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Item 7

TWIN RIVER DISTRICT

The Twin River district covers the arcuate eastern slope of the central Toiyabe Range and extends from South Twin River north to the Nye-Lander County border. The district is restricted largely to the east slope of the Toiyabes and includes areas or sub-districts sometimes referred to as Twin River, North Twin River, Clear Creek, Ophir, and Millett. In this segment of the Toiyabe Range, almost every canyon contains small mines and prospects which could be described separately. None of these areas, however, produced such significant amounts of ore that they can stand as separate districts.

Major production from Twin River has been in gold, silver, and tungsten along with minor amounts of lead, zinc and copper. Barite has been produced from Summit Canyon. Mercury and fluorite are reported present, but no production has been recorded for these commodities. Sodium chloride was mined from a salt marsh on the edge of Smoky Valley near Bowman Ranch sometime prior to 1900. The salt was used in early gold-silver milling operations, but none has been mined recently.

The first activity in the district followed discovery in 1863 of silver ores at the Murphy (Ophir) Mine in Ophir Canyon. This property is credited with the major production (as much as $750,000 total) from the entire district. Other producing mines were the Giant in Park Canyon, and the Buckeye in Summit Canyon. The districts total production, through 1969, is given as $759,678 (Kleinhampl, 1980).

The eastern portion of the Toiyabe Range, essentially from its crest to the eastern range front, is composed of complex thrust slices of Paleozoic sediments which have been intruded by a linear belt of granitic intrusives. The intrusives form prominent, rugged outcrops in the lower portion of the eastern range front, and the Paleozoic rocks are metamorphosed near the granitic contacts. The complex of Paleozoic sediment-intrusive rocks is overlain to the south and west by large outcrops of Tertiary volcanic rocks, largely welded tuffs.

See also 83-4 for geochemical results.

J. Tingley + P. Smith (1982) Mineral Inventory of Eureka-Shoshone Resource Area: NBMG OFR ~~80-10~~ 83-3

According to Ferguson and Cathcart (1954), the pre-Tertiary sedimentary rocks of the Twin River district are composed of the Cambrian Gold Hill Formation, disconformably overlain by the Ordovician Palmetto Formation and unconformably overlain by two Permian Formations (Diablo and Pablo Formations). Wilden (1982, verbal communication) feels that preCambrian rocks may be exposed in one outcrop near the mouth of Ophir Canyon where the Cambrian Gold Hill Formation overlies metamorphic rocks. If these are of preCambrian age, they would be the oldest rocks in the Toiyabe Range. All of the pre-Tertiary Formations are metamorphosed, both due to regional deformation to local plutonism.

There are four major granitic plutons exposed in the district. The largest, the Aiken Creek pluton, is slightly to the north of the district. A smaller granodiorite mass crops out in Ophir Canyon and even smaller exposures occur in Broad and Park Canyons. The granitic plutons are all considered to be Jurassic(?) or younger. The Ophir pluton has been dated at about 54 m.y., the dike at Broad Canyon has been dated at about 30 m.y. (Kleinhampl, 1980). Small bodies of serpentinite crop out throughout the area. They are lensoid and irregular, all are fault bounded and may be serpentinized ultramafics (Kleinhampl, 1980).

Tertiary rocks in the Twin River district consist of thick sections of volcanic rocks which overlie the older rocks. The thick Darrough Felsite crops out between South and North Twin River, but most of the formation lies to the south of the district where it is inferred to fill the cauldron from which it erupted (Kleinhampl, 1980).

Two younger sequences of Tertiary volcanics crop out on the western crest of the range north of North Twin River. The youngest of these, the Toiyabe Quartz Latite is generally unaltered but the oldest, termed the middle volcanic sequence by Kleinhampl, is usually altered and serves as host to some orebodies in parts of the district.

Metallic mineral deposits in the Twin River district include tungsten in skarn deposits near the granitic contacts, base metal-silver deposits as sulfide replacements along veins, usually also near intrusive contacts, and gold-silver occurrences in pyrite bearing quartz veins, again usually in areas near granitic bodies. Barite has been mined from a small, lenticular pod in sediments in Summit Canyon. Mercury and fluorite have been reported from locations within the district, but neither have been produced.

The major tungsten activity has been at the Warfield-New Year-Bottom properties located near the mouth of Ophir Canyon. Scheelite at the Warfield occurs in irregular pods in quartz with some molybdenum and traces of beryllium in calcareous schist near a granodiorite contact (Kleinhampl, 1980). Other small occurrences of tungsten were seen near the mouth of Summit Canyon, where scheelite occurs in a narrow zone in metalimestone, and at small prospects along the range front between Summit Canyon and Timblin Creek which explore poorly developed skarn zones.

The largest of the base metal silver deposits in the district, the Murphy or Ophir Mine in Ophir Canyon, was not active in 1981, and has not produced for many years (produced mainly between 1866-68, and 1935-37). The ore at the Murphy consists chiefly of tetrahedrite, galena, sphalerite with stibnite and pyrite which occurs in a quartz vein. The vein strikes north, dips about 45°E, and is in shale. The mine has been developed to a depth of 360 feet, with several levels of mining above that. At another base metal-silver deposit, in Park Canyon at the Giant Patent (Nevada Silver Producers, Park Canyon Mine), mine development was in progress during 1981. In the past, mining was done here on sulfide replacement ore (sphalerite, galena, pyrite) which occurs along bedding in a limestone. Some mining was done along a cross fault which cuts the main replacement lens. The replacement orebodies occur in the limestone just south of a limestone granite contact.

The Buckeye Mine, at the mouth of Summit Canyon on the north side of the creek is similar to the Murphy property, but has less extensive workings. Old workings at the Buckeye explore a N40°E quartz vein which follows a shear zone in phyllite. Vein material on the dump contained clots of sphalerite with minor galena and pyrite.

Small quartz-pyrite veins, presumably carrying gold values, were examined at the Gold Pocket (Millett) mine north of Park Canyon, and at an unnamed mine high on the range front south of Park Canyon. At both properties, N55°E-trending veins follow shear zones in granodiorite.

At the Tom Cat claims, south of South Twin River, spotty sulfide mineralization (pyrite, galena) occurs in a silicified shear zone which occurs along a contact between a rhyolite dike and metamorphics (phyllite, greenstone). The dike is sericitized, and the larger quartz grains can be seen, in thin section, to contain euhedral tourmaline crystals.

At the head of Ophir Canyon, and extending to the west, a large area of alteration occurs in older metavolcanic rocks. The rocks are locally iron stained, fractured, silicified and show some kaolinization especially along shear and breccia zones. Specimens found on dumps in this area showed stockworks silica veining, with pyrite, chalcopyrite, galena, barite, and some zoned fluorite. There is evidence here of past exploration, mainly trenching and surface sampling, but the area was not active when visited in 1981.

Most of the prospects and mines visited in the Twin River district were posted with recent claim markers, but the only activity noted was in Park Canyon (Giant Mine), Summit Canyon (Republic Resources Barite) and recent roadwork at Ophir.

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