MINERALS OF LOS ANGELES COUNTY

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CALIFORNIA

by

W. Edwin Sharp

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To
The Natural History Society
of
Maryland
for encouraging my interest in
minerals when I was a boy.

which begins in the bottom of San Antonio Canyon, about 1 mile south of Camp Baldy. This locality has been included here, even though it is located in San Bernardino County, because it can be reached only by way of San Antonio Canyon.

Float of green and white diopside with float of lilac-colored small corundum xls., and blue lazurite can be found with a little effort in the bottom of Cascade Canyon and along the fire road (conf. MC - pp. 272,131, 204).

Big Horn Mine

The Big Horn Mine is located 1.5 miles southeast of Vincent Gap which is on the Angeles Crest-Big Pines Road. The mine is at the 6800 foot elevation.

Aplite dikes have been injected here along the foliation in the Sierra Pelona schist. Gold appears to have been mined from the quartz-rich parts of the aplite and the quartz stringers in the schist. The schist next to these veins has been pyritized. Right next to the aplite dikes is found an intrusive quartz diorite porphyry which looks just like the porphyry found at the Baldora Mine.

Mine Gulch

Microscopic amounts of piedmontite and riebeckite have been reported in the schists of the Sierra Pelona on the south side of Mine Gulch, 0.2 miles northwest of the junction with the Prairie Fork of the San Gabriel River (PC - Perry Ehlig).

Prairie Fork of the San Gabriel

Microscopic amounts of piedmontite have been reported in the Prairie Fork of the San Gabriel. These include: the hillside just west of Camp Lupin (PC-Ehlig) as float in the canyon bottom east of Cabin Flat (PC-Ehlig), and in a ravine entering the Prairie Fork from the south, about 3 miles above the mouth of the fork (MC - p. 251).

SOLEDAD BASIN

The Soledad Basin comprises an area about 30 miles long and 8 miles wide. The area lies between the San Gabriel Mountains on the south and the Sierra Pelona ridge on the north. It is bounded on the east by the San Andreas fault and on the west by the San Gabriel fault.

The Sierra Pelona schist which lies along the northern edge of the basin has been called Pre-Cambrian in age, although no evidence for its age has been given. The Sierra Pelona schist forms a broad anticline* which plunges to the west. The schists are made of graywackes, volcanics, and minor amounts of orthoquartzites and limestones which have been metamorphosed to an albite-chlorite schist. The schists commonly have lenses of quartz formed along the schistose structure. These lenses have been unsuccessfully prospected for gold.

In the eastern portion of the Soledad Basin, between the sedimentary section and the Sierra Pelona schist, a series of igneous and metamorphic rocks may be found. From Bouquet Canyon to Mint Canyon the basement rocks consist mostly of granite gneiss with small bodies of granite. Where these rocks have been cut by quartz veins, gold in minor amounts has been mined as at the Governor Mine. Masses of syenite occur east of Mint Canyon. Around Parker Mountain mylonized quartz diorite outcrops. Where these rocks are sheared by faults, small amounts of copper with quartz have been deposited. Farther to the east, as we approach Vincent, small isolated bodies of granodiorite, gneiss, and diorite are found.

The sedimentary section in the basin

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* The geology was summarized from Jahns and Muehlberger (1954).

is made up mostly of continental and lacustrine sediments which cover the western part of the basin. The oldest of these sediments are the Oligocene (?) rocks of the Vasquez group. They consist of interbedded arkosic sandstone, conglomerates and lake deposited silts. These sediments were covered during the time of deposition by flows of andesite, olivine basalt, and volcanic breccia. In Tick Canyon the basalts and lacustrine sediments are associated with beds of borates which were mined at the old Sterling Borax Mine in the early 1900's.

Unconformably over the Vasquez group more siltstones, sandstones, and conglomerates were deposited during the Miocene. During the lower Miocene, the Tick Canyon formation was deposited, and over this the Mint Canyon formation, which is recognized by the resistant ridges it forms, commonly called Vasquez rocks. The Mint Canyon formation is also known for the numerous mammal bones which have been found in it.

Unconformably above these older sediments, the marine sediments of the Pliocene Towsley formation were deposited. "This is the oldest stratigraphic unit that can be recognized on both sides of the San Gabriel fault" (Jahns and Muehlberger, 1954). Above this the Pliocene-Pleistocene, non-marine fluviatile sediments of the Saugus formation were deposited.

The region has undergone continued deformation ever since the deposition of the Vasquez group, forming gentle northwesterly trending folds. Since post-Saugus time, sands and gravels have been deposited in the Santa Clara River basin. Terraces were formed at the head of Mint, Agua Dulce, and Escondido Canyons (along Highway U.S. 6). These terraces are now deeply dissected by erosion.

Free Cuba Mine

The Free Cuba Mine is located 0.6 mile south of Acton, west of the old Soledad Canyon Road on the Southern Pacific right-of-way.

Chalcocite partially oxidized to cuprite with small amounts of malachite, azurite, and goethite occur in quartz-epidote-garnet veins. Native copper has been reported at the 200 foot level (Gay and Hoffman, 1954, p. 613). The veins are found cutting a mylonized diorite. Sphene, garnet, epidote, and magnetite are found as accessory minerals in the diorite.

Emma Copper Mine

The old bin and workings are located on the south slope of Parker Mountain, northwest of Soledad Canyon Road, 0.7 mile east of Ravenna.

Chalcopyrite with minor amounts of chalcocite, bornite, goethite, and malachite occur here in quartz-garnet-epidote veins. The veins cut diorite. The diorite contains plagioclase feldspar which has altered to saussurite along with hornblende, magnetite, and sphene. The sphene is very abundant with crystals up to 5 mm. in length.

Acton Rock Quarry

The Acton quarry is located on the east side of Parker Mountain and is 0.6 mile west of Soledad Canyon Road and 4th Street in Acton.

Calcite xls., chalcedony casts of calcite, white heulandite xls., light brown stilbite xls. (up to 2 cm.) and quartz xls. are found in cavities of an old andesite flow. The andesite contains small white crystals of plagioclase and

has weathered on the surface to chlorite.

Ravenna #1

Along the north side of Hubbard Road, about 1.8 miles from Escondido Canyon Road, the following minerals were found in basalt and andesite: chalcedony, agate, quartz xls. and fine-grained natrolite filling cavities in the basalt and andesite. The basalt contains 1 mm. grains of olivine which commonly are altered to iddingsite. In places, the old lavas have altered to chlorite-like minerals.

Hi-Grade Mine

Free gold was mined here from 3 parallel quartz veins which strike N 10-20° W and dip 60° SW (Gay and Hoffman, 1954, p. 498), and cut granite gneiss. It is located on the southwest side of Escondido Canyon, 0.3 mile southeast of the Red Rover Mine Road. Associated minerals include small amounts of calcite, pyrite, stilbite, malachite, bornite, and magnetite. Large pieces of massive epidote were also found here. Gay and Hoffman also reported chalcocite and cuprite (p. 498).

Puritan Mine

The Puritan Mine is located 0.3 mile north of Escondido Canyon Road and about 1.7 miles west of the Red Rover Mine Road. The old hoist and mill are easily seen from U. S. Route 6.

Gold was taken here from quartz veins cutting syenite. The syenite is altered along the contact to chlorite schist. Goethite, pyrite, and magnetite were found with the quartz. The chlorite schist has been pyritized with the formation of aragonite along fractures. Epidote and

calcite have formed along fractures in the syenite.

Blue Goose

This small mine is located 0.4 mile north of the Puritan Mine. It may be reached from Sierra Highway (U. S. 6) by a small side road 0.2 mile west of the Shannon Valley Road. The mine is 0.8 mile south of the Sierra Highway.

An attempt was made here to mine gold from quartz veins in a quartz sericite schist.

Governor Mine

The Governor Mine is located at the end of the Governor Mine Road north of the Sierra Highway (U. S. 6).

Free gold was mined here from quartz veins which strike N 20° W and dip 75° NE (Gay and Hoffman, 1954, p. 497), and are associated with syenite dikes. The syenite consists of alkali feldspar and augite which has altered to uralite with minor amounts of magnetite. The dike occurs in a green to black phyllite which in many places has fair amounts of small-grained magnetite. Pyrite is found both in the quartz and in the phyllite. Calcite xls. occur as secondary coatings along fractures.

Mine South of Governor

This mine is located 0.3 mile north of the Sierra Highway and is reached by taking a dirt road which is 0.3 mile east of the Red Rover Mine Road.

Gold was mined from quartz masses associated with a syenite pegmatite which cuts a gabbro. The gabbro contains up to 25% magnetite in a matrix of plagioclase feldspar and biotite. The feldspar has been partly altered to saussurite. Calcite is

found along small cavities in the gabbro.

Bradshaw Lease

The Bradshaw Lease is located on the east side of Red Rover Canyon about ½ mile north of Sierra Highway (U. S. 6).

Quartz veins are found here cutting granite gneiss. Minerals found here include: quartz xls. (up to 1 cm.), malachite, goethite, chalcedony, epidote and small amounts of copper-stained opal. Halloysite is found as white masses in highly weathered wall rock.

Red Rover Mine

The Red Rover Mine which has several shafts and adits, is located 0.8 mile north of the Sierra Highway (U. S. 6) on the Red Rover Mine Rd. on the west side of the canyon.

Free gold was mined here in quartz veins which strike N 20° W and dip steeply to the west (Gay and Hoffman, p. 500) and cut a metagabbro which has been altered to a phyllite next to the veins. The phyllite has been pyritized and contains minor amounts of sphalerite and calcite xls. along the fractures. Magnetite is common in the metagabbro. Large cleavable masses of calcite and small epidote xls. are found in marble here. Gay and Hoffman (1954, p. 500) also report chalcopyrite and sylvanite.

Hilltop Mine

The Hilltop Mine is located in Agua Dulce Canyon, 0.4 mile south of Sierra Highway (U. S. 6) and 1.4 miles east of Agua Dulce Canyon Road. The mine consists of a vertical shaft at the top of the hill and an adit at the bottom.

Gold was mined here from quartz veins which cut granite gneiss, and biotite-chlorite schist. The rocks around the quartz

veins have in places been altered to a pyritized cummingtonite (?) schist. Goethite is found on quartz where the pyrite has been leached away.

Toney Mine

Gold was mined here from quartz veins which cut granite gneiss. It is located 0.1 mile west of the west end of Darling Road.

Spanish Mine

This prospect was worked for gold which occurred in quartz veins cutting granite gneiss. It is located about 0.9 mile southwest of the Toney Mine.

Champion Road #1

This prospect is located 0.5 mile west of the west end of Darling Road.

Gold was prospected for here in quartz veins cutting granite gneiss. Pyrite, goethite pseudomorphs after pyrite and chlorite are found in the quartz veins. Small amounts of calcite are found along fractures in the granite gneiss.

Champion Road #2

This prospect is located about 0.8 mile west of the west end of Darling Road.

An attempt was made here to recover gold from an aplite dike which cuts the granite gneiss. Also found here were crystalline calcite cementing brecciated rock and pyritized chlorite schist.

Champion Mine

The Champion Mine is located 1.0 mile west of the west end of Darling Road and consists of several adits, shafts, and prospect pits.

Gold was mined from quartz veins which cut granite gneiss. Graphite and epidote are found along fractures in the quartz and the granite gneiss. Very small amounts of pyrite were found in the quartz veins which along with graphic granite and diabase dikes cut the gneiss. The graphic granite consists of alkali feldspar and quartz with minor amounts of chlorite. The gneiss is composed of highly weathered, alternating layers of feldspar biotite-chlorite-actinolite schist. Chalcanthite has been found here as efflorescence on the mine wall (PC - Jack Schwartz).

Lang #1

Nice needle xls. of laumontite are found in seams of the conglomerates of the Mint Canyon formation in a road cut on Agua Dulce Canyon Road, about 0.8 mile north of the mouth of Escondido Canyon (confirming MC - p. 202).

Sterling Borax Mine

The Sterling Borax Mine is located at the junction of Tick Canyon and Davenport Road about 1.3 miles east of the Sierra Highway. This mine was operated between 1908 and 1922 by the Pacific Borax Co.

The borates occur here interbedded with sandstones, shales, and volcanics of the Vasquez group on the north limb of a prominent syncline. Minerals found here include: colemanite, massive and nodular howlite, long radiating needle shaped xls. of probertite and ulexite, veachite xls.

as coatings on fractures, and brown calcite xls. Besides these minerals xline bakerite covered by celestite xls. has been reported by Murdoch (MC - p. 68) as coating on shale. Also reported are realgar and analcite.

Basalt south of Borax Mine

In an olivine basalt flow along the north side of Davenport Road where the road crosses Tick Canyon, the following minerals may be found: small calcite, aragonite, and quartz xls. Chalcedony also occurs in cavities in the basalt. The basalt contains in places up to 40% olivine xls. These crystals are about 1 mm. in size and are commonly altered to red iddingsite which gives the basalt a reddish color. Chlorite is also common through the basalt.

Basalt north of Borax Mine

In a thin basalt flow about 0.2 mile north of the Borax Mine natrolite, analcite xls. and calcite occur in amygdaloidal cavities.

Prospect east of Borax Mine

A small adit located about 0.5 mile east of the Borax Mine in the sandstones of the Vasquez group contains large cleavage masses of colemanite. On the hillside directly above the adit in several small prospect pits, drusy calcite xls. and large masses of white opal are found.

Lang Gypsum Deposit

This open cut operation is located 0.3 mile north of Davenport Road about 0.3 mile east of Sierra Highway (U. S. 6).