



Limestone

By Henry G. Hubbard

Pacific Limestone Products Company

Home office, plant and quarry at Santa Cruz. Officers: Fred W. Johnson, president; D. L. Martin, vice president; M. M. Johnson, secretary. This company was organized in 1922 and took over the old Caplatzi quarry which had been operated on a small scale by former owners for many years. Since this 12½-acre property was taken over by the Pacific Limestone Products Company, the number of the raw limestone products prepared for specific purposes has been greatly increased, and they are now being sold under the trade name Kalkar for terrazo, stucco dash, chicken grit, roofing grit, commercial filler, mortar sand, cattle calcium, poultry calcium, fertilizer, macadam, and other ruses. By the installation of additional equipment at the plant and sales promotion work carried on among prospective users of raw limestone products, the company has succeeded in quadrupling the output of the quarry in the past 20 years. In 1922 production was about 125 tons per month as compared to the present average of 1200 tons per month. Complex mineral mixes for livestock and cattle now form the principal product. Of the many different salts and other minerals blended with the limestone in the latter products, only the iodine comes from California. However, the quarry itself has produced occasional rich specimens of metallic minerals, such as a seam or kidney of arsenopyrite in a calcite gangue.

The property now comprises 49½ acres, having added the adjoining 12-acre parcel, as yet unopened, on the north and having also acquired 23 acres adjoining on the south. This latter parcel was formerly known as the Miller quarry and previously as the Thurber quarry.

Miller Quarry

The Miller Quarry was described by Laizure¹⁷ as having rock which varies from a coarsely crystalline white or bluish-white limestone to a finer-grained hard siliceous limerock. The small crushing plant then producing stone for macadam and concrete work has since been removed and the quarry has lain idle for the past 10 years or longer.

The working quarry and plant are located at the end of Spring Street, Santa Cruz, 2 miles northwest of the Southern Pacific depot, at an elevation of 250 feet. The deposit is a limestone rock, medium hard with very fine to very coarse crystals. The rock is shattered and broken in large masses and is bluish-white in color. The average face is 80 feet high; overburden consists of 2 to 8 feet of soil and red clay. Within recent years a new level has been opened 22 feet below the original floor and a greater selection of material thus made possible. The new level is drained by gravity flow in a deep ditch passing under the office building. The overburden is shot down with black powder to the floor of the quarry and removed by trucks. A good deal of this overburden is sold for fill material. All that is not sold is hauled to a waste dump.

Rock is blasted down with 10- to 22-foot toe holes averaging 8 to 10 feet from the face with 40 percent L. F. Extra Giant 7 /8x8 dynamite. Owing to the many vertical seams a large amount of the rock is broken down without drilling. Air from a portable Schramm compressor operates several dry jackhammers using detachable bits. Pieces large than 24 inches are plug shot and all rock is broken with 16-pound rock hammers to sizes less than 12 inches. Because of mixed impurities of magnesium and silica, all rock is hand-picked for its color, crystals, and impurities. Loading of all material is done by hand into steel skips fitted with removable aprons (for fine material) that trip from the truck-driver's seat. These skips hold from 1 to 1½ tons of rock and have a lug in each side to fit hoisting hooks on the company's ingenious patented trucks. The trucks are specially built on the Model A Ford chassis with a friction-drive cable hoist employing a worm-drive rear-axle assembly. Steering and handling are fast and flexible, since the driver faces the driving wheels with his back to the regular truck-motor wheel installation. This converts these trucks into a front-wheel drive, rear-wheel steering vehicle, and the steering gear is a simple lever that moves to and from the driver like the stick in an airplane. After leaving an empty in its place, drivers pick up a skip loaded with the desired grade of rock and haul it some 600 feet from the working face to the primary crushed. Overburden is loaded into regular dump trucks by a similar hoist-truck having a somewhat higher lift. These special trucks burn butane gas carried in a tank placed in front of the radiator to counter-balance part of the pay-load which is all concentrated right over the driving wheels. In addition to butane gas, distillate and gasoline are also used. The plant, however, is operated entirely by multiple-unit electric motors connected by V-belts.

The 14 by 42-inch Roller-Bear primary jaw-crusher reduces the rock to 4 inches or less. This material is then elevated about 30 feet to a trommel screen removing waste dirt and cleavage material; passed through the secondary 10 by 36-inch haw-crusher which reduces it to 1½ inches or less; elevated 50 feet to a 100-ton working bin; thence automatically fed to a No. 2 Williams hammer mill; elevated to 3 units of Rotex 4-deck screens which make a separation of finely divided material and five sizes of granulars. The Rotex tailings go in closed circuit through a set of 12 by 16-inch rolls and drop into material from the hammer mill. Rotex screen scalplings, however, pass through a ring-roll Sturdevant mill; are elevated 35 feet and passed through a single-deck Ro-Ball screen. This material is either used as screened or passed into a 6-foot Sturdevant centrifugal air separator. Products are weighed by five automatic scales and packaged in four-lined paper bags.

The layout is simple and so arranged that the special products can be produced without any difficulty.

The plant operates the entire year. Twenty-two men constitute the average working force. Eight men are employed in the mill and sacking department, four men handle all hauling, and the rest are used in the quarry.

¹⁷ Laizure, C. McK., Santa Cruz County: California Min. Bur. Rept., vol. 22, no. 1, p. 86, January 1926.

Source

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