

and produce, in the aggregate, a large amount of bulion annually.

CHEMICALS.—The large amount of precious metals refined, combined with the difficulties attending the importation of the various chemicals used, and high freight on extra hazardous material, caused the erection of the San Francisco Chemical Works, for the manufacture of acids, at an early day. From these works the principal gold and silver refineries, and the United States Branch Mint, received their supplies of acid up to the commencement of the present year, when the Golden City Chemical Works went into operation and competed for the trade. The San Francisco Chemical Works, during the year 1866, employed six men, used 250 tons nitrate of soda, (imported from Iquiqui, Peru) 200 tons sulphur, and made 400 tons sulphuric and nitric acids, the capacity of the works being equal to the manufacture of 900 tons acids per annum. The Golden City Chemical Works are of very large capacity, but have not as yet been worked to their full extent.

The Pacific Chemical Works commenced operations within the last year on Sixteenth Street, between Folsom and Harrison Streets. They have furnaces, evaporating baths and chemical apparatus complete for the manufacture of drugs, medicines, etc., to meet the demands of the druggists, physicians and commercial community. The laboratory is one of the most complete on the Pacific coast, and the proprietors, Messrs. Falkenau & Hanks, have found such extensive patronage as to necessitate a large increase of their manufacturing facilities, to meet the wants of the trade.

Crane & Brigham, extensive dealers in drugs, have during the past year established chemical works at Hunter's Point, near South San Francisco. At present they confine their attention to manufacturing sulphate of copper, (blue vitriol) of which some 500 tons are used annually by our farmers for preserving their wheat crop from smut. The quality of the sulphate of copper made by this firm is unexceptionable, it being made from low grade copper ores, of great strength, and free from metallic and other adulterations, which are quite common in the imported article. Kellogg, Hewston & Co., the predecessors of the Golden City Chemical Works, also made sulphate of copper at their refining works during the past year, they then marketing 120 tons of excellent quality.

OIL WORKS.—The only oil refining works in the State are the Phoenix Oil Works, located on Front Street near Jackson, and owned by C. H. Harrison. The oils used are sperm and whale, of which 60,000 gallons were refined in 1866. The capacity of the works is equal to 400 gallons per day, and employs three men constantly.

GLASS CUTTING.—The only glass cutting works in this city are those of John Mallon & Co., located on Beale near Market Streets. All kinds of glass cutting are done in the best style of the art. The works employ two men besides the proprietors, and manufactured \$6,000 worth in 1866.

SAW TEETH.—Patent saw teeth manufactory of N. W. Spaulding, on Pine Street. These teeth, used in circular saws, are a California invention, and have a very high reputation among the millmen along the Pacific coast. They are now in use at different mills from Central America to British Columbia. During 1866, there were employed 9 men, using 12 tons of steel, and turning out work valued at \$12,500.

SAWS.—The only manufactory for saws on the Pacific coast was established in this city in September, 1866. The works are located on Pine Street, and are owned by the Pacific Saw Manufacturing Co. All kinds of saws are made from plate-steel, which is imported from Great Britain in sheets and

discs, the same as is the case in the Atlantic States. It is expected that in a few years the new process for manufacturing steel will be introduced by the Pacific Rolling Mills, now in course of construction, in which case sheet steel of domestic production will take the place of the imported article in saw making. In the Pacific Saw Works, all the processes of cutting, tempering, hammering, and polishing are gone through with in regular order; the work produced being fully equal in quality to the best imported. The improved furnace for tempering long saws, by which a great saving of labor is effected, originated in this establishment. The works employed 8 men and 1 boy during 1866; were run by steam power, and turned out manufactures valued at \$3,059.47. Like many other branches of industry lately introduced, the establishment of these works has given value to old or damaged work, as the material which in many cases can be worked over was hitherto comparatively worthless.

GLUE AND NEATSFOOT OIL.—The only glue and neatsfoot oil works on the coast are those of G. S. Dana, located near the Lagoon in this city. During 1866 they turned out 33,997 pounds first quality glue, and 5007 gallons neatsfoot oil, employing ten persons. The most of the glue and a large proportion of the oil is shipped to the Atlantic States for a market. The works have a capacity to manufacture daily about ten barrels glue, and two hundred gallons neatsfoot oil.

MIRRORS.—The process of silvering glass was first commenced in San Francisco in 1863, by Messrs. Cameron, Whittier & Co. Their works (the only ones on the Pacific coast) are located at the corner of Front and Pine Streets, where the largest mirrors are made on French plate glass. The value of this branch is very great, as the sea air on voyages from the Atlantic States and Europe to this port injures the lustre of mirrors, in most cases, and often destroys them. This damage was of so extensive a nature as to make the importing of mirrors both hazardous and expensive, while there were no means of renewing those damaged or of re-silvering old plates that had been in use. The works commenced in 1863, with one silvering table and one workman, but the process produced such superior mirrors to those imported that it has gradually usurped the market to the exclusion of importations, so that three silvering tables and four workmen are constantly employed, who turned out new work to the value of about \$18,000 in 1866. The tables, etc., are of the best patterns used, and the firm have manufactured mirrors 110 inches by 144 inches, which are the largest to be found in this State. The materials used, with exception of the quicksilver, are all imported, the glass used coming from France and Germany, (mostly from the former country) and the tin foil from Great Britain.

PIANO FORTES.—There is but one manufactory for pianos on the Pacific coast. This is located on Ninth Street, between Folsom and Howard Streets, and is owned by Jacob Zech. There are, however, quite a number of establishments where pianos can be repaired, one or more which have in previous years made instruments which have been exhibited at the various Fairs of the Mechanics' Institute in this city, and compared well, both in tone and finish, with the best imported. The cheapness of labor and materials in the Atlantic States and Europe has had an injurious effect on this branch of home industry, so that at the present time Jacob Zech (who was the pioneer maker) is the only firm manufacturing pianos. The pianos made by Mr. Zech have a high reputation among professional musicians, two grand pianos made by him a few years since having been pronounced by competent judges as being equal, if not superior, to those of other makers then in California. During 1866 Mr. Zech employed two workmen, and