

The Mineral Industry of Alabama

This chapter has been prepared under a Memorandum of Understanding between the Bureau of Mines, U.S. Department of the Interior, and the Geological Survey of Alabama for collecting information on all nonfuel minerals.

By James R. Boyle¹ and Thomas J. Joiner²

The value of Alabama's nonfuel mineral production in 1978 and 1979 was \$331.2 million and \$336.4 million, respectively. In 1978, nearly all commodities registered an increase in production and value; unit value increased for all commodities, with the exception of native asphalt and sand and gravel. Alabama led the Nation in the production of crushed marble and was second in bauxite, third in masonry cement, kaolin, native asphalt, and oyster shell, and fourth in bentonite, dimension marble, fire

clay, and scrap mica.

Trends and Developments.—The Alabama State Docks at the Port of Mobile handled more than 10 million tons of bulk material in fiscal year 1978; volume dropped slightly to 9.8 million tons in fiscal 1979. Bulk materials comprise the major activity at the facility, with iron ore and bauxite being two of the major materials handled. The movement of these ores is vital to the operation of many heavy industries in the State.

Table 1.—Nonfuel mineral production in Alabama¹

Mineral	1977		1978		1979	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Cement:						
Masonry... thousand short tons...	345	\$14,255	356	\$17,298	303	\$13,930
Portland..... do.....	2,351	79,302	2,837	108,972	2,578	103,187
Clays ² do.....	2,677	21,984	2,782	24,885	2,571	33,824
Gem stones..... do.....	—	—	NA	1	NA	2
Lime..... thousand short tons...	1,149	39,213	1,264	49,021	1,273	54,182
Sand and gravel..... do.....	14,372	35,204	15,294	35,692	13,747	31,319
Stone:						
Crushed..... do.....	25,248	72,649	26,572	82,767	26,443	83,566
Dimension..... do.....	14	1,715	13	1,739	12	2,071
Combined value of asphalt (native), bauxite, clays (bentonite), mica (crude), phosphate rock (1978-79), and salt.....	XX	6,086	XX	10,871	XX	14,286
Total.....	XX	270,358	XX	331,241	XX	336,367

NA Not available. XX Not applicable.

¹Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

²Excludes bentonite; value included with "Combined value" figure.

Table 2.—Value of nonfuel mineral production in Alabama, by county¹

County	1977	1978	Minerals produced in 1978 in order of value
Autauga	W	W	Sand and gravel.
Baldwin	W	W	Clays.
Barbour	W	W	Clays, bauxite, sand and gravel.
Bibb	W	W	Stone, clays.
Blount	W	W	Sand and gravel, cement, stone.
Calhoun	W	W	Stone, clays, sand and gravel.
Cherokee	\$101	W	Sand and gravel.
Chilton	W	W	Sand and gravel, clays.
Clarke	W	W	Sand and gravel.
Clay	4	\$4	Do.
Coffee	81	107	Do.
Colbert	W	W	Stone, native asphalt, sand and gravel.
Conecuh	W	W	Sand and gravel.
Covington	W	W	
Crenshaw	22	W	Sand and gravel.
Dale	215	W	Do.
Dallas	W	W	Sand and gravel, clays.
De Kalb	W	W	Stone.
Elmore	W	W	Sand and gravel, clays.
Escambia	W	857	Do.
Etowah	W	W	Stone, sand and gravel.
Fayette	184	184	Sand and gravel.
Franklin	W	W	Stone, sand and gravel.
Geneva	W	W	Sand and gravel.
Greene	W	W	Do.
Hale	270	233	Do.
Henry	W	W	Clays, bauxite, stone.
Houston	W	W	Sand and gravel.
Jackson	W	W	Stone.
Jefferson	W	W	Cement, stone, clays.
Lamar	W	W	Sand and gravel.
Lee	W	W	Stone.
Limestone	W	W	Phosphate rock.
Lowndes	W	W	Clays, sand and gravel.
Macon	2,207	3,682	Sand and gravel.
Madison	W	W	Stone, sand and gravel, clays.
Marengo	W	W	Cement, stone.
Marion	320	275	Sand and gravel, clays.
Marshall	W	W	Stone, sand and gravel, clays.
Mobile	22,882	W	Cement, sand and gravel, stone, clays.
Monroe	38	323	Sand and gravel.
Montgomery	W	W	Sand and gravel, clays.
Morgan	W	W	Stone.
Randolph	W	W	Stone, mica.
Russell	817	W	Sand and gravel, clays.
St. Clair	W	W	Cement, clays, stone, sand and gravel.
Shelby	W	W	Lime, cement, stone, clays.
Sumter	W	2,122	Clays, sand and gravel.
Talladega	W	W	Stone.
Tuscaloosa	989	913	Sand and gravel.
Walker	199	878	Clays.
Washington	W	W	Salt, stone, sand and gravel.
Undistributed ²	242,029	321,663	
Total	270,358	331,241	

W Withheld to avoid disclosing company proprietary data; included with "Undistributed."

¹The following counties are not listed because no nonfuel mineral production was reported: Bullock, Butler, Chambers, Choctaw, Cleburne, Coosa, Cullman, Lauderdale, Lawrence, Perry, Pickens, Pike, Tallapoosa, Wilcox, and Winston.

²Includes gem stones which cannot be assigned to specific counties and values indicated by symbol W.

Major imports through the State Docks facilities included bauxite (877,000 tons), iron ore (1.4 million tons), manganese (58,000 tons), ilmenite (21,000 tons), and rutile (9,000 tons). In addition to direct handling of raw materials, the general port tonnage through private facilities included 2.6 million tons, mostly iron ore.

A major phase of the modernization program at the State Docks was completed when a new 1,500-ton-per-hour unloader

was put into service in 1979. This ship unloader will be used to more efficiently transfer ores from ships to the recently renovated conveyor system to storage.

Recent foreign acquisitions in the minerals industry in Alabama include Citadel Cement's operations at Demopolis and Birmingham, now owned by Lafarge Ltd. (Canada), and National Cement Co., Inc.'s Ragland plant, now owned by Société des Ciments Vicat (France). In 1978, National

Cement Co., Inc.'s Ragland plant completed an expansion program which increased capacity from 360,000 tons to 1 million tons per year.

In 1979, Autlan Manganese Corp., subsidiary of Compania Autlan, S.A., of Mexico City, acquired the Aircro Alloys plant in Mobile. The plant will continue to produce ferroalloys for U.S. foundries and steelmaking firms. Manganese nodules, mined and refined in Mexico, are being shipped to Mobile. The first shipment of ore was received in 1979.

Republic Steel Corp. continued its 2-year, \$50 million expansion and upgrading project at its Gadsden plant. Some \$16 million in improvements to the firm's steel producing facility were completed in 1979. A sixth roll was added to the plant's finishing mill, and a massive maintenance job on one of the blast furnaces and upgrading of the slab reheating furnace were scheduled for completion. In 1978, raw steel production topped 1.3 million tons, up from 1.2 million tons in 1977.

U.S. Pipe & Foundry Co. completed a \$5 million expansion of its Bessemer pipe plant, which now is capable of production of pipe up to 54 inches in diameter. The company also installed a \$600,000 electric holding furnace at its Anniston facility. The new furnace will allow production of general castings in addition to its production of soil pipe, pressure fittings, and valve and hydrant parts.

The United States Steel Corp. received permission from the Alabama Air Pollution Control Commission to put its third bottom-blown oxygen (Q-BOP) steelmaking furnace into production. Installation of the final Q-BOP furnace, a new 5,000-ton-per-day blast furnace, and a 900,000-ton-per-year coke battery will complete the current renovation at the Fairfield works. The computer-controlled blast furnace will consume 3,000 tons of iron ore, 3,000 tons of coke, and 500 tons of limestone per day. During 1979, the company shut down its 140-inch plate mill at Fairfield for an indefinite period because of sagging demand and high operating costs.

Table 3.—Indicators of Alabama business activity

	1977	1978	1979 ^P	1978-79 percent change
Employment and labor force, annual average:				
Total civilian labor force..... thousands	1,533.0	1,587.0	1,624.0	+2.3
Unemployment..... do	114.0	101.0	116.0	+14.9
Employment (nonagricultural):				
Mining ¹ do	13.9	14.1	16.7	+13.4
Manufacturing..... do	354.3	368.9	374.6	+1.5
Contract construction..... do	75.9	78.8	75.4	-4.3
Transportation and public utilities..... do	65.0	69.8	71.9	+3.0
Wholesale and retail trade..... do	259.1	269.7	275.8	+2.3
Finance, insurance, real estate..... do	55.4	57.5	58.2	+1.2
Services..... do	179.3	191.8	198.2	+3.3
Government..... do	266.3	285.9	292.0	+2.1
Total nonagricultural employment ¹ do	1,269.2	1,336.5	1,362.8	+2.0
Personal income:				
Total..... millions	\$20,867	\$23,668	\$26,294	+11.1
Per capita..... do	\$5,654	\$6,325	\$6,976	+10.3
Construction activity:				
Number of private and public residential units authorized.....	23,562	² 20,953	17,498	-16.5
Value of nonresidential construction..... millions	\$325.6	\$379.3	\$454.0	+19.7
Value of State road contract awards..... do	\$192.0	NA	\$311.1	--
Shipments of portland and masonry cement to and within the State..... thousand short tons	1,537	1,639	1,386	-15.4
Nonfuel mineral production value:				
Total crude mineral value..... millions	\$270.4	\$331.2	\$336.4	+1.6
Value per capita, resident population..... do	\$73	\$89	\$89	--
Value per square mile..... do	\$5,239	\$6,418	\$6,518	+1.6

^PPreliminary. NA Not available.

¹Includes bituminous coal and oil and gas extraction.

²Series revised in 1978; data not comparable with those of prior years.

Sources: U.S. Department of Commerce, U.S. Department of Labor, Highway and Heavy Construction Magazine, and U.S. Bureau of Mines.

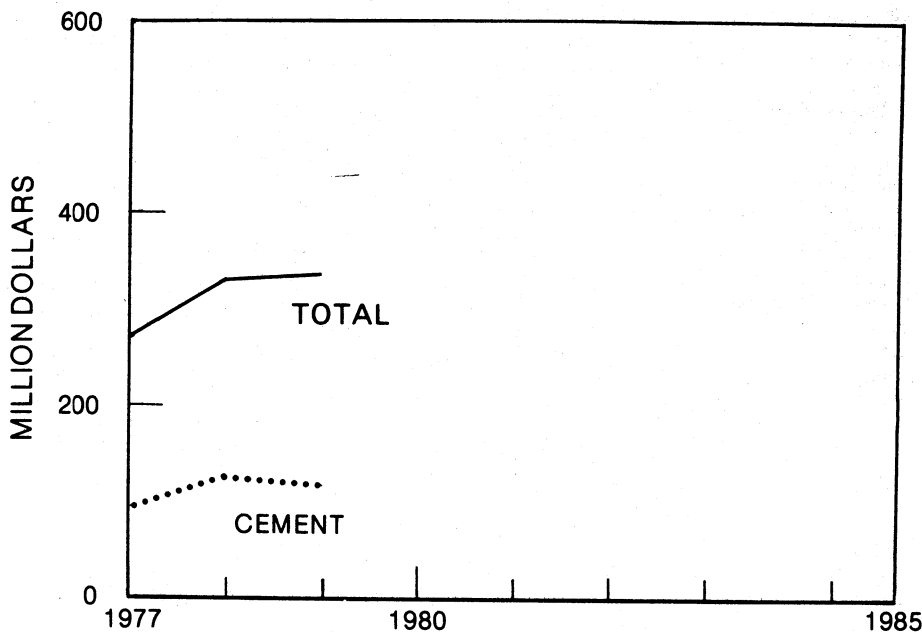


Figure 1.—Value of cement and total value of nonfuel mineral production in Alabama.

Legislation and Government Programs.—The Corps of Engineers issued a permit to the Aluminum Company of America (Alcoa) for expansion of a waste disposal area on Blakeley Island. The wastes are from Alcoa's alumina plant in Mobile, where alumina is produced from imported bauxite. The company will accept 10 million cubic yards of dredged material from Mobile Bay for top dressing on the disposal areas to convert them to wildlife management areas. Upon completion, these wildlife areas will be managed jointly by the State, the Mobile County Wildlife Federation, and the Mobile Bay Audubon Society.

The Federal Bureau of Mines contracted with Jim Walter Resources, Inc., Tuscaloosa County, in 1979 to conduct a methane control demonstration project. The objective of the project is to drain methane gas from a part of the Mary Lee coal seam by drilling long horizontal holes in advance of mining. This activity is part of the Bureau's continuing research work in the health and safety

area.

Due to increased enrollment, a separate Department of Mineral Engineering has been established in the College of Engineering at the University of Alabama. Under this reorganization, the former Department of Civil and Mineral Engineering has been separated into two units.

In 1978, the University of Alabama was designated by the Secretary of the Interior as a State Mining and Mineral Resources and Research Institute pursuant to Title III of Public Law 95-87. The institute established training programs and provided scholarships and fellowships in mining and minerals extraction.

The Mineral Resources Institute of the University of Alabama conducted research for industry and various governmental units on upgrading clays, iron ore availability, and solid waste utilization.

The Alabama Development Office (ADO), through its State Planning Division, was active in several areas related to the miner-

als industry. ADO administered geologic and minerals investigations conducted by the Geological Survey of Alabama to assist potential industrial developers.

The Geological Survey of Alabama conducted investigations and published various reports in cooperation with local, State, and Federal agencies. Mineral studies included an evaluation of mineral resources in Lamar, Pickens, Fayette, Tuscaloosa, and Bibb Counties for the Appalachian Regional Commission. The third-year effort of a 5-year cooperative program (related in part to mineral resources) with county and city governments in Jefferson County was also completed. In addition, the Survey provided assistance to the U.S. Soil Conservation

Service concerning mineral resources development in the Black Warrior River Basin and to the Alabama Surface Mining Reclamation Commission regarding proposed Federal strip mining regulations. The Survey investigated the geothermal-geopressure potential of the Gulf Coastal Plain with the University of Alabama, and assisted Auburn University in preparation of a report identifying the minerals of Alabama.

Project work started in the latter part of 1978 by the Survey included a review of geologic and hydrologic studies required by Federal and State strip mining regulations. In addition to numerous open file reports, 28 formal publications were issued.

REVIEW BY NONFUEL MINERAL COMMODITIES

NONMETALS

Nonmetals accounted for the bulk of the value of Alabama's total nonfuel mineral production.

Asphalt (Native).—Alabama ranked third in the Nation in production of native asphalt. Southern Stone Co. produced native asphalt at the Margerum quarry in Colbert County. Annual output declined 19% in 1978, but returned to the previous level in 1979.

Cement.—Cement accounted for more than one-third of the value of nonmetallic mineral production. Nationally, Alabama ranked third in the production of masonry cement and seventh in portland cement.

Portland cement was produced at seven plants in the State; three were located in Jefferson County, and one each in Marengo, Mobile, St. Clair, and Shelby Counties. Major end uses for portland cement were as follows: Ready-mix concrete, concrete products, building materials, and highway construction.

In 1978 and 1979, raw materials used in making cement totaled over 7 million tons of cement rock, limestone, clay, sand, shale, iron ore, oyster shell, and other materials.

Table 4.—Alabama: Portland cement salient statistics

	1978	1979
Number of active plants —	7	7
Production ————	2,954,787	2,681,824
Shipments from mills:		
Quantity ————	2,837,074	2,577,793
Value ————	\$108,972,171	\$103,186,956
Stocks at mills, Dec. 31 —	161,897	273,053

Table 5.—Alabama: Masonry cement salient statistics

	1978	1979
Number of active plants —	6	6
Production ————	354,772	307,802
Shipments from mills:		
Quantity ————	356,491	302,624
Value ————	\$17,293,261	\$13,923,963
Stocks at mills, Dec. 31 —	22,648	23,100

Ideal Basic Industries, Inc.'s new 1.5-million-ton-per-year dry process plant at Theodore is scheduled to be onstream in 1981. This plant, estimated to cost \$17.5 million in 1977 dollars, will eventually replace the present Mobile plant. Southern Industries Corp. will transport by barge approximately 3 million tons per year of limestone, sand, and clay from Ideal's new quarry in Monroe County to the new plant.

Clays.—In 1978 and 1979, Alabama's clay industry produced common clay, fire clay, kaolin, and bentonite. The State ranked third nationally in the production of kaolin and fourth in bentonite and fire clay. During 1978, 30 companies mined clay at 53 pits in 21 counties; 19 companies mined common clay at 28 pits; 5 companies mined fire clay at 6 pits; 5 companies mined kaolin in 17 pits; and 1 company mined bentonite at 2 pits. Of the 53 pits, 90% of the total production of clays came from 33 pits. In 1979, industry production and structure were comparable to those of the previous year.

National Gypsum Company plans an expansion of its American Olean Tile Company subsidiary with the construction of a new quarry tile plant in Fayette. The plant,

expected to be in operation in 1980, will increase American Olean's quarry tile production capacity about 45%. Original testing of the raw materials was done at the Federal Bureau of Mines' Tuscaloosa Research Center.

Lime.—Alabama ranked sixth nationally in the production of lime. Production came from four plants in Shelby County. Major uses are in basic oxygen steelmaking, paper manufacture, and water purification.

Table 6.—Alabama: Lime sold or used by producers, by use

Use	1977		1978		1979	
	Quantity (short tons)	Value (thousands)	Quantity (short tons)	Value (thousands)	Quantity (short tons)	Value (thousands)
Paper and pulp	431,200	\$14,691	329,224	\$12,843	351,042	\$14,946
Water purification	128,600	4,363	140,295	5,473	154,322	6,571
Mason's lime	W	W	26,093	1,018	19,506	788
Soil stabilization	W	W	37,536	1,357	14,836	632
Aluminum and bauxite	W	W	31,833	1,242	2	2
Sugar refining	7,275	248	6,158	240	4,401	187
Other uses ¹	582,400	19,891	693,100	26,848	728,443	31,053
Total ²	1,149,470	39,213	1,264,240	49,021	1,272,550	54,182

W Withheld to avoid disclosing company proprietary data; included with "Other uses."

¹Includes acid mine water; agriculture (1978-79); alkalies; calcium carbide; fertilizer (1978-79); food and food byproducts; insecticides (1978); metallurgy (1979); oil well drilling; ore concentration; other chemical uses; other construction lime; sewage treatment; steel, BOF; steel, electric; steel, open-hearth; tanning; wire drawing (1978); and uses indicated by symbol W.

²Data may not add to totals shown because of independent rounding.

Mica.—Alabama ranked fourth in the Nation in the production of scrap mica. Western Mica Co. produced scrap mica at its Heflin operation from material mined in Randolph County. The fine-ground mica is used as an additive in paints.

Phosphate Rock.—Monsanto Co. produced phosphate rock from the Gilbert pit in Limestone County. This is the first recorded production in Alabama since 1970. The phosphate rock was shipped to Tennessee for further processing.

Salt.—Alabama ranked ninth nationally in the production of salt. The Olin Corp. produced salt from well brines from a near-surface salt dome in Washington County for use in chemical manufacture. Both produc-

tion and value increased significantly in 1978.

Sand and Gravel.—In 1978 and 1979, sand and gravel was produced at over 100 operations in slightly more than half of the counties in the State. Of the sand and gravel produced, the majority was used for construction purposes, with minor amounts for industrial uses. The price of construction sand and gravel averaged less than half that of industrial sand and gravel. The major portion of sand and gravel was shipped by truck with lesser amounts transported by railroad and waterway. Leading counties were Montgomery, Mobile, Elmore, and Macon.

Table 7.—Alabama: Construction sand and gravel sold or used, by major use category

Use	1977			1978			1979		
	Quantity (thousand short tons)	Value (thous- sands)	Value per ton	Quantity (thousand short tons)	Value (thous- sands)	Value per ton	Quantity (thousand short tons)	Value (thous- sands)	Value per ton
Concrete aggregate	7,045	\$16,941	\$2.40	7,889	\$18,450	\$2.34	7,281	\$18,234	\$2.50
Plaster and gunite sands	NA	NA	NA	—	—	—	W	W	W
Concrete products	1,307	3,338	2.55	654	1,966	3.01	398	1,155	2.91
Asphaltic concrete	1,758	4,016	2.28	2,475	5,912	2.39	1,949	4,906	2.52
Roadbase and coverings	1,657	2,568	1.55	2,463	4,165	1.69	2,304	3,742	1.62
Fill	1,013	1,090	1.08	1,017	1,144	1.12	1,387	1,614	1.16
Snow and ice control	NA	NA	NA	—	—	—	W	W	W
Other uses	89	248	2.79	32	79	2.44	62	194	3.12
Total ¹ or average	12,869	28,201	2.19	14,531	31,716	2.18	13,451	29,944	2.23

NA Not available. W Withheld to avoid disclosing company proprietary data; included in "Total."

¹Data may not add to totals shown because of independent rounding.

Table 8.—Alabama: Sand and gravel sold or used by producers, by use

Use	1977			1978			1979		
	Quantity (thousand short tons)	Value (thou- sands)	Value per ton	Quantity (thousand short tons)	Value (thou- sands)	Value per ton	Quantity (thousand short tons)	Value (thou- sands)	Value per ton
Construction:									
Sand -----	6,584	\$12,781	\$1.94	8,625	\$17,184	\$1.99	7,419	\$13,115	\$1.77
Gravel -----	6,286	15,420	2.45	5,906	14,532	2.46	6,031	16,828	2.79
Total ¹ or average -----	12,869	28,201	2.19	14,531	31,716	2.18	13,451	29,944	2.23
Industrial:									
Sand -----	W	W	W	293	1,411	4.82	W	W	W
Gravel -----	W	W	W	470	2,585	5.46	W	W	W
Total or average -----	1,508	7,003	4.66	763	3,976	5.21	297	1,375	4.63
Grand total ¹ or average -----	14,372	35,204	2.45	15,294	35,692	2.33	13,747	31,319	2.28

W Withheld to avoid disclosing company proprietary data; included in "Total."

¹Data may not add to totals shown because of independent rounding.

Stone.—Stone ranked second in terms of mineral value in Alabama in both 1978 and 1979. Crushed stone in 1978 was produced at 47 operations in 20 counties. It was used in cement manufacture, in concrete, and as roadbase. Shelby and Jefferson Counties were the leading producing counties. Ten quarries each produced in excess of 900,000 tons per year and accounted for nearly 44% of all crushed stone. Four companies pro-

duced dimension stone for cut stone, rough blocks, sawed stone, and other uses. Shipments were mainly by truck, with a minor portion of total shipments by rail or waterway.

Nationally, Alabama led in output of crushed marble, ranked third in production of oyster shell, and was fourth in dimension marble.

Table 9.—Alabama: Crushed stone¹ sold or used by producers, by use

(Thousand short tons and thousand dollars)

Use	1977		1978		1979	
	Quantity	Value	Quantity	Value	Quantity	Value
Agricultural limestone -----	1,595	4,818	1,411	5,330	1,873	5,942
Concrete aggregate -----	2,704	26,336	2,784	7,447	3,646	9,247
Bituminous aggregate -----	2,603	6,379	2,851	7,166	2,618	7,855
Dense-graded roadbase stone -----	3,319	7,781	2,340	5,968	1,934	4,432
Surface treatment aggregate -----	274	520	377	922	131	273
Other construction aggregate and roadstone -----	5,065	9,531	4,907	11,131	3,495	9,938
Riprap and jetty stone -----	402	1,036	644	1,927	924	2,855
Railroad ballast -----	108	232	W	W	189	517
Manufactured fine aggregate (stone sand) -----	W	W	463	1,166	243	706
Cement -----	4,475	9,564	5,347	10,854	5,140	11,502
Lime -----	1,813	8,314	1,931	9,366	2,848	10,415
Dead-burned dolomite -----	W	W	W	W	193	W
Flux stone -----	1,577	3,809	1,677	4,014	1,943	5,462
Whiting or whiting substitute -----	W	W	W	W	276	2,567
Other fillers or extenders -----	545	7,971	481	7,905	W	W
Other uses ³ -----	767	6,356	1,360	9,571	987	11,855
Total ⁴ -----	25,248	72,649	26,572	82,767	26,443	83,566

W Withheld to avoid disclosing company proprietary data; included with "Other uses."

¹Includes limestone, marble, sandstone (1979), and shell.

²Includes manufactured fine aggregate (stone sand).

³Includes stone used for agricultural marl and other soil conditioners (1978-79), poultry grit and mineral food, macadam aggregate, filter stone, terrazzo and exposed aggregate, abrasives (1979), mine dusting, asphalt filler (1977-78), refractory stone (1977), porcelain (1978-79), roofing granules (1978-79), sulfur removal from stack gases (1979), unspecified uses, and uses indicated by symbol W.

⁴Data may not add to totals shown because of independent rounding.

Sulfur.—Alabama ranked fourth nationally in output of recovered sulfur. Four companies recovered sulfur from five sour-

crude-oil processing plants in Escambia, Tuscaloosa, and Washington Counties. Exxon Co., Hunt Oil Co., Mallard Exploration,

Inc., and Phillips Petroleum sold 404,281 metric tons in 1978, valued at \$18.4 million. In 1979, sales dropped to 374,526 metric tons, but value increased to \$20.3 million.

METALS

Primary metal production was among the most important industries in the State. According to a Bureau of the Census survey issued in 1979, metal production accounted for 41,800 jobs and contributed \$688 million to the State's economy. The four most important counties were Jefferson, Mobile, Madison, and Etowah.

Aluminum.—Alabama ranked fifth nationally in the production of primary aluminum. Primary aluminum was produced by Revere Copper and Brass, Inc., and Reynolds Metals Co., from alumina shipped in from Texas and Arkansas.

Revere Copper and Brass, Inc., Scottsboro, increased its aluminum potline capacity in 1978 from 109,000 to 117,000 short tons, with further increases anticipated. The company rebuilt and enlarged the capacities of four ingot heating furnaces for processing rolling ingot and installed a new pusher furnace.

Reynolds Metals Co. was constructing a \$5 million plant in Sheffield to process automobile shredder residues. Reynolds expects to recover 5,000 tons of aluminum the first year. Expected completion date of the plant is June 1980.

Aluminum Company of America, Mobile, which produces alumina from imported bauxite, will spend \$60 million to modernize its alumina plant. The plant's capacity will

be expanded by 70,000 tons per year above the present 900,000-ton-per-year capability. Major expansion will be in the chemical products section. Three of the four existing digester units will be replaced and a new drying system constructed. The chemical plant produces alumina trihydrate, which is used in the manufacture of water treatment chemicals and as a flame retardant.

Bauxite.—Alabama ranked second in the Nation in bauxite production. Six companies mined bauxite in Barbour and Henry Counties for use in refractories and chemical manufacture.

Iron and Steel.—Alabama ranked seventh in the Nation in the production of pig iron. In 1978, production increased 8.0% over that of the previous year to nearly 3.5 million short tons and was valued at \$679.5 million; 1979 production was 3.7 million short tons, valued at \$738.4 million. U.S. Steel Corp., Fairfield, and Republic Steel Corp., Gadsen, were the major producers.

Rutile (Synthetic).—Kerr-McGee Corp. will reopen its 100,000-ton-per-year synthetic rutile plant in Mobile in early 1980, after a 2-year shutdown. The facility opened in mid-1977 and closed in March 1978 because of poor market conditions and the need for better product and environmental control. Ilmenite imported from Australia is processed into synthetic rutile, which is used as a pigment in paint.

¹State mineral specialist, Bureau of Mines, Tuscaloosa, Ala.

²State geologist, Geological Survey of Alabama, Tuscaloosa, Ala.

Table 10.—Principal producers

Commodity and company	Address	Type of activity	County
Alumina:			
Aluminum Company of America	1501 Alcoa Bldg. Pittsburgh, PA 15219	Plant -----	Mobile.
Aluminum smelters:			
Revere Copper & Brass Inc -----	Box 191 Rome, NY 13440	-----do -----	Jackson.
Reynolds Metals Co -----	Reynolds Metals Bldg. Richmond, VA 23218	-----do -----	Colbert.
Bauxite:			
Eufaula Minerals Co -----	Box 556 Eufaula, AL 36027	Mine and plant --	Barbour.
Harbison-Walker Refractories Co., Inc., a division of Dresser Industries, Inc.	Dale Rd. Route 1, Box 58 Eufaula, AL 36027	-----do -----	Do.
United States Gypsum Co. ¹ -----	Mexico, MO 65265 -----	-----do -----	Do.
Wilson-Snead Mining Co -----	Box 568 Eufaula, AL 36027	-----do -----	Barbour and Henry.
Cement:			
Alpha Portland Industries, Inc. --	15 South 3d St. Easton, PA 18042	Plant -----	Jefferson.
Citadel Cement Corp -----	2625 Cumberland Pkwy., NW. Atlanta, GA 30339	-----do -----	Jefferson and Marengo.

See footnotes at end of table.

Table 10.—Principal producers —Continued

Commodity and company	Address	Type of activity	County
Cement —Continued			
Ideal Basic Industries, Inc. ² -----	821 17th St. Denver, CO 80202	Plant -----	Mobile.
Martin Marietta Corp. ³ -----	6901 Rockledge Dr. Bethesda, MD 20084	-----do-----	Shelby.
National Cement Co. Inc -----	Drawer A Ragland, AL 35131	-----do-----	St. Clair.
U.S. Steel Corp -----	Box 599 Fairfield, AL 35064	-----do-----	Jefferson.
Clays:			
American Colloid Co -----	5100 Suffield Court Skokie, IL 60076	Mine -----	Loudes.
Bickerstaff Clay Products Co., Inc	Box 517 Besemer, AL 35020	-----do-----	Jefferson and Russell.
Drummond Coal Co -----	Route 1, Box 207 Cordova, AL 35550	-----do-----	Walker.
Tombigbee Lightweight Aggregate Corp., a division of Breeko Industries, Inc.	Box V Livingston, AL 35470	-----do-----	Sumter.
Ferroalloys:			
Airco Alloys and Carbide -----	Box 2703 Mobile, AL 36601	Plant -----	Mobile.
Alabama Metallurgical Corp -----	Box 348 Selma, AL 36701	-----do-----	Dallas.
Tennessee Alloys Corp -----	818 National Bank Bldg. Chattanooga, TN 37402	-----do-----	Jackson.
Tennessee Valley Authority Union Carbide Corp -----	Muscle Shoals, AL 35660 Box 176 Marietta, OH 45750	Plants -----	Colbert. Colbert and Jefferson.
Woodward Co -----	Woodward, AL 35189	Plant -----	Jefferson.
Lime:			
Allied Products Co -----	Drawer 1 Montevallo, AL 35115	-----do-----	Shelby.
Cheney Lime & Cement Co. ⁴ -----	Allgood, AL 35013	-----do-----	Do.
Martin Marietta Corp. ⁵ -----	Box 182 Calera, AL 35040	-----do-----	Do.
S. I. Lime Co -----	500 Southland Dr. Birmingham, AL 35226	-----do-----	Do.
Pig iron:			
Republic Steel Corp -----	1629 Republic Bldg. Cleveland, OH 44115	Furnaces and mills.	Etowah and Jefferson.
U.S. Pipe and Foundry Co -----	3300 1st Ave., North Birmingham, AL 35202	Furnaces -----	Jefferson.
United States Steel Corp. ⁵ -----	Box 599 Fairfield, AL 35064	Furnaces and mills.	Do.
Salt:			
Olin Corp -----	120 Long Ridge Rd. Stanford, CT 06904	Brine wells -----	Washington.
Sand and gravel:			
Dallas Sand & Gravel Co -----	Box 892 Selma, AL 36701	Surface mine and plant.	Autauga.
Dixie Sand & Gravel -----	Box 1128 Montgomery, AL 36102	Dredge and plant.	Montgomery.
Holland and Woodward Co., Inc -----	Box 1947 Decatur, AL 35601	Surface mine and plant.	Franklin.
Waugh Sand & Gravel, Inc -----	Box 3547 Montgomery, AL 36109	-----do-----	Elmore, Macon, Montgomery.
Stone:			
Southern Stone Co., Inc. ⁶ -----	2111 8th Ave., South Birmingham, AL 35233	Quarries -----	Bibb, Colbert, Lee, Shelby, Morgan.
Trinity Stone Co., Inc -----	Drawer E Decatur, AL 35601	Quarry -----	Morgan.
Vulcan Materials Co. ⁷ -----	Box 7324-A Birmingham, AL 35223	Quarries -----	Calhoun, Colbert, Etowah, Franklin, Jackson, Madison, Shelby, Jefferson.
Wade Sand and Gravel Co., Inc -----	Box 39048 Birmingham, AL 35208	Quarry -----	Jefferson.
Talc:			
American Talc Co., Inc -----	Alpine, AL 35014	Plant -----	Talladega.

¹ Also clays and scrap mica.

² Also clays.

³ Also lime, stone, clays.

⁴ Also cement.

⁵ Also cement, coal, coke, stone.

⁶ Also sand and gravel.

⁷ Also clays and sand and gravel.

