

primarily to greater concrete and road-outputs of crushed lt in Marin County. d dressed) produced eased substantially. granite, and basalt 1955 figures despite n.

y counties

	Short tons	Value
-----	1, 188, 900	\$1, 858, 118
-----	4, 705, 587	7, 091, 552
-----	400, 753	1, 347, 940
-----	849, 042	433, 663
-----	2, 680, 419	2, 510, 993
-----	4, 329, 640	4, 654, 761
-----	946, 933	1, 602, 750
-----	114, 147	98, 014
-----	109, 880	109, 880
-----	295, 800	406, 781
-----	10, 725	32, 175
-----	8, 282	13, 632
-----	46, 793	70, 027
-----	779, 810	1, 474, 883
-----	25, 662	217, 877
-----	38, 675	68, 321
-----	4, 275, 788	5, 993, 173
-----	32, 583, 370	46, 108, 652

nge, Placer, San Luis Obispo,
ny confidential data.

2-56, by kinds

cks	Marble	
	Short tons	Value
972	7, 168	\$137, 664
346	()	()
035	()	()
821	()	()
318	()	()
Total		
ue	Short tons	Value
349	14, 374, 930	\$17, 697, 085
511	14, 505, 088	18, 694, 351
049	23, 303, 756	37, 541, 114
343	24, 708, 321	37, 164, 384
060	32, 583, 370	46, 108, 652

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and lime.

Sandstone production also remained virtually unchanged, although its utilization varied considerably, inasmuch as the gain in demand for sandstone as riprap was offset by lower requirements for use as ganister, concrete, and roadstone. Of special interest were the large tonnages of crushed miscellaneous stone used at the Monticello Dam in Napa County and in the Beardsley Project in Tuolumne County.

Strontium Minerals.—Production of celestite was reported from two counties. An important tonnage of the mineral from San Bernardino County was shipped to southern Nevada and used in concentrating certain manganese ores. A few tons produced in San Diego County was shipped to a chemical plant in Los Angeles and converted to strontium carbonate for reagent use.

Sulfur.—Sulfur-ore production in 1956 was limited to the Leviathan open pit of The Anaconda Co. in Alpine County. The output of this mine, although slightly less than in 1955, conformed to company requirements for sulfuric acid used at its copper-leaching plant in Lyon County, Nev. The average grade of the ore mined and shipped was about 30 percent sulfur.

During the year elemental sulfur was recovered as a byproduct from hydrogen sulfide gas obtained in petroleum refining. In Los Angeles County Hancock Chemical Co., Union Oil Co. of California, and Wilshire Oil Co. of California produced sulfur at their plants in Watson, Wilmington, and Norwalk, respectively. The Union Oil Co. also recovered elemental sulfur from hydrogen sulfide gas at its refineries in Contra Costa and San Luis Obispo Counties. Approximately 80 percent of the sulfur produced was utilized in manufacturing sulfuric acid. A base-metal smelter in Contra Costa County produced liquid sulfur dioxide and sulfuric acid as byproducts in roasting sulfide ores. Production was shipped to chemical companies in the bay area.

Talc, Soapstone, and Pyrophyllite.—The 1956 output of these minerals in California dropped nearly 8 percent below 1955. The decline was not general, based on use, in that the tonnages used in ceramics and for asphalt filler were appreciably above those in the preceding year. The most noticeable declines were in the use of talc and soapstone for filler in paint, paper, and rubber. The drop in the quantity used as a carrier in insecticides was due to substitution of such materials as diatomite and pumicite. Most of the State's 1956 talc production was mined at deposits in Inyo and San Bernardino Counties. All of the soapstone output was obtained from mines in El Dorado and Los Angeles Counties, and the entire 1956 yield of pyrophyllite came from producers in Mono, San Bernardino, and San Diego Counties. Several major producers operated grinding plants in counties other than those where the raw materials were produced. Some grinders of these materials processed the crude minerals obtained from company-owned deposits outside the State. Other processors of talc and soapstone purchased the California-produced crude minerals and received shipments from out-of-State producers as well. The tonnage of talc, soapstone, and pyrophyllite ground (or otherwise processed) by California plants in 1956 was nearly 14 percent below 1955.

Vermiculite.—No crude vermiculite was mined in California. One company in Orange County operated an exfoliation plant on the

recovered as a byproduct. Philadelphia Quartz Co. of California at Berkeley used California magnesite and Nevada brucite in manufacturing hydrous magnesium sulfate (epsom salt).

Gallagher & Burk, Inc., crushed basalt at the Leona Quarry in Oakland for concrete aggregate and fill. Miscellaneous stone was produced for fill by Goddard Bros. near Hayward, Niles Quarry Co. at Niles, San Leandro Rock Co. at San Leandro, and the California Division of Highways. Sandstone was quarried and crushed by Independent Construction Co. in Oakland for use in road construction. Miscellaneous clay was produced at Niles by California Pottery Co. for building materials and refractory use and by Interlocking Roof Tile Co. and Kraftile Co. for building materials. Bell's Sand & Gravel Co. at Irvington was the major clay producer in the county, supplying a Santa Clara County brick plant.

Crude barite from Nevada deposits was ground for well-drilling mud, paint filler, and chemicals by Chemical & Pigment Co., in Oakland; Industrial Minerals & Chemical Co., in Berkeley; Westvaco Mineral Products Co., in Newark; and Yuba Milling Division, Metals Disintegrating Co., in Emeryville. Industrial Minerals & Chemical Co. operated its grinding plant on a custom basis and ground chromite, clays, feldspar, fullers earth, pinite, soapstone, and volcanic ash, all produced outside the county. Pabco Products, Inc., calcined company-produced Nevada gypsum at its Newark wall-board plant and operated an asphalt plant at Emeryville. Also at Emeryville, C. K. Williams Co. manufactured natural and synthetic iron oxide pigments from material produced outside the State, and Judson Steel Corp. operated open-hearth steel furnaces. Pacific State Steel Corp. operated 3 open-hearth steel furnaces at Niles, with an annual capacity of 216,000 tons.

Alpine.—Production of the only sulfur ore mined in California by The Anaconda Co., from its *Leviathan mine* near Markleville, continued high in 1956. Sulfur-ore shipments made up about one-fourth of California's total production of elemental and contained sulfur during the year. The ore was trucked to the company plant at Weed Heights near Yerington, Nev., where it was manufactured into sulfuric acid for leaching copper oxide ore.

A small tonnage of tungsten concentrate was shipped from four mines in the *Hope Valley* district near Woodfords, and about one-half of Alpine County's total output of tungsten concentrate was produced by C. B. Lovestedt from ores of the Alpine and Alturas mines. Clyde Morrison shipped tungsten ore from the Valpine mine to the newly activated mill of the Metallurgical Development Co. east of Gardnerville, Nev.

The California Division of Highways contracted for paving sand and gravel produced at various sites in the county.

Amador.—Fire-clay production, valued at \$765,000 in 1956, continued to lead Amador County's mineral output. Gladding, McBean & Co., Ione Clay & Sand Corp., Pacific Clay Products, and Western Refractories Co., all in the Ione area, sold or used most of their output for refractories and heavy clay products. Owens-Illinois Glass Co. produced glass sand near Ione, in conjunction with Gladding, McBean & Co., which utilized clay separated at the same plant. Sierra Sand-Gravel Co. prepared gravel near Sutter Creek for paving. Gravel for

paving was also produced by the Department.

The output of stone was less than in 1955, due primarily to the roofing granules by Lignite Co. mined in the Montan-wax content.

Fitzgerald, Smith & Co. mined gold, silver, and copper in the *Belt* district near Placerville in El Dorado County. Placerville in El Dorado County's placer gold dragline operations near Plymouth and near Volcano. Alameda County bench gravel at the same place and shipped a small amount to the United States Mine.

The Fresno Gem & Milling Co. in the county's placer gold dragline operations near Plymouth and near Volcano. Alameda County bench gravel at the same place and shipped a small amount to the United States Mine.

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