961	2,858	2,733	2,331	2,374	2,451
Ohio								16,194	18,349	20,491	22,704	23,228	23,448	21,502	21,110	22,749
Oklahoma					1,426	3,525	4,351	5,104	5,987	6,685	7,531	7,693	7,151	6,384	6,550	7,153
Oregon	869	1,137	1,277	1,423	1,832	2,135	2,406	2,821	3,116	3,435	3,897	4,052	4,156	3,767	3,783	3,952
Pennsylvania			1,989	7,409	8,128	10,821	12,502	14,009	16,466	18,072	21,440	22,115	25,300	24,787	24,963	27,056
Rhode Island								1,315	1,463	1,568	1,853	2,115	2,337	2,406	2,386	2,592
South Carolina				914	1,358	1,765	2,021	2,186	2,423	2,618	2,824	2,838	2,887	2,485	2,665	3,151
South Dakota				878	892	1,362	1,790	1,797	2,096	2,635	2,951	3,347	3,203	2,636	2,389	2,607
Tennessee					1,461	2,157	2,905	3,075	3,547	4,078	4,644	5,125	5,104	4,303	4,409	5,049

Texas.....					4,006	8,992	11,052	12,253	14,082	15,972	18,324	19,202	19,669	17,883	18,438	20,884
Utah.....					469	671	759	855	995	1,134	1,346	1,432	1,457	1,291	1,303	1,527
Vermont.....					421	555	616	658	790	888	1,047	1,119	1,170	1,116	1,051	1,156
Virginia.....					1,220	2,538	3,063	3,402	3,971	4,368	4,960	5,439	5,813	5,464	5,558	6,170
Washington.....			1,123	2,270	2,919	3,239	3,881	4,406	4,843	5,406	6,035	6,456	6,491	5,865	5,685	6,209
West Virginia.....					642	1,520	1,841	2,041	2,444	2,651	3,013	3,343	3,428	3,086	3,074	3,515
Wisconsin.....								6,397	7,466	8,504	9,367	10,426	10,849	9,730	9,226	10,017
Wyoming.....					356	482	495	552	624	757	823	872	940	842	844	1,047
Total.....	2,509	3,192	11,669	28,022	56,318	93,692	135,341	195,352	219,834	255,707	322,619	375,287	398,077	368,986	367,532	395,123

¹ 1919-24, Bureau of Public Roads; 1925-34, American Petroleum Institute.

² Revised.

Consumption of gasoline in 1934, by States and months¹

[Thousands of gallons]

State	January	February	March	April	May	June	July	August	September	October	November	December	Total	
													Thousands of gallons	Equivalent in thousands of barrels
Alabama.....	11,879	10,616	12,442	12,130	12,904	12,908	13,272	13,737	13,583	14,379	13,852	13,345	155,047	3,692
Arizona.....	5,768	5,589	6,064	6,027	6,275	6,401	5,892	6,110	6,064	6,456	6,270	6,313	73,219	1,743
Arkansas.....	11,210	9,696	10,407	10,536	12,056	11,640	12,626	12,929	12,706	12,628	12,718	11,004	140,156	3,337
California.....	87,538	94,112	136,314	122,688	118,848	116,126	102,628	113,863	106,319	115,164	108,657	111,920	1,334,177	31,766
Colorado.....	18,610	6,639	11,374	14,077	15,428	14,042	17,445	14,164	19,075	15,829	13,995	12,078	172,756	4,113
Connecticut.....	16,116	13,201	16,724	19,609	23,263	25,056	26,008	26,205	24,890	22,759	21,662	19,440	254,933	6,070
Delaware.....	2,634	2,273	2,695	3,353	3,772	3,966	4,144	4,352	3,973	3,782	3,348	3,259	41,556	989
District of Columbia.....	7,945	6,792	7,689	8,766	9,282	8,931	9,139	10,386	8,059	9,155	9,022	8,568	103,734	2,470
Florida.....	22,099	21,310	24,077	20,150	18,519	17,145	16,719	16,970	16,888	18,711	20,582	23,605	236,775	5,633
Georgia.....	18,310	16,687	19,321	18,649	19,621	19,837	20,731	21,626	20,169	21,978	22,163	20,406	239,498	5,702
Idaho.....	3,480	3,592	4,769	5,325	5,608	6,176	7,012	7,285	6,598	6,188	5,433	4,304	65,770	1,566
Illinois.....	71,474	64,560	72,880	80,907	92,178	92,517	96,340	99,589	92,040	99,538	92,291	71,604	1,025,918	24,427
Indiana.....	31,770	27,582	34,617	36,569	42,668	40,031	42,109	43,876	44,989	43,081	41,430	36,716	465,438	11,082
Iowa.....	26,857	25,453	30,054	37,298	35,834	35,677	34,897	36,457	37,000	36,457	34,983	32,840	403,903	9,614
Kansas.....	25,394	26,855	27,877	30,841	33,412	41,346	37,190	34,643	32,702	32,196	29,370	26,955	378,781	9,019
Kentucky.....	13,321	11,789	13,078	14,480	15,882	16,286	16,778	18,168	16,856	16,922	15,965	14,842	184,367	4,390
Louisiana.....	14,040	12,340	13,575	14,185	15,336	14,686	15,258	15,697	14,992	17,915	14,395	16,038	178,457	4,249
Maine.....	5,645	4,915	5,623	6,853	11,164	12,416	13,964	15,434	12,759	10,983	9,421	7,816	116,993	2,786
Maryland.....	14,305	11,623	14,126	17,069	18,797	19,208	19,529	19,840	17,980	19,803	17,422	16,577	206,279	4,911
Massachusetts.....	37,535	32,926	38,910	44,797	54,255	56,682	58,781	61,243	52,330	58,406	46,484	45,440	587,789	13,995
Michigan.....	54,887	51,948	56,865	60,819	73,260	69,787	76,235	76,232	76,101	67,078	64,220	54,539	781,971	18,618
Minnesota.....	27,603	24,524	31,425	34,170	38,466	38,242	42,520	43,695	40,915	43,057	38,813	28,115	431,545	10,275
Mississippi.....	11,181	8,821	10,054	10,783	10,144	10,975	10,885	11,499	11,217	12,323	12,576	10,805	131,263	3,125
Missouri.....	38,349	34,071	36,894	38,496	42,637	42,890	44,532	45,159	41,657	44,896	43,759	36,261	489,401	11,652
Montana.....	4,644	4,374	5,824	7,415	7,705	8,393	9,580	9,959	7,695	8,055	6,702	5,238	85,848	2,035
Nebraska.....	17,777	16,173	16,710	18,865	20,623	18,320	21,036	20,662	18,568	20,440	19,227	14,971	223,372	5,318
Nevada.....	1,896	1,485	1,799	2,047	2,185	2,355	2,507	2,506	2,372	2,255	1,947	1,853	24,707	588
New Hampshire.....	3,754	3,328	3,889	4,815	6,473	7,317	8,201	8,866	7,282	6,625	5,360	4,700	70,640	1,682
New Jersey.....	48,385	39,367	50,651	52,930	68,062	63,569	71,716	70,934	64,702	75,958	69,327	58,920	734,521	17,489
New Mexico.....	3,623	3,561	3,755	4,210	4,619	5,024	5,244	5,691	5,460	5,247	4,943	4,877	56,154	1,337
New York.....	108,639	87,616	107,742	120,718	144,473	149,082	156,467	160,083	144,938	139,832	128,930	128,499	1,677,019	37,543
North Carolina.....	19,955	17,719	20,349	21,469	23,798	21,673	23,765	25,879	24,216	27,709	27,329	25,935	279,796	6,662
North Dakota.....	4,242	4,420	8,735	10,344	9,841	8,875	9,873	10,784	9,394	10,973	9,192	6,258	102,931	2,451
Ohio.....	66,978	60,967	69,816	79,988	89,573	83,836	86,918	91,328	85,223	87,078	82,262	71,503	955,470	22,749
Oklahoma.....	23,945	21,639	22,691	23,485	24,931	29,566	27,534	26,026	27,229	26,161	24,367	22,857	300,431	7,153
Oregon.....	10,356	10,862	13,152	14,615	14,191	16,567	15,838	15,805	16,517	13,716	12,551	11,808	135,978	3,952

Pennsylvania.....	78,065	67,884	82,370	89,439	104,816	103,936	106,740	110,521	101,099	104,415	97,433	90,126	1,136,344	27,056
Rhode Island.....	7,896	5,845	7,399	8,220	9,565	10,489	11,662	11,191	9,686	10,322	8,493	8,096	108,864	2,592
South Carolina.....	10,237	9,117	10,680	11,062	10,942	10,653	11,338	11,515	10,986	11,981	11,911	11,925	132,347	3,151
South Dakota.....	7,677	6,846	9,425	8,667	9,108	8,640	10,896	9,680	10,223	10,327	10,103	7,922	109,514	2,607
Tennessee.....	17,031	15,073	16,114	15,990	18,265	18,109	16,899	19,334	19,398	19,558	21,250	15,016	212,037	5,049
Texas.....	65,584	58,631	69,368	66,878	74,451	79,098	75,574	77,454	78,918	83,846	70,727	74,505	875,034	20,834
Utah.....	4,307	3,947	4,509	5,233	5,383	5,818	6,623	6,638	5,994	5,858	5,344	4,486	64,140	1,527
Vermont.....	2,329	2,170	2,342	3,040	4,437	5,060	5,523	6,399	5,239	4,645	4,050	3,316	48,550	1,156
Virginia.....	19,539	15,966	18,614	20,860	22,709	23,784	22,745	24,729	22,289	24,979	22,615	20,294	259,123	6,170
Washington.....	17,151	17,094	24,670	25,343	19,353	22,505	25,365	24,833	23,296	22,379	19,750	19,039	260,778	6,209
West Virginia.....	10,114	8,208	9,804	11,448	13,376	13,741	13,456	14,495	13,893	14,400	12,974	11,700	147,609	3,515
Wisconsin.....	27,483	25,714	30,842	30,537	39,521	38,612	42,389	42,053	41,109	38,517	36,714	27,234	420,725	10,017
Wyoming.....	2,753	2,252	3,633	3,061	3,624	4,095	5,050	4,916	4,285	4,026	3,303	2,988	43,986	1,047
	1,161,810	1,038,172	1,252,737	1,329,256	1,480,933	1,492,088	1,537,593	1,581,436	1,489,678	1,528,986	1,415,635	1,286,856	16,595,180	395,123

¹ Compiled from reports of the American Petroleum Institute which cover "quantities of gasoline sold or offered for sale, as reported by wholesalers and dealers in the various States under provisions of the gasoline tax or inspection laws."

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Refinery price of U. S. Motor gasoline (below 59¹ octane number) in Oklahoma in 1934, in cents per gallon²

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
Average monthly price-----	3.79	3.88	3.50	3.77	4.14	4.05	3.82	3.98	3.76	3.14	3.84	3.80	3.79

PRICE CHANGES BY WEEKS

Jan. 1 ³ -----	3.875	Apr. 9-----	3.75	June 25-----	3.625	Nov. 5-----	3.75
Jan. 8-----	3.75	Apr. 16-----	4.125	July 16-----	4.00	Nov. 12-----	4.125
Jan. 29-----	3.875	Apr. 30-----	3.875	Aug. 27-----	3.875	Nov. 19-----	4.00
Feb. 5-----	4.00	May 7-----	4.125	Sept. 4-----	3.75	Dec. 3-----	4.125
Feb. 19-----	3.75	May 21-----	4.25	Oct. 1-----	3.625	Dec. 10-----	3.75
Feb. 26-----	3.625	May 28-----	4.375	Oct. 8-----	3.25	Dec. 17-----	3.50
Mar. 19-----	3.375	June 11-----	4.125	Oct. 15-----	2.875	Dec. 24-----	3.75
Mar. 26-----	3.25	June 18-----	3.875	Oct. 29-----	3.00	Dec. 31-----	3.875

¹ Beginning August 6, 59 and below changed to 62 and below.

² From National Petroleum News.

³ Price in effect on this date.

Tank-wagon prices, including tax,¹ of gasoline at 6 cities in 1934, in cents per gallon²

	New York	Washington	Chicago	New Orleans	San Francisco	Denver
Average monthly price:						
January-----	15.8	16.2	17.3	19.5	16.5	18.5
February-----	15.9	16.0	17.1	19.3	16.5	19.6
March-----	15.6	15.8	16.2	19.3	14.3	18.7
April-----	14.3	15.8	14.3	19.3	12.0	15.0
May-----	14.7	16.4	13.8	19.9	12.6	15.9
June-----	15.5	17.3	14.4	20.8	14.8	18.0
July-----	15.5	17.3	15.2	20.8	17.5	18.0
August-----	15.5	17.3	15.3	20.8	17.5	18.5
September-----	15.5	17.3	15.0	20.8	16.5	18.0
October-----	15.5	14.1	13.5	14.1	16.5	18.0
November-----	15.1	10.7	13.3	12.8	16.5	18.0
December-----	15.0	12.0	14.8	14.5	16.5	18.0
Average for year-----	15.3	15.5	15.0	18.5	15.6	17.9
Date of price change:						
Jan. 1 ³ -----	16.5	17.0	17.3	20.0	16.5	18.5
Jan. 8-----		15.8		19.3		
Jan. 9-----	15.5					
Jan. 16-----		16.1				
Feb. 1-----						19.5
Feb. 9-----	16.0					
Feb. 20-----		15.8				
Feb. 21-----						20.0
Feb. 23-----			16.3			
Mar. 10-----					14.5	
Mar. 14-----						18.0
Mar. 22-----					12.0	
Mar. 23-----	14.5					
Mar. 29-----			14.8			
Mar. 31-----						15.0
Apr. 17-----			13.8			
Apr. 25-----	13.5					
May 10-----	14.5					
May 12-----		16.3		19.8		
May 18-----	15.5	16.8		20.3		
May 23-----					14.0	18.0
May 31-----		17.3		20.8		
June 5-----			16.3			
June 7-----			14.3			
June 20-----					15.0	
June 26-----					17.5	
July 5-----			15.3			

¹ Includes Federal tax of 1 cent per gallon, which on Jan. 1 was reduced from 1.5 cents. For State taxes, see p. 413.

² From National Petroleum News.

³ Prices in effect on this date.

CRUDE PETROLEUM AND PETROLEUM PRODUCTS

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Tank-wagon prices, including tax, of gasoline at 6 cities in 1934, in cents per gallon—
Continued

	New York	Washington	Chicago	New Orleans	San Francisco	Denver
Date of price change—Contd.						
Aug. 15.....					16.5	19.0
Aug. 31.....						18.0
Sept. 1.....						
Sept. 11.....			14.8			
Oct. 8.....			13.8			
Oct. 11.....		15.3		17.8		
Oct. 12.....			13.3			
Oct. 13.....				12.0		
Oct. 14.....				11.0		
Oct. 16.....				10.0		
Oct. 18.....			12.8			
Oct. 22.....		10.0				
Oct. 27.....		9.5				
Oct. 31.....		9.0				
Nov. 1.....				11.0		
Nov. 6.....	15.0					
Nov. 12.....				14.5		
Nov. 14.....		12.0				
Nov. 15.....				13.5		
Nov. 17.....				13.0		
Nov. 24.....			14.8	14.5		

* Retail tank-wagon prices prior to this date. Dealer tank-wagon prices thereafter.

Gasoline tax rates by States in 1934

[Cents per gallon]

State	Tax	State	Tax	State	Tax
Alabama.....	6	Maine.....	4	Ohio.....	4
Arizona.....	5	Maryland.....	4	Oklahoma.....	4
Arkansas.....	1 6½	Massachusetts.....	3	Oregon.....	5
California.....	3	Michigan.....	3	Pennsylvania.....	3
Colorado.....	2 4	Minnesota.....	3	Rhode Island.....	2
Connecticut.....	2	Mississippi.....	6	South Carolina.....	6
Delaware.....	3	Missouri.....	2	South Dakota.....	4
District of Columbia.....	2	Montana.....	5	Tennessee.....	4
Florida.....	7	Nebraska.....	4	Texas.....	4
Georgia.....	6	Nevada.....	4	Utah.....	4
Idaho.....	5	New Hampshire.....	3	Vermont.....	4
Illinois.....	3	New Jersey.....	3	Virginia.....	5
Indiana.....	4	New Mexico.....	5	Washington.....	5
Iowa.....	3	New York.....	3	West Virginia.....	4
Kansas.....	3	North Carolina.....	6	Wisconsin.....	4
Kentucky.....	3	North Dakota.....	3	Wyoming.....	4
Louisiana.....	5				

1 Changed from 6 cents on February 12.

2 5 cents Feb. 1 to Sept. 1.

KEROSENE

Comparative analyses of statistics for kerosene in 1934, by months

[Thousands of barrels of 42 gallons]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Production.....	4,507	3,961	4,576	4,647	4,548	4,206	4,320	4,376	4,262	4,889	4,786	4,777	53,855
Daily average.....	145	141	148	155	147	140	139	141	142	158	160	154	148
Exports.....	591	736	670	1,156	673	968	777	984	802	974	633	817	9,781
Daily average.....	19	26	22	39	22	32	25	32	27	31	21	26	27
Stocks, end of period.....	6,228	5,299	4,986	4,822	5,470	6,335	7,062	7,651	7,539	7,497	7,199	6,398	6,398
Domestic demand.....	4,246	4,154	4,219	3,655	3,227	2,373	2,816	2,803	3,572	3,957	4,451	4,761	44,234
Daily average.....	137	148	136	122	104	79	91	90	119	128	149	154	121

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Production and stocks of kerosene in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Production:													
East coast.....	902	817	923	857	821	776	824	793	842	1,002	926	1,052	10,535
Appalachian.....	276	218	289	265	302	250	202	218	262	260	247	243	2,982
Indiana, Illinois, Kentucky, etc.....	283	262	333	390	414	435	359	361	357	376	384	270	4,224
Oklahoma, Kansas, and Missouri.....	432	458	504	597	640	587	598	552	486	512	513	428	6,307
Texas inland.....	288	256	319	347	328	310	306	333	420	409	228	198	3,742
Texas Gulf coast.....	1,329	1,112	1,213	1,296	1,046	918	1,096	1,123	1,022	1,264	1,423	1,575	14,417
Louisiana Gulf coast.....	391	331	412	358	329	356	334	374	373	468	417	507	4,650
Arkansas and Louisiana inland.....	59	65	66	79	83	85	78	86	79	81	84	76	921
Rocky Mountain.....	51	35	52	20	13	36	56	51	40	52	57	53	516
California.....	546	407	465	438	572	453	467	485	381	465	507	375	5,561
Total, 1934.....	4,507	3,961	4,576	4,647	4,548	4,206	4,320	4,376	4,262	4,889	4,786	4,777	53,855
Daily average.....	145	141	148	155	147	140	139	141	142	158	160	154	148
Total, 1933.....	4,392	3,696	3,888	4,038	4,140	4,162	4,261	4,109	4,004	3,993	4,005	4,289	48,977
													<i>Dec. 31, 1933</i>
Stocks, end of period:													
East coast.....	1,235	949	792	1,031	1,194	1,512	1,820	2,026	2,025	2,237	1,833	1,433	1,319
Appalachian.....	310	265	259	229	217	243	214	175	182	178	175	186	345
Indiana, Illinois, Kentucky, etc.....	598	586	558	482	450	607	653	662	700	711	774	723	634
Oklahoma, Kansas, and Missouri.....	637	630	541	404	471	570	653	710	681	670	671	613	696
Texas inland.....	123	128	117	128	124	130	145	166	196	200	156	108	165
Texas Gulf coast.....	1,210	918	855	909	1,253	1,530	1,715	2,065	1,900	1,913	1,875	1,720	1,343
Louisiana Gulf coast.....	448	301	255	306	305	410	514	401	361	119	274	265	454
Arkansas and Louisiana inland.....	12	20	28	31	31	32	30	30	28	16	23	17	13
Rocky Mountain.....	248	225	226	181	138	132	131	125	117	125	132	144	241
California.....	1,407	1,277	1,355	1,121	1,287	1,169	1,187	1,291	1,349	1,328	1,286	1,189	1,348
Total: 1934.....	6,228	5,299	4,986	4,822	5,470	6,335	7,062	7,651	7,539	7,497	7,199	6,398	6,558
1933.....	4,861	4,621	4,886	5,345	5,869	6,548	7,936	8,604	8,502	8,118	7,297	6,558	

Tank-wagon prices of kerosene at 6 representative cities in 1934, in cents per gallon¹

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
Average monthly price:													
New York.....	8.3	8.0	9.0	8.7	8.7	8.7	8.7	8.7	8.7	8.5	8.0	8.4	8.5
Washington.....	11.0	11.0	11.4	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.4
Chicago.....	9.7	9.7	9.5	8.1	8.1	8.1	8.1	8.5	8.5	8.5	8.5	8.5	8.7
New Orleans.....	11.5	12.0	12.0	10.8	10.8	10.8	10.6	10.6	10.6	11.9	10.0	10.0	11.1
San Francisco.....	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Denver.....	12.5	12.2	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.5	10.5	10.5	10.6
Average.....	10.9	10.9	10.7	10.5	10.3	10.3	10.3	10.3	10.7	10.6	10.2	10.2	10.5

	New York	Washington	Chicago	New Orleans	San Francisco	Denver
Date of price change:						
Jan. 1 ²		8.5	11.0	9.7	12.0	12.5
Jan. 13.....					10.0	
Jan. 19.....		8.0				
Jan. 20.....					12.0	
Feb. 26.....						10.0
Feb. 27.....		8.5				
Mar. 1.....		9.0				
Mar. 10.....			11.5			
Mar. 29.....				8.0		
Apr. 12.....		8.5				
Apr. 30.....				9.7		
May 14.....					10.0	
Aug. 11.....				8.0		
Aug. 23.....					12.0	
Sept. 25.....						12.5
Oct. 31.....		8.0			10.0	
Dec. 6.....		8.5				

¹ From National Petroleum News.

² Prices in effect on this date.

Percentage yields of kerosene in 1934, by districts and months

By districts:		By months:	
East coast.....	6.1	January.....	6.3
Appalachian.....	8.3	February.....	6.0
Indiana, Illinois, Ken- tucky, etc.....	3.5	March.....	6.4
Oklahoma, Kansas, and Missouri.....	6.6	April.....	6.3
Texas Inland.....	6.0	May.....	6.0
Texas Gulf coast.....	8.0	June.....	5.5
Louisiana Gulf coast.....	11.2	July.....	5.4
Arkansas and Louisiana inland.....	4.9	August.....	5.5
Rocky Mountain.....	3.2	September.....	5.8
California.....	3.6	October.....	6.4
		November.....	6.5
		December.....	6.2
United States: 1934.....	6.0	Year.....	6.0
	1933.....		5.7

Consumption of kerosene in 1934, by States and months ¹

[Thousands of barrels of 42 gallons]

State	Jan.	Feb	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	30	33	29	29	29	27	27	23	26	27	32	33	345
Arizona.....	6	4	4	4	3	3	3	3	5	5	5	6	49
Arkansas.....	36	36	35	37	33	29	28	25	34	36	39	40	408
Colorado.....	11	9	12	12	12	9	11	11	10	9	10	7	123
Florida.....	70	70	67	60	48	44	40	42	44	52	65	80	672
Georgia.....	46	42	42	38	38	36	31	32	35	43	43	46	472
Kansas.....	65	57	86	93	87	71	68	55	63	55	59	59	818
Michigan.....	92	75	73	91	92	89	84	83	89	76	90	78	1,012
Minnesota.....	58	49	56	80	71	42	51	61	62	69	66	54	719
Missouri.....	56	150	84	68	151	137	82	52	124	87	95	82	1,158
Nebraska.....	26	42	39	65	76	56	36	43	40	38	33	29	523
North Dakota.....	13	12	16	18	17	12	15	18	13	14	18	14	180
Oklahoma.....	59	62	63	63	60	67	53	44	67	54	52	56	700
South Carolina.....	28	91	19	37	16	58	6	5	69	10	37	39	415
South Dakota.....	18	18	21	23	21	21	15	16	19	19	17	17	225
	614	750	646	698	754	701	550	513	698	594	661	640	7,819

¹ From American Petroleum Institute.

GAS OIL AND FUEL OIL

Comparative analyses of statistics for gas oil and distillate fuel oils and residual fuel oils in 1934, by months

[Thousands of barrels of 42 gallons]

	January	February	March	April	May	June
Production:						
Gas oil and distillate fuel oils.....	7,691	7,155	8,004	7,563	7,761	8,042
Residual fuel oils.....	19,876	18,073	20,538	19,367	20,428	20,201
Total.....	27,567	25,228	28,542	26,930	28,189	28,243
Daily average.....	889	901	921	898	909	941
Net transfers to fuel-oil stocks in California ¹	1,145	682	679	665	353	871
Production by cracking ¹	14,073	12,823	14,311	14,389	14,222	14,797
Imports.....	1,138	627	1,084	1,177	1,359	1,040
Daily average.....	37	22	35	39	44	35
Exports.....	1,739	2,047	3,520	2,904	2,502	2,295
Daily average.....	56	73	81	97	81	77
Stocks, end of period:						
Gas oil and distillate fuel oils.....	14,215	12,563	10,658	11,403	13,174	16,313
Residual fuel oils ²	103,073	98,896	95,628	94,638	93,105	93,478
Total.....	117,288	111,459	106,286	106,041	106,279	109,791
Domestic demand.....	32,682	29,637	32,279	25,448	26,808	23,476
Daily average.....	1,054	1,053	1,041	848	865	783

¹ Included in total production.

² Includes heavy crude in California.

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Comparative analyses of statistics for gas oil and distillate fuel oils and residual fuel oils in 1934, by months—Continued

[Thousands of barrels of 42 gallons]

	July	August	September	October	November	December	Total
Production:							
Gas oil and distillate fuel oils.....	7,651	8,723	8,298	7,904	8,044	8,136	94,972
Residual fuel oils.....	20,856	20,373	19,522	20,144	19,917	21,086	240,381
Total.....	28,507	29,096	27,820	28,048	27,961	29,222	335,353
Daily average.....	920	939	927	905	932	943	919
Net transfers to fuel-oil stocks in California¹:							
Production by cracking ¹	611	517	379	620	941	919	8,382
Imports.....	16,539	16,720	15,517	14,980	14,883	15,622	178,876
Daily average.....	1,289	947	903	985	780	1,305	12,634
Exports.....	42	31	30	32	26	42	35
Daily average.....	2,626	1,979	2,402	2,238	2,396	2,957	28,605
Daily average.....	85	64	80	72	80	95	78
Stocks, end of period:							
Gas oil and distillate fuel oils.....	19,603	22,927	24,295	24,848	24,449	21,957	21,957
Residual fuel oils ²	95,907	96,052	96,258	94,512	91,972	88,440	88,440
Total.....	115,510	118,979	120,553	119,360	116,421	110,397	110,397
Domestic demand.....	21,451	24,595	24,747	27,988	29,284	33,594	331,989
Daily average.....	692	793	825	903	976	1,084	910

¹ Included in total production.

² Includes heavy crude in California.

Production and stocks of gas oil and distillate fuel oils in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	January	February	March	April	May	June
Production:						
East coast.....	1,542	1,510	1,879	1,330	1,358	1,628
Appalachian.....	168	260	205	211	231	203
Indiana, Illinois, Kentucky, etc.....	975	803	992	746	824	985
Oklahoma, Kansas, and Missouri.....	589	476	673	594	566	545
Texas inland.....	277	270	288	324	280	319
Texas Gulf coast.....	2,115	1,618	1,834	1,646	2,223	1,805
Louisiana Gulf coast.....	185	337	371	454	360	377
Arkansas and Louisiana inland.....	161	123	67	63	89	90
Rocky Mountain.....	52	66	73	135	86	76
California.....	1,627	1,692	1,622	2,060	1,744	2,014
Total, 1934.....	7,691	7,155	8,004	7,563	7,761	8,042
Daily average.....	248	256	258	252	250	268
Total, 1933.....	7,036	6,106	6,433	5,745	6,416	6,366
Stocks, end of period:						
East coast.....	2,684	1,887	1,613	2,029	2,368	3,339
Appalachian.....	257	225	174	162	188	212
Indiana, Illinois, Kentucky, etc.....	2,183	1,737	1,296	1,246	1,439	2,072
Oklahoma, Kansas, and Missouri.....	1,222	1,100	951	921	899	1,050
Texas inland.....	511	246	219	210	185	279
Texas Gulf coast.....	2,588	2,645	2,192	2,096	2,821	3,525
Louisiana Gulf coast.....	1,268	1,026	856	910	1,149	1,414
Arkansas and Louisiana inland.....	262	293	250	203	191	162
Rocky Mountain.....	210	199	180	174	172	168
California.....	3,230	3,205	2,927	3,452	3,762	4,092
Total: 1934.....	14,215	12,563	10,658	11,403	13,174	16,313
1933.....	13,112	11,936	11,937	11,816	13,310	15,470

CRUDE PETROLEUM AND PETROLEUM PRODUCTS

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Production and stocks of gas oil and distillate fuel oils in 1934, by districts and months—Continued

[Thousands of barrels of 42 gallons]

District	July	August	September	October	November	December	Total
Production:							
East coast.....	1,558	1,764	1,598	1,606	1,485	1,287	18,545
Appalachian.....	182	203	194	231	207	239	2,534
Indiana, Illinois, Kentucky, etc.....	929	1,081	990	1,047	1,003	1,218	11,593
Oklahoma, Kansas, and Missouri.....	708	588	656	542	519	588	7,044
Texas inland.....	340	398	552	581	295	236	4,160
Texas Gulf coast.....	1,489	1,846	1,805	1,635	1,830	2,073	21,919
Louisiana Gulf coast.....	413	612	520	504	642	505	5,280
Arkansas and Louisiana inland.....	95	86	93	90	90	84	1,131
Rocky Mountain.....	64	77	62	82	73	89	995
California.....	1,873	2,008	1,828	1,586	1,900	1,817	21,831
Total, 1934.....	7,651	8,723	8,298	7,904	8,044	8,136	94,972
Daily average.....	247	281	277	255	268	262	2,260
Total, 1933.....	7,164	6,057	6,557	7,157	6,552	7,331	78,920
Stocks, end of period:							
East coast.....	4,502	5,625	6,376	6,850	6,525	5,358	Dec. 31, 1933 13,809
Appalachian.....	237	237	289	335	358	358	1,305
Indiana, Illinois, Kentucky, etc.....	2,548	2,892	2,925	3,194	3,139	2,770	2,288
Oklahoma, Kansas, and Missouri.....	1,190	1,272	1,206	1,261	1,227	1,126	1,413
Texas inland.....	276	341	364	392	340	255	1,347
Texas Gulf coast.....	4,258	5,070	5,195	4,893	4,489	4,104	12,637
Louisiana Gulf coast.....	1,651	1,992	2,017	2,091	2,376	2,363	1,454
Arkansas and Louisiana inland.....	171	147	167	159	147	114	231
Rocky Mountain.....	155	158	161	179	172	193	193
California.....	4,615	5,143	5,595	5,494	5,676	5,316	13,638
Total: 1934.....	19,603	22,927	24,295	24,848	24,449	21,957	116,315
1933.....	18,303	19,605	20,887	21,142	19,581	17,025	-----

¹ For comparison with 1934.

Percentage yields of gas oil and distillate fuel oils in 1934, by districts and months

By districts:		By months:	
East coast.....	10.8	January.....	10.8
Appalachian.....	7.1	February.....	10.8
Indiana, Illinois, Kentucky, etc.....	9.7	March.....	11.1
Oklahoma, Kansas, and Missouri.....	7.4	April.....	10.3
Texas inland.....	6.7	May.....	10.2
Texas Gulf coast.....	12.2	June.....	10.6
Louisiana Gulf coast.....	12.8	July.....	9.6
Arkansas and Louisiana inland.....	6.0	August.....	10.9
Rocky Mountain.....	5.8	September.....	11.3
California.....	14.0	October.....	10.4
		November.....	10.9
		December.....	10.6
		Year.....	10.6
United States: 1934.....	10.6		
1933.....	8.5		

Production and stocks of residual fuel oils in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	January	February	March	April	May	June	July	August	September	October	November	December	Total
Production:													
East coast.....	3, 739	3, 779	4, 057	3, 816	3, 874	4, 164	4, 239	3, 997	3, 661	3, 883	3, 883	3, 984	47, 076
Appalachian.....	287	283	377	402	392	426	287	549	545	457	402	404	4, 811
Indiana, Illinois, Kentucky, etc.....	1, 425	1, 247	1, 810	1, 247	1, 472	1, 583	1, 408	1, 433	1, 392	1, 384	1, 343	1, 639	17, 383
Oklahoma, Kansas, and Missouri.....	1, 357	1, 429	1, 493	1, 483	1, 637	1, 575	1, 686	1, 710	1, 594	1, 558	1, 576	1, 579	18, 677
Texas inland.....	1, 489	1, 528	1, 494	1, 734	1, 344	1, 227	1, 254	1, 556	1, 737	1, 853	1, 352	1, 126	17, 694
Texas Gulf coast.....	3, 624	3, 291	3, 756	3, 708	4, 206	3, 911	4, 254	4, 174	3, 677	3, 722	4, 330	4, 764	47, 417
Louisiana Gulf coast.....	1, 130	1, 116	1, 166	1, 012	875	999	1, 150	991	900	876	807	897	11, 919
Arkansas and Louisiana inland.....	565	581	552	385	471	539	617	522	422	441	408	416	5, 919
Rocky Mountain.....	252	252	192	260	212	289	362	327	277	310	398	354	3, 485
California.....	6, 008	4, 567	5, 641	5, 320	5, 945	5, 488	5, 599	5, 114	5, 317	5, 660	5, 418	5, 923	66, 000
Total, 1934.....	19, 876	18, 073	20, 538	19, 367	20, 428	20, 201	20, 856	20, 373	19, 522	20, 144	19, 917	21, 086	240, 381
Daily average.....	641	645	663	646	659	673	673	657	651	650	664	680	659
Total, 1933.....	18, 861	17, 388	19, 686	19, 153	20, 202	20, 509	21, 752	21, 085	20, 207	20, 749	18, 963	18, 964	237, 519
													<i>Dec. 31, 1933</i>
Stocks, end of period:													
East coast.....	3, 532	3, 540	3, 688	4, 919	5, 188	5, 904	7, 166	7, 831	8, 379	8, 388	8, 119	7, 222	1 4, 246
Appalachian.....	356	237	188	216	231	261	429	645	867	962	933	712	1 347
Indiana, Illinois, Kentucky, etc.....	2, 128	1, 833	1, 475	1, 680	1, 720	2, 018	2, 299	2, 665	3, 110	3, 316	3, 296	3, 008	2 203
Oklahoma, Kansas, and Missouri.....	2, 100	1, 948	1, 765	1, 858	1, 940	2, 051	2, 163	2, 269	2, 343	2, 381	2, 425	2, 244	1 2, 425
Texas inland.....	2, 001	1, 865	1, 856	1, 941	1, 982	1, 545	1, 512	1, 510	1, 586	1, 587	1, 642	1, 554	2 227
Texas Gulf coast.....	3, 285	2, 792	2, 732	2, 877	3, 233	4, 433	5, 541	6, 523	6, 783	6, 686	7, 358	7, 461	3 437
Louisiana Gulf coast.....	1, 459	1, 268	1, 006	873	949	1, 193	1, 583	2, 020	2, 401	2, 846	3, 092	3, 150	1 488
Arkansas and Louisiana inland.....	897	983	963	930	894	886	983	993	940	867	806	765	907
Rocky Mountain.....	376	367	371	379	364	372	397	389	359	346	410	463	380
California ²	86, 939	84, 063	81, 584	78, 965	76, 604	74, 815	73, 834	71, 207	69, 490	67, 133	63, 891	61, 861	1 89, 029
Total: 1934.....	103, 073	98, 896	95, 628	94, 638	93, 105	93, 478	95, 907	96, 052	96, 258	94, 512	91, 972	88, 440	1 106, 689
1933.....	115, 479	114, 227	113, 802	114, 452	115, 060	114, 616	114, 982	115, 716	114, 989	113, 780	110, 270	106, 475	-----

¹ For comparison with 1934.

² Includes heavy crude.

Percentage yields of residual fuel oils in 1934, by districts and months

By districts:		By months:	
East coast.....	27. 4	January.....	27. 8
Appalachian.....	13. 4	February.....	27. 2
Indiana, Ill nois, Kentucky, etc.....	14. 6	March.....	28. 6
Oklahoma, Kansas, and Missouri.....	19. 7	April.....	26. 3
Texas inland.....	28. 6	May.....	26. 8
Texas Gulf coast.....	26. 4	June.....	26. 6
Louisiana Gulf coast.....	28. 8	July.....	26. 0
Arkansas and Louisiana in- land.....	31. 4	August.....	25. 5
Rocky Mountain.....	21. 7	September.....	26. 5
California.....	42. 2	October.....	26. 5
		November.....	27. 0
		December.....	27. 5
United States: 1934.....	26. 8	Year.....	26. 8
1933.....	27. 6		

Sales of gas oil and fuel oil,¹ 1930-34, by uses

(Compiled by A. T. Coumbe, Jr., associate economic analyst, of the Bureau of Mines)

[Thousands of barrels of 42 gallons]

Uses	1930 ²	1931 ²	1932 ³	1933 ³	1934
Railroads.....	67,900	58,150	48,908	48,305	52,581
Steamships (including tankers).....	94,152	83,559	72,531	70,445	69,262
Gas and electric power plants.....	26,769	24,490	22,199	22,507	23,143
Smelters and mines.....	6,841	4,363	3,500	4,500	4,814
Manufacturing industries.....	53,921	46,873	45,000	47,000	52,128
Heating oils.....	43,279	40,578	44,264	50,140	60,822
United States Navy, Army transports, etc.	8,681	9,203	7,968	8,000	7,914
Used as fuel by oil companies.....	55,943	52,710	47,700	46,200	47,404
Miscellaneous uses.....	9,875	9,211	9,500	11,250	12,253
Total domestic sales.....	367,361	329,137	301,570	308,347	330,321
Exports and other shipments.....	36,450	29,231	19,994	20,563	28,605
	403,811	358,368	321,564	328,910	358,926
Range oil.....	⁴ 3,000	4,549	6,841	² 10,269	15,756

¹ Includes some crude oil burned as fuel. ² Revised figures. ³ Partly estimated. ⁴ Estimated.

Sales of gas oil and fuel oil ¹ by States, 1930-34

(Compiled by A. T. Coumbe, Jr., associate economic analyst, of the Bureau of Mines)

[Thousands of barrels of 42 gallons]

	² 1930	² 1931	³ 1932	³ 1933	1934
Alabama.....	531	1,003	1,041	1,127	1,174
Arizona.....	3,482	2,052	625	448	729
Arkansas.....	2,925	2,666	2,084	2,276	2,345
California.....	83,049	68,401	59,141	59,893	63,801
Colorado.....	389	395	364	371	400
Connecticut.....	3,047	2,527	2,977	3,692	4,862
Delaware.....	1,014	730	658	765	865
District of Columbia.....	1,398	1,055	1,176	1,141	1,190
Florida.....	7,004	5,903	5,495	6,035	7,310
Georgia.....	1,442	1,433	1,190	1,211	1,280
Idaho.....	42	39	46	67	82
Illinois.....	14,565	13,014	11,820	11,861	13,206
Indiana.....	6,084	5,894	5,944	6,204	6,198
Iowa.....	1,394	1,264	1,152	1,073	1,032
Kansas.....	4,778	5,539	6,020	5,924	6,633
Kentucky.....	620	542	598	640	749
Louisiana.....	14,906	12,171	9,134	8,663	8,585
Maine.....	1,368	1,253	1,038	1,829	1,487
Maryland.....	5,901	5,825	6,095	6,217	7,053
Massachusetts.....	13,057	13,002	13,041	12,786	14,394
Michigan.....	4,232	4,252	4,966	5,723	7,631
Minnesota.....	2,689	2,674	2,700	2,697	2,796
Mississippi.....	211	174	182	231	265
Missouri.....	5,739	5,484	5,070	5,098	5,452
Montana.....	1,709	1,002	984	1,098	1,228
Nebraska.....	1,115	1,059	1,097	1,125	1,151

¹ Includes some crude oil burned as fuel.

² Revised.

³ Partly estimated.

Sales of gas oil and fuel oil by States, 1930-34—Continued

	1930	1931	1932	1933	1934
Nevada.....	1,034	656	534	522	664
New Hampshire.....	300	643	683	734	885
New Jersey.....	35,084	33,402	29,022	30,193	30,646
New Mexico.....	447	223	340	468	753
New York.....	29,529	27,415	26,865	28,097	30,367
North Carolina.....	275	254	233	253	334
North Dakota.....	193	181	190	183	199
Ohio.....	4,737	4,811	5,262	5,381	5,393
Oklahoma.....	12,948	9,390	9,316	9,698	9,836
Oregon.....	7,249	6,615	4,869	5,430	6,079
Pennsylvania.....	19,832	20,591	19,190	19,751	21,871
Rhode Island.....	5,009	4,017	4,525	5,591	6,412
South Carolina.....	426	325	316	367	549
South Dakota.....	265	285	282	294	353
Tennessee.....	568	500	394	390	500
Texas.....	49,710	46,423	41,910	38,696	38,368
Utah.....	494	269	155	203	254
Vermont.....	259	252	261	296	353
Virginia.....	1,312	1,368	1,182	1,369	1,808
Washington.....	10,376	7,974	7,517	8,312	8,485
West Virginia.....	390	505	630	613	576
Wisconsin.....	2,223	2,043	2,033	2,017	2,415
Wyoming.....	2,010	1,642	1,243	1,234	1,264
Total United States.....	367,361	329,137	301,570	308,347	330,321

Bunker oil laden on vessels at United States ports in 1934, by months ¹

[Thousands of barrels of 42 gallons]

Month	Foreign trade	Coastwise trade	Total	Month	Foreign trade	Coastwise trade	Total
January.....	2,592	2,088	4,680	August.....	2,562	2,265	4,827
February.....	2,331	1,737	4,068	September.....	2,261	2,153	4,414
March.....	2,716	2,302	5,018	October.....	2,376	2,171	4,547
April.....	2,372	2,199	4,571	November.....	2,183	2,218	4,401
May.....	2,570	2,170	4,740	December.....	2,355	2,051	4,406
June.....	2,449	1,713	4,162	Total.....	28,993	24,910	53,903
July.....	2,326	1,843	4,169				

¹ Bureau of Foreign and Domestic Commerce.

Fuel consumption and purchases of electricity at refineries in the United States in 1934, by districts

District	Fuel used					B. t. u. generated		Purchased electricity (thousands of kilowatt-hours)	
	Oil (thousands of barrels)	Acid sludge (thousands of barrels)	Coal (thousands of short tons)	Gas (millions of cubic feet)		Coke (thousands of short tons)	Total (billions) ¹		Average per barrel of crude oil run to stills
				Natural	Refinery (still gas)				
East coast.....	11,917	1,734	69	24,536	29	116,319	677,000	184,229	
Appalachian.....	1,609	30	646	3,548	7,817	7	41,464	1,158,000	
Indiana, Illinois, Kentucky, etc.....	4,071	7	465	646	31,664	25	82,306	691,000	
Oklahoma, Kansas, and Missouri.....	4,731	1,045	1	10,916	18,813	4	71,034	748,000	
Texas inland.....	2,570	131	-----	5,478	10,210	1	36,086	583,000	
Texas Gulf coast.....	3,482	938	-----	22,952	40,907	122	110,143	614,000	
Louisiana Gulf coast.....	243	7	-----	3,783	6,682	-----	14,817	358,000	
Arkansas and Louisiana inland.....	343	3	-----	5,502	2,586	-----	11,468	608,000	
Rocky Mountain.....	660	102	8	4,508	3,680	6	14,692	916,000	
California.....	3,537	705	-----	22,632	17,846	-----	73,141	468,000	
Total B. t. u. (billions).....	33,163	4,702	1,189	79,965	164,741	194	571,470	638,000	
	198,978	21,159	30,914	83,963	230,637	5,820	571,470	-----	

¹ Computed by the use of the following factors: Oil, 6,000,000 B. t. u. per barrel; acid sludge, 4,500,000 B. t. u. per barrel; coal, 26,000,000 B. t. u. per short ton; natural gas, 1,050 B. t. u. per cubic foot; still gas, 1,400 B. t. u. per cubic foot; coke, 30,000,000 B. t. u. per short ton.

Prices of fuel oil at 4 selected points in 1934, in dollars per barrel of 42 gallons, and refinery prices of 2 grades of distillate fuel oil in 1934, in cents per gallon¹

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
Average monthly price:													
24°-26° gravity fuel oil at refineries, Oklahoma dollar per barrel	0.69	0.74	0.74	0.75	0.75	0.75	0.73	0.73	0.73	0.73	0.75	0.75	0.74
Grade C bunker oil in cargoes, Gulf coast dollar per barrel	.90	.90	.93	1.04	1.05	.98	.92	.81	.79	.75	.75	.77	.88
Grade C bunker oil in cargoes, New York dollars per barrel	1.20	1.20	1.22	1.30	1.30	1.30	1.30	1.30	1.30	1.15	1.15	1.15	1.24
Grade C bunker oil in cargoes, California dollar per barrel	.83	.83	.83	.83	.83	.83	.83	.83	.83	.83	.83	.83	.83
38°-40° straw furnace oil, Oklahoma cents per gallon	3.113	2.897	2.710	2.867	2.774	1.767	2.472	2.520	2.742	1.879	3.017	3.185	2.662
32°-36° straw gas oil, Oklahoma cents per gallon	2.125	2.125	2.073	2.096	2.395	2.392	2.242	2.105	2.029	2.044	2.091	2.125	2.154

	24°-26° gravity fuel oil at refineries, Oklahoma (dollar)	Grade C bunker oil in cargoes, Gulf coast (dollars)	Grade C bunker oil in cargoes, New York (dollars)	Grade C bunker oil in cargoes, California (dollar)	38°-40° straw furnace oil, Oklahoma (cents)	32°-36° straw gas oil, Oklahoma (cents)
Price change by weeks:						
Jan. 1 ²	0.63	0.90	1.20	0.83	3.125	2.125
Jan. 15	.70				3.00	
Jan. 29						
Feb. 5	.75				2.75	
Feb. 19					2.625	
Feb. 26					2.75	
Mar. 5	.725					
Mar. 19	.75	.95				2.00
Mar. 26		1.00	1.30		2.625	
Apr. 2					2.75	
Apr. 9		1.05				
Apr. 16					3.00	2.125
Apr. 23						2.25
Apr. 30					2.875	
May 7					2.75	2.375
May 21						2.50
June 11		.95			2.625	2.375
June 25					2.50	2.25
July 2	.725	.94				
July 9		.93			2.375	
July 16		.90			2.50	
July 30		.88				2.125
Aug. 6		.80				
Aug. 27					2.625	2.00
Sept. 10					2.75	
Sept. 24		.75			2.875	2.125
Oct. 1			1.15			
Oct. 15					2.75	2.00
Oct. 29		.70				1.875
Nov. 5	.75	.75			3.00	2.125
Nov. 19					3.125	
Nov. 26		.78				
Dec. 3					3.00	
Dec. 10					3.25	
Dec. 17		.75				

¹ National Petroleum News.

² Price in effect on this date.

LUBRICANTS

Comparative analyses of statistics for lubricants in 1934, by months

(Thousands of barrels of 42 gallons)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Production	2,198	2,865	2,152	2,322	2,577	2,211	2,209	2,152	2,106	2,145	2,090	2,346	26,373
Daily average	71	865	69	77	83	74	71	69	70	69	70	76	72
Imports						1	1						2
Exports	771	465	794	717	660	664	689	599	644	497	667	493	7,660
Daily average	25	17	26	24	21	22	22	19	21	16	22	16	21
Stocks, end of period	7,020	7,120	6,837	6,796	6,773	6,752	6,782	6,841	6,965	6,939	6,869	7,331	7,331
Domestic demand	1,507	1,300	1,641	1,646	1,940	1,569	1,491	1,494	1,338	1,674	1,493	1,391	18,484
Daily average	49	46	53	55	63	52	48	48	45	54	50	45	51

Production and stocks of lubricants in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	January	February	March	April	May	June	July	August	September	October	November	December	Total
Production:													
East coast.....	680	476	586	643	749	570	580	500	598	638	637	658	7,405
Appalachian.....	421	382	411	460	481	480	417	410	453	428	424	464	5,231
Indiana, Illinois, Kentucky, etc.....	173	171	197	211	220	209	201	195	194	193	186	223	2,373
Oklahoma, Kansas, and Missouri.....	271	230	256	260	249	244	243	232	225	240	235	284	2,969
Texas inland.....	26	28	25	32	27	35	22	20	17	22	30	29	313
Texas Gulf coast.....	441	370	471	488	640	455	540	461	435	413	388	486	5,588
Louisiana Gulf coast.....	32	37	30	36	38	35	40	31	32	34	44	39	428
Arkansas and Louisiana inland.....	9	8	11	9	10	11	10	8	14	17	9	14	130
Rocky Mountain.....	20	16	18	30	27	12	30	16	16	15	31	16	231
California.....	125	147	147	153	163	145	144	175	122	145	106	133	1,705
Total, 1934.....	2,198	1,865	2,152	2,322	2,577	2,211	2,209	2,152	2,106	2,145	2,090	2,346	26,373
Daily average.....	71	67	69	77	83	74	71	69	70	69	70	76	72
Total, 1933.....	1,826	1,619	1,772	1,871	2,114	1,847	1,959	2,019	2,046	2,115	2,375	2,212	23,775
													<i>Dec. 31,</i>
													<i>1933</i>
Stocks, end of period:													
East coast.....	2,295	2,275	2,260	2,132	2,092	2,072	1,992	2,042	2,191	2,128	2,159	2,316	2,351
Appalachian.....	791	796	796	809	842	939	1,010	1,004	1,004	986	971	1,006	876
Indiana, Illinois, Kentucky, etc.....	653	610	567	527	511	509	523	502	519	529	517	555	688
Oklahoma, Kansas, and Missouri.....	558	597	565	541	502	471	452	460	460	473	499	563	521
Texas inland.....	83	93	93	99	98	106	119	101	100	96	100	105	80
Texas Gulf coast.....	1,572	1,653	1,484	1,597	1,654	1,595	1,645	1,663	1,634	1,662	1,538	1,667	1,526
Louisiana Gulf coast.....	65	83	83	88	104	98	110	102	95	92	111	115	62
Arkansas and Louisiana inland.....	20	18	17	15	18	17	16	14	16	18	14	17	18
Rocky Mountain.....	139	135	127	130	104	110	94	93	89	73	86	88	133
California.....	844	860	845	858	848	835	821	860	857	882	874	899	845
Total: 1934.....	7,020	7,120	6,837	6,796	6,773	6,752	6,782	6,841	6,965	6,939	6,869	7,331	7,100
1933.....	9,026	9,053	8,924	8,587	8,356	7,931	7,403	7,402	7,179	6,950	7,257	7,100	-----

Percentage yields of lubricants in 1934, by districts and months

By districts:		By months:	
East coast	4.3	January	3.1
Appalachian	14.6	February	2.8
Indiana, Illinois, Kentucky, etc	2.0	March	3.0
Oklahoma, Kansas, and Missouri	3.1	April	3.2
Texas inland	.5	May	3.4
Texas Gulf coast	3.1	June	2.9
Louisiana Gulf coast	1.0	July	2.8
Arkansas and Louisiana inland	.7	August	2.7
Rocky Mountain	1.4	September	2.9
California	1.1	October	2.8
		November	2.8
		December	3.1
United States: 1934	2.9	Year	2.9
1933	2.8		

Refinery prices of 5 selected grades of lubricating oil in 1934, in cents per gallon

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
Average monthly price:													
Oklahoma:													
200 viscosity, no. 4 color, neutral	9.2	9.5	9.5	9.8	10.4	11.0	11.3	11.3	11.3	11.3	11.3	11.3	10.6
150-160 viscosity at 210° bright stock, 10-25 cold test	21.9	23.3	23.3	23.3	23.9	23.6	21.8	16.5	16.5	15.9	14.1	13.0	19.8
Pennsylvania:													
200 viscosity, no. 3 color, neutral, 420-425 flash	26.2	27.5	27.5	27.6	29.4	29.5	29.1	27.5	27.5	27.5	27.5	28.0	27.9
600 steam refined	17.2	18.5	18.5	18.5	18.9	17.4	15.0	11.2	12.5	10.4	9.0	8.9	14.7
Gulf coast: 600 viscosity, no. 2½-3½ color, neutral	8.8	9.0	9.0	9.0	9.0	9.3	9.8	9.3	9.0	9.0	8.5	8.5	9.0

	Oklahoma		Pennsylvania		Gulf coast
	200 viscosity, no. 4 color, neutral	150-160 viscosity at 210°, bright stock, 10-25 cold test	200 viscosity, no. 3 color, neutral, 420-425 flash	600 steam refined	500 viscosity no. 2½-3½ color, neutral
Price change by weeks:					
Jan. 1 ¹	9.00	21.75	25.00	15.50	7.875
Jan. 2			25.50	16.00	8.00
Jan. 8				17.00	9.00
Jan. 15			26.00		
Jan. 22	9.50		27.50	18.50	
Jan. 29		23.25			
Apr. 16	10.00				
Apr. 30			29.00		
May 7		24.00	29.50	19.00	
May 14	10.75				
June 4				18.00	
June 11				17.50	
June 18	11.25	23.00		17.00	9.75
June 25				16.00	
July 2		22.50			
July 16				15.00	
July 23		20.50	28.50	14.00	
July 30		18.50	27.50	11.50	
Aug. 6		15.00		10.50	
Aug. 13		16.50			9.00
Aug. 20				11.50	
Aug. 27				12.50	
Oct. 1				11.50	
Oct. 15		15.50		9.50	
Oct. 29		14.50			8.50
Nov. 12				9.00	
Nov. 19		13.50		8.50	
Dec. 3		13.00	28.00		
Dec. 10				9.00	
Dec. 31				8.00	

¹ National Petroleum News.

² Prices in effect on this date.

WAX

Comparative analyses of statistics for wax in 1934, by months

[Thousands of pounds]

	January	February	March	April	May	June
Production.....	46,480	39,200	43,120	39,480	41,720	40,320
Daily average.....	1,499	1,400	1,391	1,316	1,346	1,344
Imports.....	7,641	5,120	2,852	3,860	3,981	2,712
Daily average.....	246	183	92	129	128	90
Exports.....	18,971	16,307	21,111	15,024	14,059	12,185
Daily average.....	612	582	681	501	454	406
Stocks, end of period.....	78,934	83,791	86,644	91,763	101,551	108,087
Domestic demand.....	25,333	23,156	22,008	23,197	21,854	24,311
Daily average.....	817	827	710	773	705	810

	July	August	Septem- ber	October	Novem- ber	Decem- ber	Total
Production.....	34,160	33,880	33,880	39,480	39,480	37,520	468,720
Daily average.....	1,102	1,093	1,129	1,274	1,316	1,210	1,284
Imports.....	1,426	881	2,449	2,507	2,210	1,653	37,292
Daily average.....	46	28	82	81	74	53	102
Exports.....	13,804	15,299	21,265	16,871	17,483	16,579	198,958
Daily average.....	445	494	709	544	583	535	545
Stocks, end of period.....	115,137	119,702	118,991	123,099	130,222	136,136	136,136
Domestic demand.....	14,732	14,897	15,775	21,008	17,084	16,680	240,035
Daily average.....	475	481	526	678	569	538	658

Production and stocks of wax in 1934, by districts and months

[Thousands of pounds]

District	January	February	March	April	May	June	July	August	September	October	November	December	Total
Production:													
East coast.....	22,400	17,920	22,120	19,320	20,160	18,480	16,520	17,080	15,680	17,920	18,200	19,320	225,120
Appalachian.....	7,000	6,440	7,280	7,560	7,280	6,720	5,880	6,160	5,880	7,560	7,280	6,440	81,480
Indiana, Illinois, Kentucky, etc.....	4,200	4,480	3,920	2,520	4,760	4,200	2,800	2,240	2,240	2,800	1,400	2,240	37,800
Oklahoma, Kansas, and Missouri.....	2,800	2,520	2,520	2,800	2,240	3,080	2,240	2,800	3,080	3,360	3,920	3,360	34,720
Texas inland.....		280	280	280	280	280	280	280	3,080	280	280	280	2,800
Texas Gulf coast.....	3,360	2,520	4,480	3,080	5,040	2,520	3,640	3,080	5,320	4,480	5,040	2,800	45,360
Louisiana Gulf coast.....	5,600	2,520	1,960	2,520	2,240	2,520	1,400	840	1,400	1,400	1,400	1,960	25,760
Rocky Mountain.....	1,120	2,520	560	1,400	-280	2,520	1,400	1,400	280	1,680	1,960	1,120	15,680
Total.....	46,480	39,200	43,120	39,480	41,720	40,320	34,160	33,880	33,880	39,480	39,480	37,520	468,720
Daily average.....	1,499	1,400	1,391	1,316	1,346	1,344	1,102	1,093	1,129	1,274	1,316	1,210	1,284
Stocks, end of period:													
Crude scale:													
East coast.....	10,557	11,982	15,863	16,954	19,937	21,117	21,356	22,411	20,408	18,436	19,896	22,965	Dec. 31, 1933 7,259
Appalachian.....	10,511	10,991	11,525	14,258	15,052	14,270	15,163	15,315	14,883	15,713	16,848	16,629	10,559
Indiana, Illinois, Kentucky, etc.....	8,651	10,428	10,652	10,632	12,540	13,767	14,926	14,051	13,778	13,808	13,338	14,049	8,739
Oklahoma, Kansas, and Missouri.....	2,767	2,213	2,509	3,192	2,867	3,244	2,671	2,575	3,752	3,560	4,084	4,919	2,414
Texas, Gulf coast.....	2,274	1,955	2,381	2,134	3,207	2,804	2,591	2,513	2,757	2,757	3,211	3,360	1,821
Louisiana Gulf coast.....	2,389	347	246	295	207	621	804	799	802	805	433	673	3,435
Rocky Mountain.....	6,477	7,822	7,075	7,146	5,940	6,746	7,170	8,107	7,125	7,677	9,194	9,551	7,996
Total.....	43,626	45,738	50,251	54,611	59,750	62,069	64,681	65,771	63,426	62,556	67,004	72,146	42,193
Refined:													
East coast.....	18,016	19,819	17,865	19,325	22,953	25,609	28,928	30,777	31,853	34,486	33,743	34,189	11,514
Appalachian.....	2,370	2,038	1,963	1,390	1,222	1,528	1,943	2,648	2,415	2,740	3,000	2,986	2,183
Indiana, Illinois, Kentucky, etc.....	1,687	1,732	1,565	1,038	1,493	1,550	1,899	2,027	2,044	2,365	2,429	2,181	1,738
Oklahoma, Kansas, and Missouri.....	1,000	1,108	820	1,061	1,108	1,778	874	973	806	616	1,049	1,521	1,049
Texas inland.....	46	130	371	252	103	32	216	271	85	198	371	118	204
Texas Gulf coast.....	10,423	10,975	12,022	12,285	13,040	13,204	13,827	14,825	15,570	17,413	20,161	20,274	8,241
Louisiana Gulf coast.....	893	1,227	665	626	1,065	1,333	1,548	1,374	1,478	1,226	1,254	1,446	643
Rocky Mountain.....	873	1,024	1,132	1,175	817	984	1,221	1,036	1,314	1,499	1,211	1,275	1,352
Total.....	35,308	38,053	36,393	37,152	41,801	46,018	50,456	53,931	55,565	60,543	63,218	63,990	26,924

Production and stocks of wax in 1934, by districts and months—Continued

[Thousands of pounds]

District	January	February	March	April	May	June	July	August	September	October	November	December	Total
Total stocks:													<i>Dec. 31, 1933</i>
East coast.....	28,573	31,801	33,728	36,279	42,890	46,726	50,284	53,188	52,261	52,922	53,639	57,154	18,773
Appalachian.....	12,881	13,029	13,478	15,648	16,274	15,798	17,106	17,963	17,298	18,453	19,848	19,615	12,742
Indiana, Illinois, Kentucky, etc.....	10,338	12,160	12,217	11,670	14,033	15,317	16,825	16,078	15,822	16,173	15,767	16,230	10,477
Oklahoma, Kansas, and Missouri.....	3,767	3,321	3,329	4,253	3,975	5,022	3,545	3,548	4,558	4,176	5,133	6,440	3,463
Texas inland.....	46	130	371	252	103	32	216	271	85	198	371	118	204
Texas Gulf coast.....	12,697	12,930	14,403	14,419	16,247	15,508	16,418	17,338	18,248	20,170	23,372	23,634	10,062
Louisiana Gulf Coast.....	3,282	1,574	911	921	1,272	1,954	2,352	2,173	2,280	1,831	1,687	2,119	4,078
Rocky Mountain.....	7,350	8,846	8,207	8,321	6,757	7,730	8,391	9,143	8,439	9,176	10,405	10,826	9,318
Total.....	78,934	83,791	86,644	91,763	101,551	108,087	115,137	119,702	118,991	123,099	130,222	136,136	69,117

Refinery price of 122 to 124 white crude scale wax at Pennsylvania refineries in 1934, in cents per pound ¹

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
Average monthly price.....	4.07	4.07	4.07	3.90	3.66	3.94	3.38	2.92	3.07	3.07	3.07	3.07	2.79

PRICE CHANGES, BY WEEKS

Jan. 1 ²	4.10	May 7.....	3.75	July 9.....	3.55	Sept. 10.....	3.00
Jan. 15.....	4.05	May 14.....	3.65	July 16.....	3.30	Sept. 17.....	3.20
Jan. 22.....	4.00	May 21.....	3.55	July 23.....	3.10	Sept. 24.....	3.25
Jan. 26.....	4.05	May 28.....	3.50	July 30.....	3.00		
Apr. 9.....	3.95	June 4.....	3.45	Aug. 9.....	2.90		
Apr. 16.....	3.80	June 11.....	3.65	Sept. 4.....	2.95		

¹ National Petroleum News.

² Price in effect on this date.

PETROLEUM COKE

Comparative analyses of statistics for petroleum coke in 1934, by months

[Thousands of short tons]

	January	February	March	April	May	June
Production.....	127.0	120.8	125.6	101.0	74.4	104.4
Daily average.....	4.1	4.3	4.1	3.4	2.4	3.5
Exports.....	6.1	2.1	8.4	8.6	8.1	2.2
Stocks, end of period.....	637.0	594.6	564.6	552.9	514.5	504.1
Domestic demand.....	211.3	161.1	147.2	104.1	104.7	112.6
Daily average.....	6.8	5.8	4.7	3.5	3.4	3.8

	July	August	September	October	November	December	Total
Production.....	96.0	101.0	110.0	129.2	113.2	97.4	1,300.0
Daily average.....	3.1	3.3	3.7	4.2	3.8	3.1	3.6
Exports.....	10.0	6.5	6.4	23.5	16.4	16.0	114.3
Stocks, end of period.....	493.8	478.0	484.2	464.1	458.7	405.1	405.1
Domestic demand.....	96.3	110.3	97.4	125.8	102.2	135.0	1,508.0
Daily average.....	3.1	3.6	3.2	4.1	3.4	4.4	4.1

Production and stocks of petroleum coke in 1934, by districts and months

[Thousands of short tons]

District	January	February	March	April	May	June	July	August	September	October	November	December	Total
Production:													
East coast.....	13.6	10.4	13.6	10.4	12.8	13.0	12.4	12.2	10.8	11.4	10.8	11.0	142.4
Appalachian.....	1.4	1.6	1.4	2.0	1.8	1.6	2.2	2.0	2.2	2.4	1.8	2.8	23.2
Indiana, Illinois, Kentucky, etc.....	50.8	48.0	54.8	44.0	42.0	43.8	44.2	52.8	48.4	54.4	48.4	38.4	570.0
Oklahoma, Kansas, and Missouri.....	19.2	21.0	20.0	6.0	19.6	19.0	14.8	14.6	15.0	15.2	19.4	21.4	205.2
Texas inland.....	5.0	4.6	4.4	2.4	4.8	4.8	5.0	-4.2	4.2	3.0	4.0	9.2	47.2
Texas Gulf coast.....	23.8	23.2	21.8	26.6	11.2	15.4	12.6	14.8	21.4	35.6	16.2	2	222.8
Louisiana Gulf coast.....	2.2	3.4	2.6	1.4	.2	.2	.2	.2	.2	.2	5.4	6.8	22.4
Arkansas and Louisiana inland.....	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	2.4
Rocky Mountain.....	7.8	6.8	6.6	7.8	-18.2	6.4	4.6	8.4	7.8	6.8	7.0	7.4	59.2
California.....	3.0	1.6	.2	.2				.2					5.2
Total, 1934.....	127.0	120.8	125.6	101.0	74.4	104.4	96.0	101.0	110.0	129.2	113.2	97.4	1,300.0
Daily average.....	4.1	4.3	4.1	3.4	2.4	3.5	3.1	3.3	3.7	4.2	3.8	3.1	3.6
Total, 1933.....	96.8	109.0	147.0	137.6	145.4	154.4	153.6	111.8	138.8	139.4	117.6	128.6	1,580.0
Stocks, end of period:													<i>Dec. 31,</i>
East coast.....	14.2	8.8	9.0	9.9	13.4	18.6	24.0	29.1	30.8	28.4	28.0	23.9	<i>1933</i> 27.0
Appalachian.....	3.8	3.5	3.5	4.4	5.2	5.8	6.9	7.3	8.1	8.7	8.9	9.6	4.7
Indiana, Illinois, Kentucky, etc.....	92.9	86.2	81.6	84.6	69.0	57.7	56.6	52.8	49.3	43.9	40.0	32.5	93.2
Oklahoma, Kansas, and Missouri.....	84.8	76.5	71.0	57.9	56.5	54.1	50.6	49.3	45.7	43.2	45.8	44.0	102.5
Texas Inland.....	65.3	61.2	60.4	59.1	60.7	62.4	64.0	56.3	57.6	58.6	54.2	38.4	80.0
Texas Gulf coast.....	162.1	145.1	130.6	131.9	124.8	119.1	108.1	99.5	98.6	104.0	105.7	81.6	206.1
Louisiana Gulf coast.....	9.2	7.1	4.3	.6	.5	.4	.4	.4	.4	.5	.4	4.1	8.9
Arkansas and Louisiana inland.....	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
Rocky Mountain.....	103.9	104.9	103.7	104.4	85.3	87.6	85.4	86.3	85.9	81.7	81.1	79.8	105.8
California.....	100.7	101.2	100.4	100.0	99.0	98.3	97.7	96.9	107.7	95.0	92.8	91.1	99.2
Total: 1934.....	637.0	594.6	564.6	552.9	514.5	504.1	493.8	478.0	484.2	464.1	458.7	405.1	727.4
1933.....	1,235.8	1,171.8	1,148.5	1,148.9	1,176.2	1,185.4	1,149.1	1,035.9	987.0	891.3	760.3	727.4	

ASPHALT

Comparative analyses of statistics for asphalt in 1934, by months

[Thousands of short tons]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Production.....	152.4	133.5	164.5	218.7	265.3	292.7	319.3	332.9	295.6	285.6	225.1	154.9	2,840.5
Daily average.....	4.9	4.8	5.3	7.3	8.6	9.8	10.3	10.7	9.9	9.2	7.5	5.0	7.8
Imports.....	2.8	4.6	2	3.0	9	2.9	2.9	7	7	-----	.8	.1	15.6
Exports.....	25.6	14.6	22.7	14.6	13.6	14.4	42.0	23.5	17.1	18.9	14.9	18.0	239.9
Stocks, end of period.....	303.5	330.6	370.5	378.3	382.3	358.0	359.3	339.0	314.5	291.9	309.3	339.2	339.2
Domestic demand.....	80.6	92.4	102.1	199.3	248.6	305.5	278.9	330.4	303.7	289.3	193.6	107.1	2,531.5
Daily average.....	2.6	3.3	3.3	6.6	8.0	10.2	9.0	10.7	10.1	9.3	6.5	3.5	6.9

Production and stocks of asphalt in 1934, by districts and months

[Thousands of short tons]

District	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Production:													
East coast.....	61.4	50.7	55.4	93.6	123.7	146.4	154.4	160.9	139.3	133.8	89.4	51.6	1,260.6
Appalachian.....	4.2	5.1	7.3	8.9	11.1	10.4	9.5	14.1	10.9	11.1	10.3	5.7	108.6
Indiana, Illinois, Kentucky, etc.....	30.0	29.5	30.9	37.8	41.1	42.5	49.1	49.1	37.8	48.4	39.5	33.8	469.5
Oklahoma, Kansas, and Missouri.....	3.8	3.4	4.2	4.8	8.9	9.6	12.4	13.5	14.6	7.8	5.8	3.8	92.6
Texas inland.....	.4	.5	3.6	4.9	7.8	6.5	6.4	6.9	6.9	7.3	5.5	1.5	58.2
Texas Gulf coast.....	13.6	11.5	11.6	13.3	15.3	16.5	17.8	17.5	12.7	13.3	10.2	9.8	163.1
Louisiana Gulf coast.....	9.3	4.6	10.7	11.8	8.7	13.5	19.8	15.8	16.5	12.9	16.0	8.5	148.1
Arkansas and Louisiana inland.....	12.6	12.0	13.3	11.6	12.0	10.4	10.5	11.1	14.0	13.1	12.7	11.6	144.9
Rocky Mountain.....	.6	-----	1.3	-----	3.8	6.5	4.9	5.3	3.3	6.7	4	-----	32.8
California.....	16.5	16.2	26.2	32.0	32.9	30.4	34.5	38.7	39.6	31.2	35.3	28.6	362.1
Total, 1934.....	152.4	133.5	164.5	218.7	265.3	292.7	319.3	332.9	295.6	285.6	225.1	154.9	2,840.5
Daily average.....	4.9	4.8	5.3	7.3	8.6	9.8	10.3	10.7	9.9	9.2	7.5	5.0	7.8
Total, 1933.....	105.4	101.5	131.6	158.9	239.3	266.2	273.3	253.5	224.7	242.0	173.4	154.7	2,319.5
Stocks, end of period:													Dec 31, 1933
East coast.....	104.8	110.5	122.7	128.3	124.9	119.4	116.0	111.3	104.4	93.6	93.2	99.7	83.2
Appalachian.....	7.6	10.0	16.7	16.7	17.3	15.5	12.9	11.0	7.7	6.8	9.8	11.1	6.6
Indiana, Illinois, Kentucky, etc.....	76.7	86.1	87.2	84.4	78.0	79.5	78.6	76.9	66.1	67.0	71.1	82.6	61.2
Oklahoma, Kansas, and Missouri.....	6.4	6.3	6.8	5.4	7.1	8.2	9.0	9.5	14.4	9.4	10.1	6.7	6.4
Texas inland.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	2.5	2.5	-----
Texas Gulf coast.....	6.7	12.9	13.9	13.3	13.5	16.6	13.1	12.8	9.1	11.8	10.7	11.3	7.3
Louisiana Gulf coast.....	27.2	27.3	30.2	32.2	25.4	20.4	29.5	23.1	24.1	21.0	26.5	28.4	22.1
Arkansas and Louisiana inland.....	26.5	30.4	37.9	36.9	44.8	40.9	42.9	40.1	39.1	37.6	36.5	44.6	19.2
Rocky Mountain.....	2.9	2.8	3.9	3.4	4.2	4.9	4.4	4.2	4.3	5.7	5.4	5.3	2.5
California.....	44.7	44.3	51.2	57.7	67.1	52.6	52.9	50.1	45.3	39.0	43.5	47.0	46.0
Total: 1934.....	303.5	330.6	370.5	378.3	382.3	358.0	359.3	339.0	314.5	291.9	309.3	339.2	254.5
1933.....	272.2	294.4	304.4	305.8	297.6	287.6	278.1	268.1	253.4	242.2	258.9	254.5	-----

ROAD OIL

Production and stocks of road oil in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Production:													
East coast.....	10	11	28	35	48	52	64	60	36	25	24	-1	392
Appalachian.....	8	8	-15	5	44	23	21	-2	1				93
Indiana, Illinois, Ken- tucky, etc.....	24	33	45	95	255	369	340	363	171	35	39	23	1,792
Oklahoma, Kansas, and Missouri.....	12	5	18	25	78	154	194	175	113	91	30	-1	894
Texas inland.....	3	3	4	4	17	11	23	7	5	3			110
Texas Gulf coast.....	10	8	13	7	14	20	32	38	31	12	12	10	207
Louisiana Gulf coast.....		3			27	1	22	2	1	1			57
Arkansas and Louisiana inland.....				8	17	46	45	20	19	1			156
Rocky Mountain.....	31	1	41	61	100	107	147	165	150	77	40	30	950
California.....	22	40	54	69	168	207	225	302	178	152	90	52	1,559
Total, 1934.....	120	112	188	309	768	990	1,113	1,130	705	397	235	143	6,210
Daily average.....	4	4	6	10	25	33	36	36	24	13	8	5	17
Total, 1933.....	99	150	186	274	471	964	973	789	703	403	275	247	5,534
													<i>Dec. 31, 1933</i>
Stocks, end of period:													
East coast.....	102	92	38	48	98	89	82	76	57	67	76	75	92
Appalachian.....	29	37	9	14	33	22	33	18	14	13	13	13	22
Indiana, Illinois, Ken- tucky, etc.....	40	43	41	88	149	141	160	161	172	97	86	71	41
Oklahoma, Kansas, and Missouri.....	180	180	189	196	221	261	236	171	148	114	126	121	172
Texas inland.....	20	20	22	25	40	46	48	44	32	25	21	39	24
Texas Gulf coast.....	35	35	32	29	24	24	26	33	39	37	33	34	31
Louisiana Gulf coast.....	14	15	15	12	27	10	18	13	11	12	11	11	14
Arkansas and Louisiana inland.....	29	29	29	37	54	47	49	25	16	9	9	1	29
Rocky Mountain.....	230	204	238	283	297	227	148	80	72	81	114	140	212
California.....	176	205	171	185	189	142	151	172	165	161	161	159	195
Total: 1934.....	855	860	784	917	1,132	1,009	951	793	726	616	650	664	832
1933.....	573	669	803	998	1,237	1,298	1,277	1,130	1,008	856	815	832	-----

STILL GAS

Production of still gas in 1934, by districts and months

[Millions of cubic feet]

District	January	Febru- ary	March	April	May	June	July
East coast.....	2,093	1,862	2,168	2,209	2,311	2,321	2,625
Appalachian.....	621	511	649	782	790	719	871
Indiana, Illinois, Kentucky, etc.....	2,954	2,544	2,751	2,951	2,925	3,060	3,073
Oklahoma, Kansas, and Missouri.....	1,485	1,379	1,506	1,491	1,700	1,606	1,763
Texas inland.....	529	598	466	387	492	502	627
Texas Gulf coast.....	3,329	2,847	3,007	3,250	3,001	3,183	3,811
Louisiana Gulf coast.....	553	488	528	560	584	557	593
Arkansas and Louisiana inland.....	178	156	175	158	202	214	225
Rocky Mountain.....	281	242	236	330	272	348	290
California.....	1,556	1,229	1,386	1,477	1,497	1,471	1,741
Total, 1934.....	13,679	11,856	12,872	13,595	13,774	13,981	15,619
Daily average.....	441	423	415	453	444	466	504
Total equivalent in thousands of barrels.....	3,457	3,050	3,429	3,642	3,674	3,707	4,150
Total, 1933.....	12,122	11,125	12,894	13,679	15,821	15,551	15,896
Total equivalent in thousands of barrels.....	3,224	2,914	3,368	3,557	4,232	4,141	4,524

STILL GAS—continued

Production of still gas in 1934, by districts and months—Continued

[Millions of cubic feet]

District	August	September	October	November	December	Total	
						Millions of cubic feet	Equivalent in thousands of barrels
East coast.....	2,595	2,347	2,598	2,463	2,670	28,262	8,808
Appalachian.....	850	808	770	688	839	8,898	2,339
Indiana, Illinois, Kentucky, etc.....	3,404	3,096	3,120	2,948	2,937	35,763	9,401
Oklahoma, Kansas, and Missouri.....	1,621	1,511	1,553	1,474	1,428	18,517	4,600
Texas inland.....	574	561	563	522	523	6,344	1,392
Texas Gulf coast.....	4,058	4,011	3,791	3,672	3,841	41,801	10,326
Louisiana Gulf coast.....	537	480	449	454	600	6,383	1,638
Arkansas and Louisiana inland.....	208	174	180	152	149	2,171	459
Rocky Mountain.....	397	312	305	336	325	3,674	887
California.....	1,767	1,473	1,334	1,252	1,383	17,666	4,841
Total, 1934.....	16,011	14,773	14,663	13,961	14,695	169,479	44,391
Daily average.....	516	492	473	465	474	464	122
Total equivalent in thousands of barrels.....	4,240	3,835	3,792	3,625	3,790	44,391	-----
Total, 1933.....	16,343	15,452	15,017	13,226	13,727	170,853	45,212
Total equivalent in thousands of barrels.....	4,250	3,989	3,990	3,466	3,557	45,212	-----

MISCELLANEOUS OILS

Production and stocks of miscellaneous oils in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Production:													
East coast.....	13	35	30	38	32	41	40	71	72	41	97	96	606
Appalachian.....	21	17	24	17	29	30	22	23	20	29	24	26	282
Indiana, Illinois, Kentucky, etc.....	24	6	7	10	9	21	7	18	29	9	9	7	156
Oklahoma, Kansas, and Missouri.....	17	22	32	69	43	16	41	21	17	19	21	14	332
Texas inland.....	3	6	-1	5	12	12	2	6	11	7	12	-1	74
Texas Gulf coast.....	2	4	20	25	51	24	6	12	11	15	21	17	208
Arkansas and Louisiana inland.....	6	5	2	5	4	6	4	5	5	4	5	5	56
Rocky Mountain.....	2	3	3	-1	-1	2	2	2	-1	-2	2	-----	11
California.....	28	24	12	15	3	11	-----	10	12	13	9	10	147
Total, 1934.....	116	122	129	183	182	163	124	168	176	135	200	174	1,872
Daily average.....	4	4	4	6	6	5	4	5	6	4	7	6	5
Total, 1933.....	82	97	124	98	137	130	142	127	120	103	133	142	1,435
Stocks, end of period:													
East coast.....	89	71	49	27	28	29	34	34	34	33	38	42	Dec. 31, 1933 144
Appalachian.....	39	44	23	19	35	29	31	32	43	42	32	39	134
Indiana, Illinois, Kentucky, etc.....	11	11	10	13	12	25	27	26	35	32	29	23	12
Oklahoma, Kansas, and Missouri.....	38	39	16	25	36	23	30	28	22	24	24	25	25
Texas inland.....	7	8	6	8	10	13	8	6	11	11	13	6	5
Texas Gulf coast.....	10	11	15	32	28	40	26	30	29	29	35	37	11
Arkansas and Louisiana inland.....	3	2	3	2	2	2	1	1	2	1	-----	-----	1
Rocky Mountain.....	6	8	11	9	7	7	8	10	8	6	8	8	6
California.....	88	68	65	67	52	59	49	48	39	50	51	51	178
Total: 1934.....	291	262	198	202	210	227	214	215	223	228	230	231	1216
1933.....	440	415	425	442	430	420	379	357	370	356	385	388	458

1 On new basis; for comparison with 1934.

Production of miscellaneous oils in 1934, by districts and classes

[Thousands of barrels of 42 gallons]

District	Petro- latum	Absorp- tion oil	Medici- nal oil	Special- ties	Liquefied petroleum gas	Other	Total
East coast.....	140		111	6	289	60	606
Appalachian.....	220	10				52	282
Indiana, Illinois, Kentucky, etc.....	31	83		1	39	85	156
Oklahoma, Kansas, and Missouri.....	17	83			3	229	332
Texas inland.....	3	44				27	74
Texas Gulf coast.....	7	19		14	99	69	208
Arkansas and Louisiana inland.....						56	56
Rocky Mountain.....	7			4			11
California.....		1	8	55	9	74	147
Total.....	425	157	119	80	439	652	1,872

UNFINISHED OILS

Production and stocks of unfinished (crude) gasoline in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	January	February	March	April	May	June	July	August	September	October	November	December	Total
Production (net):													
East coast.....	1 461	88	1 168	1 567	1 86	222	1 137	2	1 124	1 29	13	1 238	1 1,435
Appalachian.....	1 3	1 27	28	1 19	60	1 30	48	1 14	1 5	1 28	27	24	61
Indiana, Illinois, Kentucky, etc.....	136	1 128	1 20	1 54	18	1 37	1 60	1 105	1 146	1 180	1 103	1 86	1 765
Oklahoma, Kansas, and Missouri.....	128	54	1 15	1 130	29	1 26	1 90	1 77	1 108	1 6	49	113	1 79
Texas inland.....	1 3	30	1 1	1 12	1 29	1 25	1 58	65	56	113	26	1 8	370
Texas Gulf coast.....	1 35	289	1 60	21	1 308	1 338	1 63	1 322	1 189	4	20	197	1 784
Louisiana Gulf coast.....	22	1 12	1 2	1 71	34	1 8	1 29	5	1 15	1 34	1 54	100	1 64
Arkansas and Louisiana inland.....	11	1 11	3	1 2	1 30	1	1 105	1 124	1 1	1 1	6	1 5	1 258
Rocky Mountain.....	9	30	1 25	3	29	1 21	1 47	1 15	1 23	1 20	6	1 13	1 57
California.....	24	55	60	115	1 26	39	62	1 142	1 48	1 73	15	1 27	54
Total 1934.....	1 172	368	1 200	1 716	1 309	1 223	1 263	1 697	1 603	1 254	5	57	1 3,007
Stocks, end of period:													<i>Dec. 31, 1933¹</i>
East coast.....	1,241	1,267	1,434	929	847	1,062	973	922	857	942	1,008	862	1,683
Appalachian.....	261	234	262	243	303	273	321	307	302	274	301	325	264
Indiana, Illinois, Kentucky, etc.....	1,263	1,160	1,157	1,166	1,181	1,186	1,157	1,053	873	729	624	576	1,196
Oklahoma, Kansas, and Missouri.....	988	1,017	985	792	824	756	635	557	483	441	492	567	791
Texas inland.....	332	362	361	349	320	295	278	255	227	224	198	175	335
Texas Gulf coast.....	2,054	2,405	2,343	2,302	1,990	1,729	1,667	1,353	1,189	1,194	1,278	1,397	2,108
Louisiana Gulf coast.....	287	275	273	202	236	228	210	216	201	168	113	214	265
Arkansas and Louisiana inland.....	71	60	63	61	31	32	42	50	49	48	54	49	60
Rocky Mountain.....	160	190	165	168	197	176	129	144	121	101	107	94	151
California.....	1,058	1,113	840	955	929	968	1,030	888	840	767	782	755	1,034
Total 1934.....	7,715	8,083	7,883	7,167	6,858	6,705	6,442	5,745	5,142	4,888	4,957	5,014	7,887

¹ Negative quantity—represents net excess of unfinished gasoline return over unfinished gasoline produced.

² For comparison with 1934.

CRUDE PETROLEUM AND PETROLEUM PRODUCTS

Production and stocks of other unfinished oils in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	January	February	March	April	May	June	July	August	September	October	November	December	Total
Production (net):													
East coast.....	442	100	129	549	717	1 236	258	15	1 32	131	1 187	1 50	1,836
Appalachian.....	1 97	1 203	1 274	1 177	1 178	1 218	55	1 251	1 400	1 322	1 244	1 238	12,547
Indiana, Illinois, Kentucky, etc.....	1 37	145	1 259	240	380	1 43	398	318	8	357	440	1 262	1,685
Oklahoma, Kansas, and Missouri.....	1 65	95	1 1	110	1 158	1 18	1 143	1 111	1 290	1 157	1 51	265	1,524
Texas inland.....	23	1 161	1 50	1 133	170	137	341	150	68	165	33	27	770
Texas Gulf coast.....	1 176	466	29	284	1 787	141	1 305	1 118	36	1 340	1 289	146	1,913
Louisiana Gulf coast.....	1 35	1 17	9	15	26	206	58	97	64	76	70	22	591
Louisiana inland.....	1 23	1 70	1 55	23	6	1 5	127	58	3	1 2	29	63	154
Arkansas and Louisiana inland.....	1 14	1 52	1 40	1 39	1 7	56	37	20	1 8	67	1 32	1 16	1 28
Rocky Mountain.....	1 79	2	1 68	62	39	313	266	11	239	172	1 107	75	925
California.....													
Total 1934.....	1 61	305	1 580	934	208	333	1,092	189	1 312	147	1 338	32	1,949
													<i>Dec. 31, 1933¹</i>
Stocks, end of period:													
East coast.....	7,458	7,249	7,104	7,516	7,903	7,582	8,144	7,898	7,884	8,080	7,885	8,076	7,174
Appalachian.....	1,950	1,936	1,828	1,766	1,783	1,860	1,965	2,040	2,019	1,972	1,953	2,046	1,793
Indiana, Illinois, Kentucky, etc.....	5,411	5,453	5,508	5,623	5,799	5,568	5,802	5,923	5,782	5,935	6,258	5,934	5,571
Oklahoma, Kansas, and Missouri.....	4,656	4,854	4,539	4,774	4,820	4,990	5,011	5,097	4,956	5,003	5,069	5,396	4,698
Texas inland.....	1,234	1,073	1,023	890	1,060	1,054	1,123	1,126	1,074	1,128	1,188	1,152	1,211
Texas Gulf coast.....	3,988	9,574	9,711	10,123	9,581	9,811	9,870	10,241	10,407	10,357	10,118	10,320	9,260
Louisiana Gulf coast.....	1,407	1,390	1,399	1,308	1,224	1,274	1,225	1,206	1,218	1,146	1,112	950	1,442
Louisiana inland.....	374	304	249	272	278	273	385	281	262	241	246	254	397
Arkansas and Louisiana inland.....	1,845	1,793	1,753	1,714	1,707	1,763	1,800	1,820	1,812	1,879	1,847	1,831	1,859
Rocky Mountain.....	3,775	3,777	3,709	3,771	3,810	4,123	4,389	4,400	4,639	4,811	4,704	4,779	3,854
California.....													
Total 1934.....	37,098	37,403	36,823	37,757	37,965	38,298	39,714	40,032	40,053	40,552	40,380	40,738	37,159

¹ Negative quantity—represents net excess of unfinished oils rerun over unfinished oil produced.² For comparison with 1934.

SHORTAGE

Shortage in refinery operations in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
East coast.....	83	221	83	131	76	132	108	12	111	69	100	116	1,242
Appalachian.....	85	97	87	106	121	139	132	117	120	118	93	108	1,323
Indiana, Illinois, Kentucky, etc.....	37	93	128	7	25	155	99	137	91	41	51	150	858
Oklahoma, Kansas, and Mis- souri.....	293	213	264	329	265	282	318	371	253	237	268	284	3,377
Texas inland.....	273	244	287	293	289	254	319	335	295	317	285	162	3,303
Texas Gulf coast.....	223	218	271	216	311	327	381	312	176	141	134	267	2,977
Louisiana Gulf coast.....	8	56	48	56	133	143	90	63	27	84	55	86	849
Arkansas and Louisiana in- land.....	58	54	46	82	84	104	91	94	84	69	57	28	851
Rocky Mountain.....	23	16	14	19	146	31	40	49	43	24	35	30	470
California.....	143	99	87	26	81	113	141	85	42	80	128	110	823
Total, 1934.....	1,040	1,311	1,159	1,265	1,531	1,554	1,719	1,575	1,242	1,180	1,156	1,341	16,073
Daily average.....	34	47	37	42	49	52	55	51	41	38	39	43	44
Total, 1933.....	1,392	953	1,252	1,030	1,462	1,545	1,707	1,978	1,426	1,421	1,386	1,204	16,756

¹ Overage.

IMPORTS AND EXPORTS

Imports of petroleum products (including natural asphalt) into United States¹ in 1934, by months

[Quantity in thousands of barrels of 42 gallons, except as otherwise indicated; value in thousands of dollars]

Product	Jan.	Feb.	Mar.	Apr.	May	June	July
For domestic consumption:							
Gasoline.....	1						
Fuel oil.....	135	77	326	284	374	217	458
Lubricants.....						1	1
Wax..... thousands of pounds.....	7,365	4,952	2,516	3,135	2,655	2,432	1,093
Wax equivalent.....	26	17	9	11	9	9	4
Asphalt and bitumen.....	15	3	1	17	5	16	16
Miscellaneous oils.....	5		9	31	34	77	49
Other unfinished oils.....							4
Total.....	182	97	345	343	422	320	532
Imported in bond:							
Fuel oil.....	1,003	550	758	893	985	823	831
Wax..... thousands of pounds.....	276	168	336	725	1,326	280	333
Wax equivalent.....	1	1	1	3	5	1	1
Unfinished gasoline.....						70	
Other unfinished oils.....							320
Total.....	1,004	551	759	896	990	894	1,152
Grand total.....	1,186	648	1,104	1,239	1,412	1,214	1,684

Product	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
						Quantity	Value
For domestic consumption:							
Gasoline.....						1	8
Fuel oil.....	478	429	523	394	658	4,353	2,828
Lubricants.....						2	38
Wax..... thousands of pounds.....	826	2,405	2,507	2,210	1,653	33,749	1,042
Wax equivalent.....	3	9	9	8	6	120	1,042
Asphalt and bitumen.....	4	4		4	1	86	222
Miscellaneous oils.....	51	3		7	50	316	657
Other unfinished oils.....						4	26
Total.....	536	445	532	413	715	4,882	4,821
Imported in bond:							
Fuel oil.....	469	474	462	386	647	8,281	4,472
Wax..... thousands of pounds.....	55	44				3,543	144
Wax equivalent.....						13	144
Unfinished gasoline.....				64		134	237
Other unfinished oils.....	129	333	352	166	326	1,626	882
Total.....	598	807	814	616	973	10,054	5,764
Grand total.....	1,134	1,252	1,346	1,029	1,688	14,936	10,585

¹ Exclusive of the territories of Alaska, Hawaii, and Puerto Rico.

² Includes lubricating oils and unrefined oils to the value of \$29,000.

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Exports to foreign countries and shipments to noncontiguous territories of petroleum products in 1934, by months ¹

[Quantity in thousands of barrels of 42 gallons, except as otherwise indicated; value in thousands of dollars]

Product	Jan.	Feb.	Mar.	Apr.	May	June	July
Gasoline.....	1,867	1,945	2,404	2,519	1,789	1,811	1,665
Natural gasoline.....	30	77	121	143	112	166	41
Benzol.....	43	3	13	51	6	17	12
Kerosene.....	591	736	670	1,156	673	968	777
Gas oil and distillate fuel oils.....	938	1,042	1,565	1,549	1,450	756	1,502
Residual fuel oils.....	801	1,005	955	1,355	1,052	1,539	1,124
Lubricants.....	771	465	794	717	660	664	689
Wax.....	68	58	75	53	50	44	50
Coke.....	30	11	42	43	41	11	50
Asphalt.....	141	80	125	80	75	79	231
Wax, crude..... thousands of pounds..	8,664	7,900	9,489	5,796	5,009	3,647	5,278
Wax, refined..... do.....	10,307	8,407	11,622	9,228	9,050	8,538	8,526
Wax, total..... do.....	18,971	16,307	21,111	15,024	14,059	12,185	13,804
Coke..... thousands of short tons..	6.1	2.1	8.4	8.6	8.1	2.2	10.0
Asphalt..... do.....	25.6	14.6	22.7	14.6	13.6	14.4	42.0
Insulating or transformer oils ²	3	4	5	4	4	3	4
Mineral spirits.....	4	4	4	3	4	3	5
Total: 1934.....	5,284	5,426	6,768	7,669	5,912	6,058	6,146
1933.....	6,315	4,479	5,428	6,856	5,495	5,092	7,439

Product	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
						Quantity	Value
Gasoline.....	1,970	1,749	1,922	1,884	1,436	22,961	56,772
Natural gasoline.....	193	107	42	313	149	1,494	2,729
Benzol.....	2	20	1	13	50	231	1,762
Kerosene.....	984	802	974	633	817	9,781	21,632
Gas oil and distillate fuel oils.....	712	1,145	1,262	1,097	1,113	14,131	18,541
Residual fuel oils.....	1,267	1,257	976	1,299	1,844	14,474	12,169
Lubricants.....	599	644	497	667	493	7,660	59,907
Wax.....	55	76	60	63	59	711	7,821
Coke.....	32	32	117	82	80	571	663
Asphalt.....	129	94	104	82	99	1,319	3,539
Wax, crude..... thousands of pounds..	7,582	9,435	8,240	8,078	6,273	85,391	3,093
Wax, refined..... do.....	7,717	11,830	8,631	9,405	10,306	113,567	4,728
Wax, total..... do.....	15,299	21,265	16,871	17,483	16,579	198,958	7,821
Coke..... thousands of short tons..	6.5	6.4	23.5	16.4	16.0	114.3	663
Asphalt..... do.....	23.5	17.1	18.9	14.9	18.0	239.9	3,539
Insulating or transformer oils ²	4	10	4	3	7	55	373
Mineral spirits.....	4	3	4	5	4	47	291
Total: 1934.....	5,947	5,929	5,959	6,138	6,144	73,380	185,826
1933.....	5,048	5,005	6,683	6,350	5,953	70,143	175,942

¹ Exclusive of exports from Alaska, Hawaii, and Puerto Rico and inclusive of shipments from continental United States to Alaska, Hawaii, and Puerto Rico.

² Included in lubricants.

Exports ¹ of the major petroleum products in 1934, by countries of destination

[Quantity in thousands of barrels of 42 gallons, except as otherwise indicated; value in thousands of dollars]

Destination	Gasoline ²		Kerosene		Gas oil and fuel oil		Lubricants		Wax	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity (thousands of pounds)	Value
Argentina.....	205	433	41	113	498	514	92	1,023	1,995	87
Australia.....	2,141	4,827	346	820	-----	-----	288	3,294	426	22
Belgium.....	1,548	3,067	126	233	373	579	586	3,133	4,575	172
Brazil.....	972	3,130	541	2,566	77	171	197	1,660	1,752	89
British India.....	34	163	41	203	19	61	364	2,290	1,022	42
Canada.....	1,682	3,773	61	162	1,427	1,564	316	2,459	1,332	65
Chile.....	6	36	(³)	7	1,474	1,270	35	447	5,535	201
China, Hong Kong, and Kwantung.....	458	1,171	1,845	3,564	445	649	260	1,582	5,151	236
Colombia.....	53	179	3	17	2	6	15	267	11,559	441
Cuba.....	336	714	(³)	2	645	616	6	88	1,964	93
Denmark.....	10	31	1	5	-----	-----	117	425	1,733	73
Finland.....	80	168	(³)	1	-----	-----	5	71	602	24
France.....	1,616	3,660	88	165	335	527	802	6,511	354	16
Germany.....	275	678	121	213	883	1,309	946	7,612	18,922	763
Irish Free State.....	165	344	34	66	30	46	7	60	2,676	93
Italy.....	62	122	90	162	422	652	332	2,807	33,043	1,221
Japan.....	1,079	2,650	375	809	7,917	7,297	257	2,054	88	6
Mexico.....	113	399	16	43	1,014	735	50	545	931	32
Netherlands.....	959	2,157	942	1,627	857	1,311	254	1,867	10,946	446
Netherlands West Indies.....	1,496	3,203	815	1,370	1,114	1,566	6	75	1	(⁴)
New Zealand.....	732	1,591	38	94	1,021	854	43	544	67	3
Norway.....	164	339	139	252	279	337	17	222	1,107	48
Panama.....	227	580	53	135	2,053	1,909	13	167	614	26
Philippine Islands.....	698	1,935	420	890	972	852	60	567	1,637	60
Spain.....	899	1,830	24	44	665	877	63	712	5,964	251
Sweden.....	805	1,632	361	651	272	439	82	666	4,487	168
Union of South Africa.....	714	1,805	187	358	1	4	96	1,095	1,728	72
United Kingdom.....	4,308	8,830	2,200	3,637	2,057	3,054	1,709	10,789	56,985	2,120
Other.....	1,223	4,515	729	2,583	1,125	1,143	536	5,859	22,047	963
	23,060	53,962	9,607	20,792	25,977	23,342	7,554	58,891	199,243	7,833

¹ Inclusive of exports from Alaska and Puerto Rico.

² Includes natural gasoline.

³ Less than 500 barrels.

⁴ Less than \$500.

Exports of the major petroleum products in 1934, by shipping points

[Thousands of barrels of 42 gallons, except as otherwise indicated]

Customs district	Gasoline ¹	Kerosene	Gas oil and fuel oil	Lubricants	Wax (thousands of pounds)
Atlantic coast:					
New England ²	19	2		5	1,282
New York.....	941	524	110	2,599	101,628
Philadelphia.....	3,217	562	3	1,762	37,443
South Atlantic ³				33	3,433
Gulf coast:					
Florida and Mobile.....	33	4	167	2	
New Orleans.....	2,193	2,521	884	401	45,519
Sabine.....	4,046	1,020	907	1,076	6,556
Galveston.....	4,767	1,462	6,049	908	1,279
Mexican border:					
San Antonio.....	44		7	23	1
El Paso and Arizona.....	28	1	115	2	56
Pacific coast:					
San Diego.....	76	14	57	4	9
Los Angeles.....	4,587	1,851	16,156	31	21
San Francisco.....	2,283	1,088	1,278	417	753
Washington.....	72	14	134	14	8
Northern border:					
Western districts ⁴	183	4	39	81	4
Michigan.....	191	7	8	47	122
Buffalo.....	137	521	52	116	754
Rochester and St. Lawrence.....	203	5	1	32	60
Noncontiguous territories:					
Alaska.....	5		2		
Puerto Rico.....	35	7	8	1	315
	23,060	9,607	25,977	7,554	199,243

¹ Includes natural gasoline.² Includes customs districts of Maine and New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut.³ Includes customs districts of Maryland, Virginia, and South Carolina.⁴ Includes customs districts of Montana and Idaho, Dakota, and Duluth-Superior.

PANAMA CANAL SHIPMENTS

California oil shipped through the Panama Canal to Atlantic and Gulf ports in the United States in 1934, by months¹

[Thousands of barrels of 42 gallons]

Product	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Gasoline.....	471	193	758	636	798	872	808	730	875	981	1,002	570	8,694
Kerosene.....	205	262	80	204	11	79	85	75	90	168	248	293	1,800
Gas oil and Diesel oil.....	510	270	245	204	81	3		157	148	79	287	215	2,199
Fuel oil.....	1,370	1,454	1,083	1,449	1,545	1,115	816	1,070	605	566	752		11,825
Lubricants.....	9	1	1	12	1	9	5	10		8	6	6	63
Asphalt.....	1				70		1	1					74
Miscellaneous.....	1	2	15	1	12	16	1	2	3		1	2	59
Total: 1934.....	2,567	2,182	2,183	2,506	2,518	2,094	1,716	2,045	1,721	1,805	2,296	1,086	24,719
1933.....	1,865	1,342	963	1,314	1,445	1,182	1,655	1,316	1,674	2,659	3,106	2,499	21,020

¹ Compiled by E. T. Knudsen, of the San Francisco office of the Bureau of Mines.

NATURAL GASOLINE ¹

Production and distribution of natural gasoline in 1934, by months

[Thousands of barrels of 42 gallons]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Production.....	3,057	2,826	3,049	2,950	2,938	2,864	2,971	3,057	3,074	3,267	3,240	3,263	36,556
Decrease in all stocks.....		117							179	356	541		
	3,057	2,943	3,049	2,950	2,938	2,864	2,986	3,057	3,253	3,623	3,781	3,263	36,556
Blended at refineries.....	2,083	1,822	2,017	1,941	1,690	1,933	2,035	1,973	2,324	3,093	3,899	2,706	26,956
Run through pipe lines ²	139	117	119	97	123	121	107	81	81	95	73	53	1,206
Exports and sales to jobbers.....	241	569	435	314	583	382	542	506	617	335	242	335	5,101
Increase in all stocks.....	213		140	343	152	155		239				26	60
Losses.....	381	435	338	255	390	273	302	258	231	160	67	143	3,233
	3,057	2,943	3,049	2,950	2,938	2,864	2,986	3,057	3,253	3,623	3,781	3,263	36,556

¹ For detailed statistics see Natural Gasoline—Statistical Appendix to Minerals Yearbook, 1935.
² To refineries in California.

Consumption and stocks of natural gasoline at refineries in 1934, by districts and months

[Thousands of barrels of 42 gallons]

District	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Consumption:													
East coast.....	146	126	45	115	40	28	59	36	92	162	264	194	1,307
Appalachian.....	24	17	17	18	17	24	20	23	20	26	40	38	284
Indiana, Illinois, Kentucky, etc.....	177	148	147	173	171	152	175	153	213	309	294	236	2,348
Oklahoma, Kansas, and Missouri.....	480	405	420	402	342	430	441	469	574	588	718	605	5,874
Texas inland.....	402	302	297	269	186	267	282	327	289	404	647	407	4,079
Texas Gulf coast.....	112	98	128	132	137	145	143	186	251	333	339	266	2,270
Louisiana Gulf coast.....	11	36	14	9	8	20	17	17	42	28	12	17	231
Arkansas and Louisiana inland.....	37	42	45	45	54	44	40	44	42	58	47	40	538
Rocky Mountain.....	70	59	66	64	59	66	61	71	65	74	77	71	803
California ¹	763	706	957	811	799	878	904	728	817	1,146	1,034	885	10,428
California ²	139	117	119	97	123	121	107	81	81	95	73	53	1,206
Total: 1934.....	2,222	1,939	2,136	2,038	1,813	2,054	2,142	2,054	2,405	3,128	3,472	2,759	28,162
1933.....	2,262	1,760	1,846	1,843	1,741	2,039	1,860	2,059	2,409	2,625	2,700	2,202	25,346
													Dec. 31, 1933
Stocks, end of period:													
East coast.....	200	167	228	244	203	213	254	259	283	323	202	176	153
Appalachian.....	5	4	7	2	4	4	5	4	1	3	2	9	1
Indiana, Illinois, Kentucky, etc.....	44	29	40	27	48	37	38	41	55	61	57	64	52
Oklahoma, Kansas, and Missouri.....	30	37	41	44	39	52	78	82	83	86	74	91	36
Texas inland.....	9	7	8	10	18	14	12	10	16	11	16	11	7
Texas Gulf coast.....	274	146	200	246	165	182	176	172	116	194	98	158	244
Louisiana Gulf coast.....					21	21		10	9				
Arkansas and Louisiana inland.....	5	6	6	11	7	3	2	3	4	3	5	5	7
Rocky Mountain.....	10	8	10	10	14	9	9	7	8	18	15	21	5
California.....	2,324	2,393	2,354	2,389	2,375	2,385	2,387	2,613	2,690	2,473	2,356	2,345	*2,183
Total: 1934.....	2,901	2,797	2,894	2,983	2,894	2,920	2,961	3,201	3,265	3,172	2,825	2,880	*2,688
1933.....	2,653	2,740	2,789	2,771	2,937	2,885	2,766	2,926	2,875	2,707	2,508	2,654	

¹ Blended.
² Received by pipe lines.
³ For comparison with 1934.

OIL SHALE

World production of oil shale, 1930-34, in metric tons

[Compiled by M. T. Latus, of the Bureau of Mines]

Country	1930	1931	1932	1933	1934
Australia:					
New South Wales.....	352	2,165	2,734	-----	203
Tasmania.....	5,515	1,425	1,115	3,456	3,329
China (Manchuria).....	(¹)	1,245,097	1,412,558	(¹)	(¹)
Estonia.....	497,955	499,495	495,811	499,969	588,958
France ²	82,500	78,350	87,971	84,576	(¹)
Germany (Bavaria).....	544	418	401	553	869
Great Britain: Scotland.....	2,052,939	1,760,557	1,390,562	1,419,410	1,423,257
Italy.....	938	713	1,268	918	749
Spain.....	55,147	55,611	64,132	60,448	37,783

¹ Data not available.² Includes some boghead coal.

SURVEY OF REFINERY CAPACITIES

Summary of refinery capacity in the United States, 1914-35, by years

	Number				Capacity (barrels per day)			
	Oper- ating	Shut down	Build- ing	Total	Operating	Shut down	Building	Total
Jan. 1, 1914 ¹	(²)	(²)	(²)	176	(²)	(²)	(²)	(²)
Jan. 1, 1918.....	(²)	(²)	(²)	267	(²)	(²)	(²)	1,186,155
Jan. 1, 1919.....	(²)	(²)	(²)	289	(²)	(²)	(²)	1,295,115
Jan. 1, 1920.....	³ 373	(²)	99	472	³ 1,530,565	(²)	263,500	1,794,065
Jan. 1, 1921.....	350	65	44	459	1,794,395	94,405	76,600	1,965,400
Jan. 1, 1922.....	325	154	30	509	1,854,590	254,610	59,950	2,169,150
Nov. 1, 1924.....	357	190	8	555	2,480,922	333,410	18,200	2,832,532
Jan. 1, 1925.....	357	184	6	547	2,489,927	337,910	37,000	2,864,837
May 1, 1925.....	365	185	4	554	2,511,817	342,025	11,000	2,864,842
Jan. 1, 1926.....	352	158	2	512	2,562,357	200,610	5,500	2,858,467
Jan. 1, 1927.....	327	138	7	472	2,834,282	226,725	61,000	3,122,007
Jan. 1, 1928.....	326	97	5	428	3,036,125	214,255	22,000	3,272,380
Jan. 1, 1929.....	341	72	14	427	3,325,890	183,650	99,000	3,608,540
Jan. 1, 1930.....	358	54	8	420	3,634,825	130,760	37,200	3,802,785
Jan. 1, 1931.....	346	89	10	445	3,706,610	236,075	45,000	3,987,685
Jan. 1, 1932.....	365	108	6	479	3,624,992	389,616	8,720	4,023,328
Jan. 1, 1933.....	372	133	18	523	3,445,118	444,392	31,545	3,921,055
Jan. 1, 1934.....	454	137	13	604	3,553,569	364,648	44,450	3,962,667
Jan. 1, 1935.....	435	196	7	638	3,614,749	443,751	13,900	4,072,400

¹ From the Bureau of the Census.² Not available.³ Inoperative plants included under operating.

Refinery capacity on Jan. 1, 1935, by districts, States, and types of process

District and State	Number				Capacity (barrels per day)			
	Operating	Shut down	Building	Total	Operating	Shut down	Building	Total
District:								
East coast.....	25		1	26	613,500		6,000	619,500
Appalachian.....	42	11		53	183,650	15,000		178,650
Indiana, Illinois, Kentucky, etc.	46	8	2	56	445,870	14,900	2,500	463,270
Oklahoma, Kansas, Missouri.....	54	33		87	425,565	76,739		502,304
Texas inland.....	91	33	2	176	293,859	183,840	5,100	482,799
Texas Gulf coast.....	19	2		21	613,000	10,500		623,500
Louisiana Gulf coast.....	5			5	138,000			138,000
Arkansas and Louisiana inland.....	13	14	1	28	77,300	45,650	100	123,050
Rocky Mountain.....	76	36	1	113	84,570	15,922	200	100,692
California.....	64	9		73	759,435	81,200		840,635
Total.....	435	196	7	638	3,614,749	443,751	13,900	4,072,400
State:								
Alabama.....	1			1	4,000			4,000
Arkansas.....	6	3		9	38,250	10,500		48,750
California.....	64	9		73	759,435	81,200		840,635
Colorado.....	7	2		9	6,070	1,860		7,930
Delaware.....	1			1	2,000			2,000
Georgia.....	2			2	9,000			9,000
Illinois.....	10	2		12	121,750	8,500		130,250
Indiana.....	6			6	192,700			192,700
Kansas.....	21	5		26	163,545	7,500		171,045
Kentucky.....	9	3		12	25,600	2,900		28,500
Louisiana.....	11	7	1	19	173,050	32,150	100	205,300
Maryland.....	3			3	55,000			55,000
Massachusetts.....	2			2	30,000			30,000
Michigan.....	12	3	2	17	32,550	3,500	2,500	38,550
Mississippi.....		4		4		3,000		3,000
Missouri.....	1	2		3	16,500	5,500		22,000
Montana.....	19	12		31	16,933	8,480		25,413
Nebraska.....	2	3		5	248	225		473
New Jersey.....	6		1	7	261,000		6,000	267,000
New Mexico.....	10			10	7,400			7,400
New York.....	6	2		8	56,700	850		57,550
Ohio.....	12	2		14	109,420	2,500		111,920
Oklahoma.....	32	26		58	245,520	63,739		309,259
Pennsylvania.....	34	6		40	295,750	9,150		304,900
Rhode Island.....	2			2	7,000			7,000
South Carolina.....	1			1	6,500			6,500
South Dakota.....	6			6	287			287
Tennessee.....	1			1	50			50
Texas.....	110	85	2	197	906,859	194,340	5,155	1,106,299
Utah.....	2	3	1	6	7,500	1,300	200	9,000
Virginia.....	1			1	2,000			2,000
West Virginia.....	5	1		6	16,000	2,500		18,500
Wyoming.....	30	16		46	46,132	4,057		50,189
Total.....	435	196	7	638	3,614,749	443,751	13,900	4,072,400
Type of process:								
Skimming.....	271	170	7	448	1,080,254	397,376	13,900	1,491,530
Complete.....	79	3		82	1,821,650	10,000		1,831,650
Skimming and lube.....	24	6		30	304,400	5,600		310,000
Skimming and asphalt.....	33	1		34	303,400	1,200		304,600
Skimming, lube, and asphalt.....	1			1	20,000			20,000
Lube.....	6	4		10	2,870	13,140		16,010
Asphalt.....	11	4		15	44,200	3,300		47,500
Topping.....	10	8		18	37,975	13,135		51,110
Total.....	435	196	7	638	3,614,749	443,751	13,900	4,072,400

Summary of cracking capacity on June 1, 1925-26, and Jan. 1, 1928-35

Date	Charging capacity (barrels per day)			
	Operating	Shut-down	Building	Total
June 1, 1925.....	690,492	26,200	116,000	832,692
June 1, 1926.....	844,800	47,690	47,600	940,090
Jan. 1, 1928.....	1,013,000	253,000	22,000	1,288,000
Jan. 1, 1929.....	1,194,501	147,923	134,450	1,476,874
Jan. 1, 1930.....	1,419,200	139,840	149,900	1,708,940
Jan. 1, 1931.....	1,594,990	244,661	111,130	1,950,781
Jan. 1, 1932.....	1,603,809	394,585	48,587	2,046,981
Jan. 1, 1933.....	1,580,051	417,694	33,650	2,031,395
Jan. 1, 1934.....	1,712,629	377,735	59,300	2,149,664
Jan. 1, 1935.....	1,897,778	311,491	20,000	2,229,269

Cracking capacity on Jan. 1, 1935, by districts and States

District and State	Charging capacity (barrels per day)			
	Operating	Shut-down	Building	Total
District:				
East coast.....	443,372	93,285	-----	536,657
Appalachian.....	68,864	7,100	500	76,464
Indiana, Illinois, Kentucky, etc.....	282,774	38,106	8,000	328,880
Oklahoma, Kansas, and Missouri.....	219,370	43,950	-----	263,320
Texas inland.....	141,798	33,400	5,000	180,198
Texas Gulf coast.....	383,050	10,100	-----	393,150
Louisiana Gulf coast.....	48,000	30,000	-----	78,000
Arkansas and Louisiana inland.....	33,000	13,700	-----	46,700
Rocky Mountain.....	40,700	4,700	-----	45,400
California.....	236,850	37,150	6,500	280,500
Total.....	1,897,778	311,491	20,000	2,229,269
State:				
Arkansas.....	8,000	7,700	-----	15,700
California.....	236,850	37,150	6,500	280,500
Colorado.....	2,850	450	-----	3,300
Georgia.....	3,600	-----	-----	3,600
Illinois.....	80,324	10,506	8,000	98,830
Indiana.....	134,900	19,100	-----	154,000
Kansas.....	102,070	14,700	-----	116,770
Kentucky.....	12,800	-----	-----	12,800
Louisiana.....	73,000	36,000	-----	109,000
Maryland.....	56,572	3,000	-----	59,572
Massachusetts.....	28,500	10,800	-----	39,300
Michigan.....	7,400	-----	-----	7,400
Missouri.....	16,000	10,500	-----	26,500
Montana.....	4,800	1,000	-----	5,800
New Jersey.....	174,800	71,785	-----	246,585
New Mexico.....	500	-----	-----	500
New York.....	15,000	6,000	-----	21,000
Ohio.....	65,350	9,600	-----	74,950
Oklahoma.....	101,300	18,750	-----	120,050
Pennsylvania.....	193,750	7,700	500	201,950
Rhode Island.....	4,000	-----	-----	4,000
Texas.....	524,848	43,500	5,000	573,348
Utah.....	8,400	1,000	-----	9,400
West Virginia.....	18,014	-----	-----	18,014
Wyoming.....	24,150	2,250	-----	26,400
Total.....	1,897,778	311,491	20,000	2,229,269

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