

**Sulfur.**—Five plants in California recovered elemental sulfur as a byproduct of petroleum refining. Three of the plants were in Los Angeles County: Collier Carbon & Chemical Corp. near Wilmington and Wilshire Oil Co. of California at Santa Fe Springs, both using the modified Claus process, and Hancock Chemical Co. at Long Beach, using the Simon-Carves process. Union Oil Co. of California also used the modified Claus process in recovering sulfur at plants in Rodeo, Contra Costa County, and Arroyo Grande, Santa Barbara County. Production of elemental sulfur from all sources (includes production of brimstone recovered as a byproduct in the liquid purification of gas and the sulfur in the form of native ore) declined 25 percent from that of 1961, the tonnage shipped was up 1 percent and the corresponding value down 7 percent.

Sulfur ores used in the manufacture of sulfuric acid at Yerington, Nevada, were exhausted by the mining of the last 150,000 tons from the **Leviathan sulfur mine**, Alpine County, and the property was sold. Sulfur ores were mined at the Crater Sulphur deposit, Inyo County, and the S Bar S mine, Lake County, for use in soil treatment. The Sulphur Bank mine, Lake County, was idle throughout 1962. The quantity and value of all sulfur ore shipments declined 16 percent from 1961 figures.

**Talc, Soapstone, and Pyrophyllite.**—Output of these minerals declined 27 percent in quantity and 12 percent in value, and sales to consumers dropped markedly from 1961. Stockpile withdrawals were made during the year as shipments to grinders exceeded production. Talc was shipped from 12 mines each in Inyo and San Bernardino Counties, soapstone from 2 properties in Amador County and 1 each in El Dorado and Los Angeles Counties, and pyrophyllite from 1 deposit in Mono County and 3 in San Diego County. The ceramic industry consumed 48 percent of the total used, paints 22 percent, insecticides 10 percent, rubber 3 percent, and polishing, textiles, and toiletries, the balance. Talc was the only one of the three minerals exported.

**Vermiculite.**—Crude vermiculite imported from Africa was exfoliated in an Orange County plant by Lahabralite Co., and California Zonolite Co. operated exfoliation plants in Los Angeles and Sacramento Counties on crude vermiculite received from its Montana mines. Plant products were used for thermal and acoustical insulation, as plaster and concrete aggregate, and in soil-conditioning products. The quantity sold for construction uses was three times that in 1961, although the value of sales was slightly lower.

**Water.**—Pacific Gas and Electric Co. announced in December that a second 12,500-kilowatt geothermal unit was nearing completion at its Geysers power plant, Sonoma County, and was expected to be in operation by June 1963.

During 1962, 16 wells were drilled in the State in search of steam sources for geothermal power. Magma Power Co. and associated companies drilled 13 wells: 5 in Mono County, 1 in Lassen County, 3 in Modoc County, and 1 in Inyo County. Two wells were drilled in Imperial County, one by O'Neill Geothermal, Inc., and one by Western Geothermal, Inc. Geyser Steam Co. drilled a well in the Terminal Geyser area, Plumas County. Although the drilling activity was widespread, the centers of interest appeared to be around the

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In October, anterior, announced California cating in the ley, Calif., plants; Aero mechanism Burns & Ro partment of Diego, California influence of and perform of California Francisco, fresh water operations; analysis of face for use Office of Sa of the Lom 1.4 million;

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plants were to be completed in 1963; both will use the chloride process and will use rutile imported from Australia as the raw material.

## REVIEW BY COUNTIES

**Alameda.**—Nearly 8.3 million tons of sand and gravel was used in constructing residential and commercial buildings or in freeways of the Oakland, San Leandro, and Fremont areas. Over 8 million tons of the output was prepared by washing, screening, or crushing. Many of the freeway projects included construction of motor vehicle and pedestrian interchanges and retaining walls. The principal sand and gravel sources were alluvial and stream deposits near Pleasanton, Fremont, and Livermore. The demand for stone as road base was lower than in 1961 and the output dropped to 1.5 million tons. Several stone quarries were closed during 1962. Commercial producers of basalt and miscellaneous stone in the Oakland-Hayward-San Leandro-Fremont areas sold larger tonnages of crushed stone in 1962, chiefly for use in paving streets and parking lots and building shopping centers.

Holly Sugar Corp., Alvarado, calcined purchased limestone and produced carbon dioxide gas and lime for its own needs. At its Newark plant, Inorganic Chemicals Divisions, FMC Corp., used dolomite from its San Benito County quarry to produce lime for its own needs and extracted magnesia and bromine from saltworks bitterns purchased from Leslie Salt Co. Synthetic gypsum was a byproduct of the latter operation. FMC also utilized sodium carbonate from Wyoming and phosphate rock from Idaho in producing a variety of phosphate compounds, including phosphoric acid. Fibreboard Paper Products Corp. calcined crude gypsum shipped from its mine in Nevada and produced wallboard at Newark. Crude salt was harvested from several thousand acres of evaporating ponds by Leslie Salt Co. and processed in four company plants in Alameda County. Leslie supplied the nearby Morton Salt Co. plant with crude salt. Miscellaneous clay was mined by E. H. Metcalf at Livermore and sold for use in making brick. Interlocking Roof & Tile Co. and Kraft-tile Co. mined clays near Niles that were used in roofing products and ceramic tile. Fibreboard purchased magnesia for its Emeryville insulation plant and Philadelphia Quartz Co. produced hydrous magnesium sulfate in Berkeley, from magnesite and brucite purchased in Nevada. In Oakland, Chemical & Pigment Co. custom-ground a small tonnage of nonmetallic minerals, and at Emeryville the Anchor Minerals Division, C. K. Williams Co., produced natural and synthetic iron oxide pigments and ground clays and barite for special purposes.

Iron and steel scrap was the metal source for open hearth steel furnaces operated by Judson Steel Corp. in Emeryville and Pacific States Steel Corp. in Union City.

**Alpine.**—Virtually all the sulfur ore mined in California during 1962 came from the Leviathan mine near Markleeville. The Anaconda Company, owner and operator, reported the mine had been exhausted of sulfur ore of a grade suitable for company use and that the property had been sold to W. C. Mann of Woodfords, Calif.