

Mohs' scale of hardness. When relatively pure or when mottled with black oxides, rhodonite is prized as a lapidary material. The only gem-quality rhodonite known in Monterey County was found as boulders near the mouth of Limekiln Creek, in sec. 22, T. 22 S., R. 4 E. (R. A. Crippen, personal communication, 1960). It is said to be found in place at the north bridge abutment in Limekiln Creek, but the deposit is now either destroyed or covered due to recent bridge construction. The rhodonite probably formed by local metamorphism of manganiferous chert in the Franciscan Formation.

GOLD

Gold is one of the first minerals to be mined and prospected in Monterey County. The desire to find gold in the county at an early date was stimulated by spectacular successes in the Sierra Nevada and elsewhere. J. B. Trask (1854, p. 58) reported that placer gold was known to exist around the Jolon area as early as 1850 and miners were working the placers in that area in the early 1850's. The occurrence and mining of gold was also mentioned by Trask in the vicinity of Rancho Tularcitos on the upper Carmel River; "on the Francisquito", a southwest tributary of the Carmel River and on the tributaries near the headwaters of that river. In addition to placer gold, Trask mentioned that auriferous "talcose and chlorite slate" in the Santa Lucia Range were mined "to a considerable extent" during the summer of 1853.

J. D. Whitney (1865, p. 158), who made a survey between 1860 and 1864 for the State of California, reported that gold was found in various places in the Santa Lucia Range, but nowhere in large quantities.

Gold and quicksilver prospecting had become so popular in the Santa Lucia Range in southwestern Monterey County, that the Los Burros mining district was organized at a miners' meeting held on February 5, 1875. At that meeting, H. C. Dodge was elected Chairman, A. C. Frazier, Secretary, and William T. Cruikshank, Recorder; and the boundaries of the Los Burros district were defined as follows: "... commencing at the mouth of the San Kapoho [San Carpojo Creek] following Pacific Ocean northerly to Prewitt's trail, thence following said trail to McKerns, thence following the Nacimiento [River] to the mouth of the Los Burros Creek, thence to the place of the beginning."¹ During the first 12 years of recording, 131 mining claims were located in the district. Although most of the claims were located on quicksilver leads, some minor success was gained in gold placering. It was not until April 7, 1887 that W. D. Cruikshank, the Recorder's son, discovered a small quartz vein containing free gold. This he named the "Last Chance", which is now part of the Buclimo mine. This "strike" triggered an avalanche of mining claims, in the following months. Between April 1887 and August

1888 about 215 locations were made in the Los Burros district and 216 more were made from August 1888 to April 1891. Records of claims filed between 1891 and 1900 are missing, but it is believed that the rate of locating dropped off due to lack of success in lode gold mining. However, placer discoveries along the various forks of Willow Creek (includes "Spruce" and "Dogvine" Creeks) at the turn of the century stimulated another rash of prospecting and from August 1900 to January 1909, 322 mining claims were made. It is estimated that a total of 2,000 or more claims have been staked in this mining district, most within 3 miles of the Last Chance mine. The great majority of these were gold claims.

In spite of the large amount of prospecting in the Los Burros district, gold production has been minor. The U. S. Bureau of Mines records, which only date back to 1889, show a total of 4,599 ounces of gold and 494 ounces of silver, worth \$104,471 and \$305, respectively. Waring and Bradley (1919) show \$40,000 worth of gold produced from 1889 to 1901. Inasmuch as gold production for 1887-1888 as well as other unrecorded production (e.g. sniping or high-grading) is believed to be substantial, the total production for the Los Burros district is estimated to be in the order of \$150,000. Of this total the Last Chance produced an estimated \$62,000. An equivalent amount of production was accounted for collectively by the **Plaskett group** (lode), Spruce Creek placer (Ralston), Grizzly (lode), New York (lode) and **Plaskett placer**.

The peak of activity in the Los Burros area came from 1887 to 1892 when the town of Manchester (also called Mansfield) flourished. This town, which was located just south of the Last Chance mine in the NE¼ sec. 2, T. 23 S., R. 5 E., had a population of 125-150, a post office, two general stores, a restaurant, several saloons and a dance hall. Manchester burned down in 1892 and little evidence of that town remains today.

Geologically, the Los Burros district is underlain by typical Franciscan sandstone, chert, shale, serpentine, and volcanic rocks of Late Jurassic to Cretaceous age. These rocks have been strongly faulted, crushed and sheared, and locally metamorphosed. The sandstone, locally, has been rendered somewhat "slaty" as a result of shearing, and quartz has been deposited as veins along the shear and fracture planes. Some quartz veins also have formed in the other Franciscan rocks and serpentine, but most of the gold-bearing quartz is associated with fault gouge in sandstone. Repeated fault movement during quartz mineralization has resulted in ribbon structures and small discontinuous veins.

Although the gross structure (major faults and rock contacts) of the district trends predominantly northwest, the principal trend of quartz veining in the Gold Ridge-Buclimo area (south side of Willow Creek) appears to be roughly east-west, and most of the gold-bearing veins trend within 30 degrees of east-west. However, most local structures and quartz veins north of Willow Creek trend north or northwest.

¹ From Book A of the Los Burros Mining District Recorder; this is part of the district's records now on deposit with the County Recorder at Salinas.

Placer gold has accounted for $\frac{1}{4}$ to $\frac{1}{2}$ of the county's gold production and for the most part is concentrated as coarse, ragged fragments in recent stream gravels of Willow Creek and its tributaries. Stream gravels of **Plaskett**, Alder, Salmon and other creeks that drain the lode gold areas have also been worked, but with only minor production. In addition to stream gravels, local river and marine terrace gravels and soil debris have been hydraulicked and sluiced in the same vicinity with unknown, but probably minor, success.

Free-milling gold has been the most important type of lode-gold obtained in the area. Free gold occurs with iron oxide and pyrite in white vein quartz or associated fault gouge in the oxidized (above the water table) zone. Below the water table, the gold is associated with pyrite and arsenopyrite in finely divided form and is difficult to win without cyanidation and other processing. At several mines, finely-divided gold is associated with pyrite and chalcopyrite in a calcite-quartz gangue.

Because of the rugged topography and high water tables, zones of oxidation tend to be shallow or non-existent, except locally along fracture zones where permeability is high. Most of the mineable ores occur in the oxidized parts of these zones as small, high-grade shoots or lenses. Some of the high-grade ore shoots are believed to develop along fracture zones at the intersections of subsidiary fractures. Between the shoots, the ore is generally too low in grade to be worked profitably. As the veins are small and the primary ore is of low grade, it is apparent that large bodies of mineable ore, free milling or otherwise, cannot be expected to occur in the district. J. M. Hill (1923, p. 329) expressed this general conclusion, stating that "mineralization of the district is not particularly strong, and, although there may be further discoveries, near the surface, of pockets containing free gold, it is believed that all that can be expected below relatively shallow depths will be rather small bodies of pyritic ores of relatively low tenor".

Other areas or districts in which gold is found in Monterey County are river gravels around Jolon, the tributaries and upper drainage system of Carmel River, and Cholame Valley near Parkfield. Angel (1890, p. 345) stated that "Gold has been mined from the placers on the San Antonio and also on the Big Sandy, a creek in the Mount Diablo Range, near Slack's Canon". Gold also has been reported from the stream gravels in Miner's Gulch, a tributary to Chalone Creek. A number of small prospects have been opened along Miner's Gulch, mostly in sec. 33, T. 17 S., R. 7 E., but nothing of importance has been found (Andrews, 1936, p. 33, map).

Jolon Area. The Jolon area was one of the first to be prospected for gold in the county and yielded placer gold as early as 1850 (Trask, J. B., 1854, p. 58). Haley (1923, p. 153) mentioned that large nuggets of

gold were obtained from the placer deposits west of Jolon. However, he states that apparently no substantial amount of placer ground exists which would justify development other than by pick-and-shovel methods. Weidmen (1958, p. 202) states "local people report minor production of placer gold in the early days from Mission Creek and Ruby Canyon. In the Mission Creek drainage, gold could have been washed down directly from a source in granitic bedrock; in Ruby Canyon gold has apparently been reworked from undifferentiated marine Pliocene-Paso Robles Formation". The only mining operation of record known to this writer is the Ruby Placer mine which was worked in 1914 (Waring and Bradley, 1919, p. 606). Located in Old Man Canyon, a tributary to Ruby Canyon, this claim was never worked commercially, although some gold was obtained in prospecting (see Ruby placer in tabulated list). Irelan (1888, p. 405) sheds a little more light on early placer gold mining near Jolon in the following paragraphs:

"... Placer mining was carried on intermittently for several years. At one time over one hundred Chinese were engaged in gold washing in the vicinity of Jolon, it being supposed that the land in that neighborhood was Government territory. It proved, however, to belong to the Milpitas Grant, and the owners compelled the Chinamen to discontinue their work. Gold washing was afterwards carried on further west, in the ravine and gulches of the Santa Lucia Range. The gold was principally coarse gold nuggets, some of the value of \$5 being occasionally found.

"From the desultory character of the workings, it is naturally difficult to form any estimate of the amount of gold that has been obtained in this district; but in 1877 and 1878 Messrs. Dutton and Tidball, who owned a store at Jolon, took in \$2,500 in gold dust from the Chinamen".

Carmel River. The existence and mining of placer gold in the Carmel River and its tributaries is mentioned by Trask (1854, p. 58) and is briefly described above. The source of this gold was probably the Santa Lucia Quartz Diorite and Sur Series metamorphic rocks within the Carmel River drainage system. However, no specific lode gold deposits are known to the author in that drainage area.

Cholame Valley Area. Irelan (1888, p. 405) reported that "ledges of auriferous quartz are said to have been found in the Cholame Valley". Waring and Bradley (1919, p. 606) stated "On the Cholame Grant, 7 miles southeast of Parkfield, there is a series of gulches with gravel deposits which have yielded some placer gold. L. Patriquin of Parkfield has a lease from R. E. Jack, owner". However, there is no recorded production from this area, which is locally known as Gold Hill. Howard Jack, present owner of the Cholame (Jack) Ranch, showed this writer nuggets of gold as much as $\frac{3}{8}$ -inch across which he states came from the gulches along the western slope of Gold Hill.

Ancona (Brewery) mine. Location: SE $\frac{1}{4}$ sec. 34, T. 23 S., R. 5 E., M.D., on Willow Creek (Gold Ridge) road, 3 miles east of Cape San Martin. It adjoins the Melville Consolidated Mines group of claims to the east. Ownership: Art Sherman and Archie Hammond, 1015 Shell, Pacific Grove, own one unpatented lode claim.

The Brewery claim was first located August 25, 1887, according to the old Los Burros mining district records now on file with the Monterey County Recorder. The early history of this mine is vague but Irelan (1888, p. 409) reported that a 3-foot wide ledge, striking northeast, was being worked through two tunnels totalling 150 feet in length. U.S. Bureau of Mines records indicate no production since 1902, but gold may have been produced prior to that date. In 1916, W. W. Pugh apparently relocated the claim as the Ancona and about 1923 S. D. Pugh was reported to be the owner (Laizure, 1925, p. 38). Sherman and Hammond apparently acquired the mine some time since 1940, and in 1958 leased it to Gerald Doyle, Watsonville, and James Pauley, Big Sur. Doyle and Pauley reopened the caved workings and prospected an ore zone which they reported ran as high as \$2,690 per ton for a selected sample. Although the high assay caused a minor sensation locally, subsequent milling, concentration and amalgamation of a 5-ton ore sample resulted in a gold recovery of only \$20 per ton, which proved unprofitable (G. A. Doyle, 1963, personal communication). Doyle and Pauley abandoned the lease in early 1959.

Doyle stated that the vein averaged about 3 feet thick and consisted of several veinlets of quartz interleaved with fault gouge in sandstone. This vein has a northeast strike and is nearly vertical where intersected by the main adit. Mineralization consists of finely-divided free gold distributed along fractures in quartz and black gouge. Associated minerals are pyrite, chalcopyrite, and arsenopyrite (?) with secondary calcite along the fractures. High-grade ore apparently is concentrated in very small shoots.

Prior to the recent development, the main workings reportedly consisted of an adit driven 97 feet to the east where it intersects the northeast trending vein. At this intersection are short drifts to the northeast (caved) and southwest (backfilled). A short crosscut run 36 feet to the south from the adit intersects the vein, which was drifted for 10 feet to the east and west. Near the end of the adit, a 38-foot shaft and a 21-foot winze, both caved, were developed on the vein. Doyle and Pauley reopened the shaft and winze and extended the drift in the crosscut 20 feet to the east. This drift uncovered the recently-tested, high-grade ore.

Buclimo (Last Chance, Cruikshank). Location: Secs. 34 and 35, T. 23 S., and secs. 1 and 2, T. 24 S., R. 5 E., M. D., 7 miles by road east of State Highway 1.

Ownership: Buclimo Mining Company, c/o Rudolph Ernst, President, 1361- 7th Ave., San Francisco, owns the patented Last Chance, Pansy, Pine, Mary S., Mary S. Extension, West Extension No. 1 and East Extension No. 1 lode claims and the unpatented Ora F No. 2 and Perry lode claims totalling about 150 acres.

The Last Chance (Buclimo) lode was discovered in 1887 when W. D. Cruikshank uncovered a "blind lead" containing free gold. This was the first important gold discovery in Monterey County and it is described in detail by Irelan (1888, p. 405-407). Cruikshank worked the mine for 2½ years, and reportedly drove 900 feet of workings, recovering \$22,000 to \$23,000 in free gold from 375 to 400 tons of ore (Dockweiler and Gilman, 1910, unpublished report for Buclimo Mining Company). In August 1889, the mine was sold to a company headed by T. A. Bell, who sunk a shaft to 140 or 150 feet; extended the drifts at the 97-foot level, and stoped the ore above the 97-foot level. Bell died about 1892 after obtaining an estimated \$18,000 worth of gold from free-milling ore. The ore was processed using a 5-foot Huntington mill, a concentrator, and a series of sluice pans. Between 1892 and 1901, Cruikshank and J. M. Krenkel leased the mine and worked out the remaining ore above the 97-foot level. It is reported that during this interval they obtained \$13,000 to \$14,000 in gold from ore that assayed \$40 to \$50 per ton. For several years after that, the mine lay idle due to litigation.

In 1908, the Last Chance mine was sold to the Buclimo Mining Company, the name *Buclimo* being derived from the names of stockholders Burnham, Clinton, and Mory. The new company spent a considerable sum of money developing the mine during the next few years; they sunk a shaft to 241 feet, drove 326 feet of drifts at the 197-foot level, reopened the caved drifts at the 97-foot level, and began a long drain tunnel. In spite of the extensive development, records show only \$200 worth of gold produced (in 1909) and it is apparent that most of the development effort was in digging an 1,800-foot drain tunnel which reached to within 300 feet of the shaft in July 1916 (Waring and Bradley, 1919, p. 603-604). The drain tunnel, started near the incline of the old Grizzly mine to the east, was intended to intersect the Last Chance vein at a depth of about 400 feet. However, the tunnel was never completed and the last work done on it is believed to have been done about 1920.

Little or no work was done on the mine thereafter until 1937 when Frank H. Jerdone leased the property and produced 10 ounces of gold and 2 ounces of silver from sulfide ore. A lease to Charles J. Wonder of Los Angeles during the next 4 years resulted in the production of 212 ounces of gold and 178 ounces of silver. As most of the ore was of a sulfide type, production probably came from below the 97-foot level. U.S. Bureau of Mines records show that nearly all of the ore was concentrated and shipped to Selby for refin-

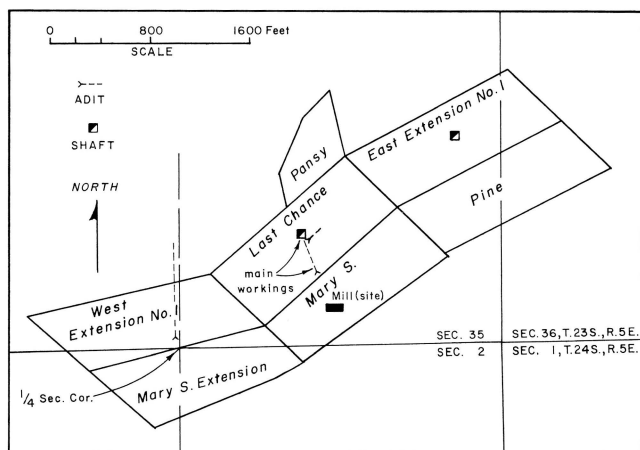


Figure 7. Map of patented claims of the Buclimo mine showing location of adits and shafts (data after plat surveyed 1911).

ing. From 1938 to 1941, \$7,390 worth of gold and silver was recorded from 452 tons of ore, which is an average of \$16.35 per ton of ore. The Last Chance mine has been idle since 1941. Total gold production from 1887 to 1941 is estimated to be about \$62,000, most of which was obtained from free-milling, oxidized ore.

Aside from the Last Chance claim, the other 6 patented claims of the Buclimo have no record of production, although several show development workings on the patent plat (patented February 25, 1915). In addition to the patented claims, the Buclimo Mining Company owned a number of adjacent unpatented claims to the east and south, including the Perry, Ora F Nos. 1 and 2, Rankin, Gold Gulch Nos. 2, 4 and 5, Good Gold, Flatview, and Lucky Jim. Of these, only the Perry and Ora F No. 2 are still held and these are no longer contiguous with the patented group. Neither the Ora F No. 2 nor the Perry were productive under the present owner, but the Ora F No. 2 had some production in 1890 and 1902–1904 when it was known as the Grizzly (which see).

(Most of the following data regarding the geology, mineralization and workings of the Last Chance mine are taken from an unpublished mine report by J. H. Dockweiler and C. F. Gilman (1910). This report conflicts in many ways with published reports (e.g. Irelan, 1888, p. 405; Preston, 1893, p. 260; Davis, 1912, p. 697; Waring and Bradley, 1919, p. 603; Hill, 1923, p. 327; Laizure, 1925, p. 38; and Franke, 1935, p. 463), which also conflict with each other. However, the consulting report by Dockweiler and Gilman is believed to be the result of the only detailed study made of the Last Chance mine and therefore should be the most authoritative.)

There are 4 or 5 quartz veins at the Last Chance mine and at least two of these have been worked for gold. These veins generally strike northeast and dip from 38° NW to vertical, although one reportedly dips to the south. The veins cut massive Franciscan

sandstone that is locally fine-grained and slaty. A narrow, northwest-trending body of serpentine has intruded the sandstone in the north part of the Last Chance claim. The important veins, which are confined to small faults or shear zones in the sandstone, consist of one to three stringers of quartz intercalated with fault gouge. Most of the ore has been mined from a vein which strikes N. 60° to 70° E. and dips steeply northwest. It varies from 3 feet to more than 7 feet thick, including an aggregate thickness of quartz of 6 inches to 7 feet. Although the quartz stringers pinch and swell rapidly, an estimated average thickness for the quartz would be about 1½ feet. The other mineralized veins average less than one foot of quartz thickness. All of the quartz veins are considerably fractured and sheared and thus are intermixed with fault gouge. Mineralization is confined principally to the quartz and consists of free gold associated with pyrite and probably some arsenopyrite and chalcopyrite locally. Calcite also has been reported to occur with quartz as the gangue material. The ore occurs in shoots which Dockweiler and Gilman reported as plunging 45° in the old workings. Oxidation has taken place in the upper parts of the veins to a variable degree, but probably has not extended much below the 97-foot level. Most of the gold extracted from the Last Chance mine is believed to have been from oxidized, free milling ore. The ore-shoots reportedly have been stoped out above the 97-foot level. Ore below the 97-foot level probably has been worked only in part because it is mainly primary, possibly of lower grade than the shallow oxidized ore, and more difficult to treat. It is not likely that large primary ore-bodies will be found at depth at the mine.

The main workings at the Last Chance mine total about 1,800 feet, including a main adit connected to a 241-foot shaft at 350 feet, 1,026 feet of drifts, several short winzes, crosscuts and drifts, and one or two abandoned shafts. These workings are located on the accompanying map (Figure 7) and shown in the schematic sections (Figure 8). At the time of this writer's visit in 1959, all of the workings were flooded below the 97-foot level and the drifts at that level were caved. The adit and main shaft were open, although a wood floor blocked the shaft about 20 feet below the collar.

Another vein, 3 to 11 inches wide and striking N. 45° E., is said to intersect the main vein near the center of the claim. It is developed by a 110-foot drift adit driven to the northeast. Twenty-five feet from the face of this adit is a 25-foot inclined winze sunk to the north. Other workings may exist and the reader is referred to Irelan (1888, p. 405), Preston (1893, p. 206), and Crawford (1894, p. 184).

There is no published record of the work done by Charles J. Wonder, who leased and developed the mine from 1938 to 1941. Because Wonder produced sulfide-type ore, it is probable that he worked below

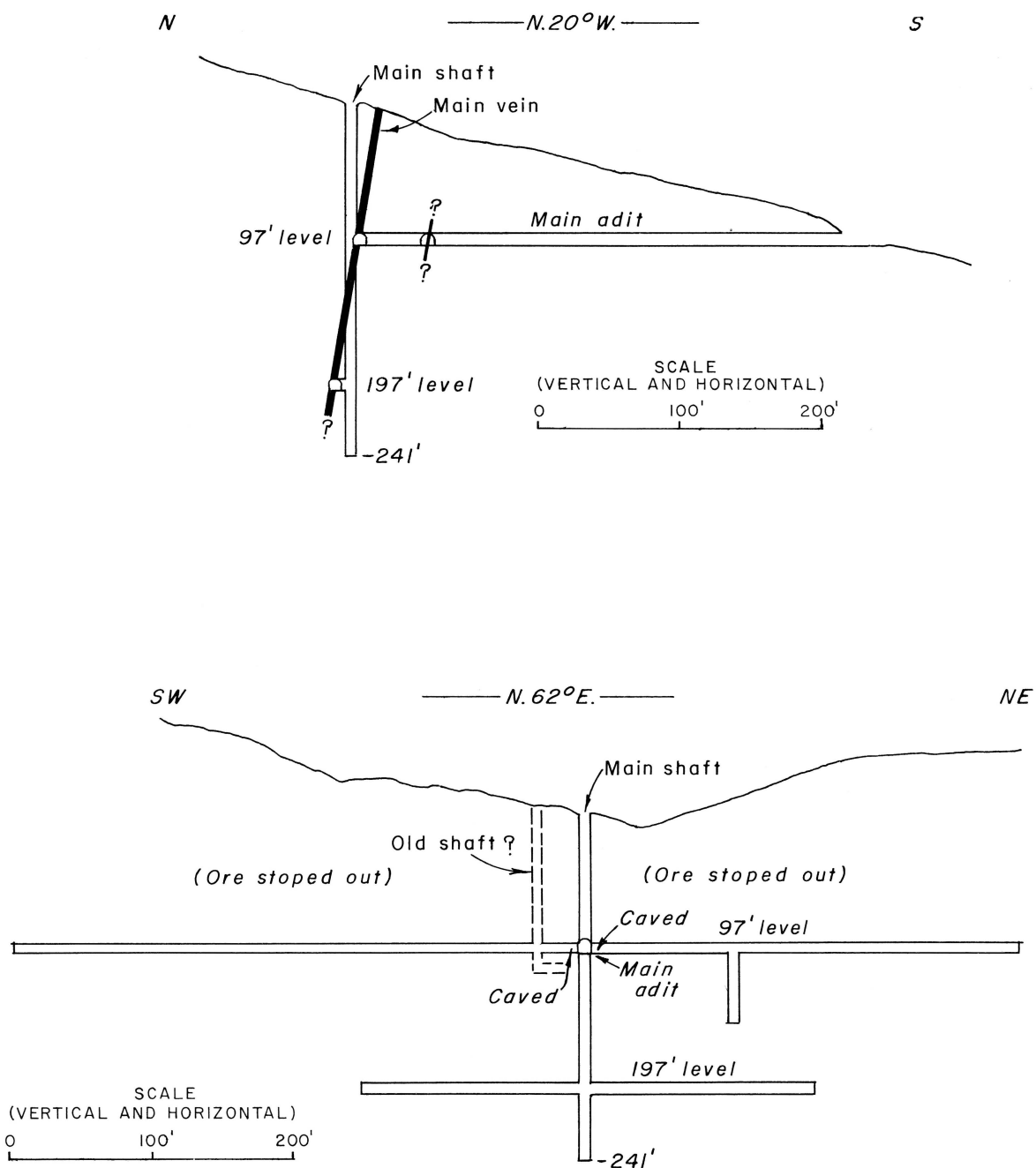


Figure 8. Schematic vertical sections showing the main workings at the Buclimo (Last Chance) gold mine. (Data shown are based on descriptions by Dockweiler and Gilman, 1910, unpublished report.)

the 97-foot level in the main workings. During this operation, 6 men were employed and a small mill was established on the adjacent Mary S claim. According to Mrs. Charles Wonder, widow of the lessee, Wonder concentrated the ore using a table and flotation cells. The concentrates were shipped to Selby for smelting.

Workings on the other patented claims of the Buclimo are not extensive and all were apparently exploratory. A 700-foot tunnel driven north from the West Extension No. 1 was not visited by the author, but is shown on the patent plat. In addition to that, a long drain tunnel starting on the Ora F No. 2 claim to the east was driven about 1,800 feet westerly to intersect and drain the Last Chance vein below the 400-foot level. This tunnel was never completed, being 300 feet short of the present shaft. Hill (1923, p. 328) stated that "the first 200 feet of crosscut is in medium-coarse sandstone; next there is 100 feet of black chert, and the remainder of the tunnel is in nearly black sandstone that is almost fine grained enough to be termed slate."

Two mineral specimens from the Last Chance mine displayed in the Monterey County case of the Mineral Exhibit, Division of Mines and Geology, San Francisco are:

#10074 Specimen of coarse, ragged gold in vein quartz; from the oxidized zone near the surface. (Donated by W. D. Cruikshank, 9/17/88).

#10075 Specimen of free gold associated with pyrite and arsenopyrite in ribbon-like quartz; from below the water table (about 120 feet deep?). (Donated by W. D. Cruikshank, 9/17/88).

Bushnell (Green Gold, Yellow Quartz) mine. Location: S $\frac{1}{2}$ sec. 22. T. 23 S., R. 5 E., M.D., reached via 3 miles of graded road east of State Highway 1, thence 3 miles northeast by trail to a point about 2,000 feet north and slightly east of the confluence of the North Fork of Willow Creek and a major north tributary. Ownership: Phil and Stewart Kinder, 13500 Old Morro Road, Atascadero, own 3 unpatented claims (Golden Quartz, Hidden Treasure, Caladonia); leased 1962 to G. A. Doyle, 792 Lewis Road, Watsonville, and James Pauley, Seaside.

John Bushnell discovered this lode about 1904 and located it as the Green Gold claim. U. S. Forest Service records show that the claim was relocated as the Yellow Quartz by G. A. Miller in 1924 and Mrs. J. Kinder in 1938, and as the Golden Quartz by Mrs. Jean Prival in 1940. Although the mine has been worked during several periods, recorded production is minor. According to unpublished data of the U. S. Bureau of Mines, total gold production amounts to \$188, in 1912 and 1935. However production figures ranging from \$9,000 (Hill, 1923, p. 329) to \$150,000 (G. A. Doyle, January 1963, personal communication)

have been reported by residents of the Los Burros district.

The Bushnell mine is developed along a northeast-trending vein at the intersection of a north-trending fault. Smaller veins also are found in the area. The veins cut Franciscan sandstone, which is locally slaty due to shearing. Apparently most of the development work was done by Bushnell prior to about 1920. This work is described by Hill (1923, p. 329) who visited the mine in 1921:

"The developments consist of an incline shaft and a crosscut tunnel, 330 feet in all. The incline is sunk 130 feet on the intersection of a north-south fracture that dips about 50° E. and a N. 50° E. stringer that dips 50° SE. It is reported that about \$9,000 in free gold was milled from the ore obtained in sinking this shaft. At the tunnel level the north-south fracture is barren; the N. 50° E. fissure ranges in thickness from a knife-edge to 8 inches and is filled with white quartz, calcite, and fragments of wallrock, the whole much crushed and shattered. A little free gold is visible in some of the quartz, but no sulphides, limonite, or other indications of the former presence of sulphides were noted in the ore."

Since Hill's visit, several owners and lessors have worked the mine intermittently and probably obtained some gold. According to G. A. Doyle (January 1963, personal communication), who leased the mine in January 1962, the mine was successively worked by Bushnell, (1904–1917), Henry Roberts and G. A. Miller (1923–1937), Phil and Stewart Kinder (1937–1941 and 1945–1947), Stewart Kinder and G. A. Doyle (1960–1962), and G. A. Doyle and James Pauley (since 1962). Workings reportedly consist of 330 feet of crosscut adits at the first and second levels, a 135-foot inclined shaft, 74 feet of winzes, 470 feet of drifting at various levels and sublevels, and considerable stoping. Drifting and stoping apparently extend northeast and southwest from the shaft and develop the main vein. Sketch sections of the mine, drawn by Doyle, indicate the upper workings to be caved and the lower ones to be open. The extent of the workings strongly suggests that total production exceeds the recorded production figure of \$188. On the other hand, an estimate of \$150,000 seems much too high as such production would be outstanding for the Los Burros district and would not likely escape documentation.

Grizzly (Ora F No. 2) mine. Location: SW $\frac{1}{4}$ sec. 36, T. 23 S., R. 5 E., M.D., 8 miles by road east of State Highway 1 and 1,300 feet north of the Alder Creek campground. Ownership: Buclimo Mining Company, 1361 Seventh Ave., San Francisco. Unpatented claim.

The mine was located (or relocated) in 1889 as the Grizzly and was productive in 1890 and 1902–1904

under the name of Grizzly Mining Company (H.C. Dodge, Superintendent). The total recorded production of the Grizzly mine for those 4 years was \$9,515 in gold and \$33 in silver. A small production may also have been obtained between 1891 and 1894 when some development work was done at the mine. According to Hill (1923, p. 327), the vein is 3 to 4 feet wide and is composed of crushed sandstone with stringers of quartz and a little calcite. The vein strikes east-west and dips 75 degrees north. Mineralization consists of fine-grained gold associated with pyrite and arsenopyrite (Crawford, 1894, p. 184).

The Grizzly lode is developed by a 160-foot incline shaft from which much of the ore has been obtained. The shaft reportedly intersects a 50-foot drift or cross-cut which connects the shaft with a 300-foot tunnel driven to the northwest. Presence of as much as 1,000 feet of tunnels were reported to the U. S. Bureau of Mines in 1903, but the locations and lengths of these tunnels are not known. When the mine was visited in December, 1959, the 300-foot adit was constricted at its entrance, but is said to be open beyond that point. The shaft was flooded to within 15 or 20 feet of the surface. Two other shafts are reported to be on this claim, but were not visited.

In the early days, the ore was crushed in an arrastra powered by a 30-foot overshot wheel situated on Alder Creek (Mining and Scientific Press, 1890, vol. 60, No. 10, p. 164). This was abandoned late in 1890 when the water gave out. In the early 1900's a 2-stamp mill was utilized and the free gold was collected by amalgamation. From 1902 to 1904, 197 ounces of gold was obtained from 72 tons of ore, or about \$95 per ton at the present price of gold. Shortly, thereafter, the Grizzly mine was partly relocated as the Ora F No. 2 (see under Buclimo for a little more data).

A specimen of free gold with chalcopryite in quartz from the Grizzly mine may be seen at the Division of Mines and Geology Mineral Exhibit (Monterey County case) in San Francisco. The specimen, number 12611, was donated by A. E. Moore in 1891.

New York mine. Location: NE $\frac{1}{4}$ sec. 1, T. 24 S., R. 5 E., M.D., one mile by dirt road east of Alder Creek campground which is 8 miles by road east of State Highway 1. Ownership: John Lazier and Ade Harboldt, Pacific Grove, own three to four unpatented lode claims known as the New York, Triangle, California, and Good Deal (?).

The New York was discovered and located in 1901 by W. D. Cruikshank and Frank McCormack. The Triangle and California claims were located in 1908 and 1917, respectively. All known production from the New York mine came from the New York claim and the following discussion applies only to that claim. U.S. Bureau of Mines unpublished records show that W. D. Cruikshank in 1903, 1905-07, 1925, 1932-33, and 1935 and J. F. Harboldt in 1909 produced a total of 118.6 ounces of gold and 18 ounces of silver worth

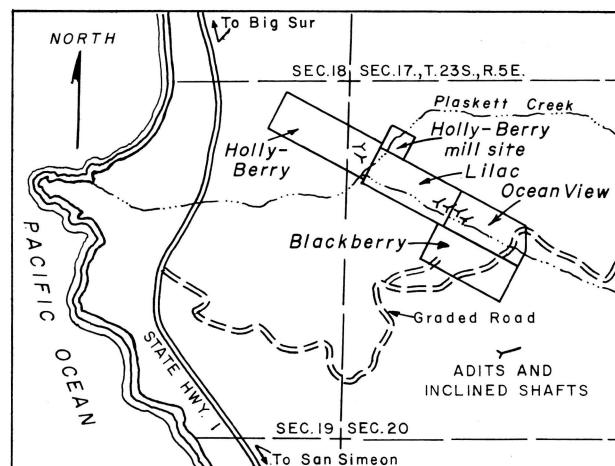


Figure 9. Map of Plaskett mine, showing approximate location of claims and main workings.

\$2,540 from the New York mine. Goodwin (1957, p. 571) states that 1,300 tons of ore were produced, but this does not seem consistent with the value of reported production. Over most of the years of production, the mine was owned by Cruikshank and various members of the Lazier and Harboldt families (Laizure, 1925, p. 40). Little or no work, other than assessment, has been done at the mine since 1935.

According to Hill (1923, p. 327), the lode consists of "two narrow veinlets of quartz 18 inches apart" which have been crushed together with the intervening rock. The lode is mineralized with auriferous arsenopyrite and pyrite with minor amounts of chalcopryite and galena. "Complete oxidation on this lode has extended to a depth of 50 feet and mining to that depth has yielded some fairly good free-gold ore". At the level of the 440-foot long adit, Franke (1935, p. 464) reported that gold values were in sulfides and were carried over a width of 20 inches to 3 feet or more. Except for a minor amount of free gold milled in the early years, most of the ore was concentrated and shipped to Selby for smelting. According to U.S. Bureau of Mines records, ore from the New York mine was low-grade and averaged considerably less than one ounce of gold per ton. Although some of the ore may have been hand-sorted and shipped directly to the smelter, most was treated in a small Straub mill and on a concentrating table before smelting. When the mine was visited in December 1959, most of the accessory equipment (table, motors, etc.) had been removed and the remaining mill, tracks and structures were in poor repair.

Judging from the workings, the vein probably strikes east. In 1935, the last year the New York claim was mined, the vein had been developed by a 440-foot adit to the south with a 195-foot drift east and a 95-foot drift west. The adit is reported to be open and the drifts caved. The intersection of the vein at the end of the long adit is judged to be about 150 feet

below the vein outcrop. A crosscut adit at the 200-foot level was reportedly being driven in 1935 and was 120 feet into the hill at that time. Other workings at higher levels were undoubtedly developed in the early days, but the extent of these is not known.

Plaskett (Howard; Ocean View) mine. Location: NE¼ sec. 19 and W½ sec. 20, T. 23 S., R. 5 E., M.D., in the vicinity of Plaskett Creek and a southwest tributary. Ownership: Jessie E. Plaskett, 123 Winham St., Salinas, and Violet M. Lowe, Gorda Station, c/o Big Sur, own the patented Lilac, Ocean View and Blackberry claims; Allvec Mining Co., 615 Walter B. Story Bldg., 610 S. Broadway, Los Angeles, owns the patented Holly-Berry claim and mill site.

The Plaskett mine or group consists of 4 patented lode claims encompassing at least 3 ore bodies, all discovered by F. M. Plaskett beginning May 1911 (Davis, 1912, p. 697) (Figure 9). These claims, which were patented in 1931, were developed intermittently from 1912 to 1950 and have yielded a recorded total of over \$18,000 in gold (856 ounces) and silver (137 ounces). Production and development is about equally divided among the Holly-Berry, Lilac and Ocean View claims. During the early development, much of the gold was obtained from float below the vein outcrops.

Although the mine area was visited by this writer in 1959, there was no one on the property at the time and the mine workings were not entered. The country rock is Franciscan sandstone which generally strikes west or northwest. According to J. W. E. Taylor (1947, 4 pp., unpublished report for Allvec Mining Co.), the Holly-Berry claim is broken by longitudinal and transverse fractures, each set of fractures being partially filled with quartz. Gold mineralization is generally low-grade, except at the intersections of veins (fractures). Most of the gold produced was free-milling, oxidized ore. Similar geologic conditions exist at the Lilac and Ocean View claims to the southeast, where the narrow ore shoots also are predominantly oxidized. Alignment of the ore bodies with the linear tributary creek to the south suggests that both the creek and the deposits are located along a common northwest-trending fault system. At the Ocean View claim, the vein enclosing the ore body consists of crushed quartz, sandstone and black fault gouge and dips 10° NE at the surface, steepening to 60° NE at the bottom of the incline (Hill, 1923, p. 329). Maximum thickness of the vein is said to be 2 feet. At the adjacent Lilac claim the vein reportedly averages 3 feet thick, consists of quartz with some calcite, and is not particularly crushed. The hanging wall at both claims is "shaly-slate" and the footwall is sandstone (J. R. Lowe, personal communication, 1959). A sample of ore examined from the Ocean View or Lilac claim consisted of coarse flakes of gold in a brown, friable mixture made up predominantly of clay, quartz, and iron oxide. Coarse gold also is reported to be associated with vein quartz and fault gouge and some fine gold occurs with calcite. The

ore was milled in an arrastra and, later, in a 3½-foot Huntington mill.

Available data concerning the history, development, and production of the Plaskett claims is as follows:

Holly-Berry claim—This was discovered in 1911 after heavy rains uncovered gold-bearing quartz float, which was then traced to the parent vein. Intermittent development in 1912-13, 1926-29, and 1931-34, resulted in production of 303 ounces of gold and 48 ounces of silver. Several adits one of which is about 300 feet long, have been driven west, and the deposit is further developed by winzes and stopes at the intersections of veins. According to Waring and Bradley (1919, p. 605), W. C. Howard leased and operated the deposit in 1914, but there is no record of his production. In 1945, the claim and mill site were acquired by Allvec Mining Co. No work has been done in recent years.

Ocean View claim—Discovered about 1912, records show that a total of 234 ounces of gold and 33 ounces of silver were produced by F. M. Plaskett (1913) and J. R. Lowe (1948-50). Prior to 1931, workings consisted of a 120-foot inclined shaft driven east-northeast on the vein with short drifts driven north and south at 50 foot and south at 120 foot depths. The upper south drift was intercepted by an adit from the west. In recent years, J. R. Lowe drove an 80-foot adit and a 30-foot southeasterly drift to intercept the old north drift. Some of the workings were reported to be accessible in 1959 (J. R. Lowe, personal communication).

Lilac claim—The mine was discovered about 1912 and worked 1913-1914 under the name Blanco (Blanch ?) McNeil by F. M. Plaskett. Production was 319 ounces of gold and 55 ounces of silver. Development consists of a 100-foot adit driven northeast at the end of which is a 60-foot drift to the northwest. The ore-body was worked by raising 4 inclined stopes, set on 20-foot centers, from the drift level to the surface. The vein dips 20-30° NE in the stopes (J. R. Lowe, personal communication). There has been no recent development.

Blackberry claim—Developed by only 2 small surface cuts, this claim was utilized principally as a mill site for the Ocean View claim prior to 1931. Ore from the Ocean View was conveyed via a 300-foot aerial tram from the inclined shaft to a 3½-foot Huntington mill erected at the north corner of the Blackberry claim.

Plaskett Placer deposit. Location: Approximately N¼ cor. sec. 27, T. 23 S., R. 5 E., M.D., near the confluence of the North Fork of Willow Creek and a major north tributary. Ownership: Not determined.

The first and probably only notable discovery of placer gold on the North Fork of Willow Creek was

made in 1902 by the Plaskett brothers (Davis, 1912, p. 698). The exact location of this deposit is not known, but local residents of the Los Burros area state that the Plaskett placer deposit was located on "Dogvine Creek" near its confluence with a north fork of Willow Creek (now described as the North Fork and a northern tributary to that fork). Davis reported that one gold nugget was worth \$104 (about 5 ounces). About the same time, the U.S. Bureau of Mines recorded production for a Marion Placer claim in 1902 and an Oro Grande placer claim in 1903, both by Marion Plaskett. As there is no other record of placer production by a Plaskett, it seems probable that the Plaskett placer discovery referred to by Davis and the claims of Marion Plaskett are one and the same. The unpublished record shows that Plaskett worked bench or stream gravels by sluicing and obtained 191.56 ounces of gold worth \$3,960 in 1902-1903. The fineness of the gold was reported to be 871 to 872.

Following that short period of mining, little or no production of placer gold was recorded for this deposit although numerous claims have been located and relocated in the same vicinity. However, small production of placer gold from unnamed claims and by snipers was recorded in the early 1900's. The Humbug placer claim, located in 1939 by Henry Voss, is believed to be a relocation of the Plaskett placer deposit. More recently, the Humbug claim was obtained by Fred Vaughn, who used the old Plaskett cabin on or near the claim. It is said that the cabin burned down during a heavy storm in the winter of 1955 and that 3 years later Vaughn worked the gravel at the cabin site. As a result, he reportedly found a large gold nugget worth \$600 (about 17 ounces) which he gave to his brother. No production has been recorded for either Fred Vaughn or his Humbug claim. Because of difficult access to the Humbug claim and the uncertainty of its exact location, it was not visited by the writer.

Four other nuggets, varying from less than one ounce to 9 ounces, reportedly have been found along "Dogvine Creek" between 1959 and 1961 (G. A. Doyle, Jan. 1963, personal communication).

Spruce (South Fork of Willow) Creek placer deposits. Location: South Fork of Willow Creek mainly in N½ secs. 3 and 4, T. 24 S., and S½ sec. 34, T. 23 S., R. 5 E., but also extends to secs. 33 and 35. Ownership: Multiple—secs. 4 and 33 mostly homestead land in vicinity of South Fork of Willow Creek; secs. 3, 34 and 35 staked solid with active claims in 1960.

Placer gold was discovered on "Spruce Creek" (now designated South Fork of Willow Creek) at least as early as 1901 when the U.S. Bureau of Mines recorded moderate placer production for the Ralston Mining Company. This company continued to work the placer deposits of the creek through 1905, and a lode deposit in 1907, thus accounting for almost all of the recorded

gold production from the Spruce Creek area. The Ralston Company apparently was succeeded in 1908 by the Gorda Mining Company which produced a small amount of lode gold from the Gorda mine in NE¼ sec. 4. Very minor lode production was also obtained in 1909 along Spruce Creek from the None Such claim by S. O. Pugh (see tabulation). The Gorda Mining Co. and others continued prospecting for gold-bearing gravels until about 1921, but with little success (Hill, 1923, p. 328-329). Minor additional placer production was obtained variously by F. J. Gillis, J. T. Gillis and H. B. Krenkel from Spruce Creek in the 1930's (see Tabulation under Gillis claims). Total recorded production since 1901 is 1,064 ounces of placer gold worth \$22,075 and 65 ounces of lode gold worth \$1,354.

Most of the placer mining in Spruce Creek apparently has been confined to local bench and stream gravels in secs. 3, 4, and 34. However, the creek in sec. 4 appeared to be quite rocky and lacked substantial gravels either in the creek or on benches along the sides. The creek banks are Franciscan rocks or are covered with talus debris. Some effort to hydraulic the talus deposits in NE¼ sec. 4 is evident from the presence of a water ditch and nozzles. Numerous short adits also have been driven to the north and south into the talus to find buried channel gravels and into bedrock to locate the source lode for the placer gold. Except for the Gorda and None Such claims (which see), no other lode near or along Spruce Creek has yielded gold. The placer gold found along Spruce Creek was reported to occur as "large ragged nuggets" (Hill, 1923, p. 328) and one nugget found on the Gorda claim about 1902 or 1903 was said to be worth \$800 (Davis, 1912, p. 697). Another report (Engineering & Mining Journal, 1903, vol. 75, no. 21, p. 796) announced the finding of a nugget weighing 35.25 ounces on one of the Ralston Mining Company claims (possibly the same nugget as above).

LEAD

Galena (lead sulfide), the principal ore-mineral of lead, has been noted in several places in Monterey County, but never in concentrations that could be considered commercial. (See Silver in text; New York mine under gold in text; and Stonewall mine under gold in Tabulation).

LIMESTONE AND DOLOMITE

The extensive deposits of crystalline limestone and dolomite found in Monterey County are important resources for both current and future use. Limestone is composed predominantly of calcite (CaCO_3), and rock dolomite is composed chiefly of the mineral dolomite ($\text{CaMg}(\text{CO}_3)_2$). Collectively, these can be conveniently referred to as carbonate rocks. Many of the carbonate-rock bodies are composite; that is, they consist of both limestone and dolomite.

Most of the carbonate-rock masses in Monterey County occur as lenses associated with schist, gneiss, and quartzite of the Sur Series and various granitic