**CONTACT INFORMATION**
Mining Records Curator
Arizona Geological Survey
1520 West Adams St.
Phoenix, AZ 85007
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

The following file is part of the

Arizona Department of Mines and Mineral Resources Mining Collection

**ACCESS STATEMENT**

These digitized collections are accessible for purposes of education and research. We have indicated what we know about copyright and rights of privacy, publicity, or trademark. Due to the nature of archival collections, we are not always able to identify this information. We are eager to hear from any rights owners, so that we may obtain accurate information. Upon request, we will remove material from public view while we address a rights issue.

**CONSTRAINTS STATEMENT**

The Arizona Geological Survey does not claim to control all rights for all materials in its collection. These rights include, but are not limited to: copyright, privacy rights, and cultural protection rights. The User hereby assumes all responsibility for obtaining any rights to use the material in excess of "fair use."

The Survey makes no intellectual property claims to the products created by individual authors in the manuscript collections, except when the author deeded those rights to the Survey or when those authors were employed by the State of Arizona and created intellectual products as a function of their official duties. The Survey does maintain property rights to the physical and digital representations of the works.

**QUALITY STATEMENT**

The Arizona Geological Survey is not responsible for the accuracy of the records, information, or opinions that may be contained in the files. The Survey collects, catalogs, and archives data on mineral properties regardless of its views of the veracity or accuracy of those data.

PRINTED: 03/22/2002

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: MONTGOMERY

ALTERNATE NAMES:

YUMA COUNTY MILS NUMBER: 219

LOCATION: TOWNSHIP 10 S RANGE 20 W SECTION 22 QUARTER NE
LATITUDE: N 32DEG 32MIN 40SEC LONGITUDE: W 114DEG 18MIN 14SEC
TOPO MAP NAME: FORTUNA MINE - 7.5 MIN

CURRENT STATUS: EXP PROSPECT

COMMODITY:
MICA

BIBLIOGRAPHY:
WILSON, E.D., 1933, AZBM BULL. 134, P. 201
AZBM FILE DATA
ADMMR MONTGOMERY MINE FILE

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Montgomery Mine Date September 7, 1960

District Fortuna District, Yuma Co. Engineer Lewis A. Smith

Subject: Conference with S.E. Montgomery, Yuma, Arizona

Location: 1 mile east of the Fortuna Mine, Gila Mountains. T 10 S R 22 W

Work: Cuts

Claims: 1 unpatented

Geology: The mica lies in pegmatite in granite along with quartz and feldspar. The pegmatite strikes NE-SW and is vertical. The mica is muscovite. The dike is several hundred feet long and variable in width. It is not developed and since it lies within the Gunnery Range it cannot be exploited. It was claimed shortly after the withdrawal and is not valid.

Mr. Montgomery reported it for the record. He also stated that the mica is readily separable and good grade.

Vol. IV, No. 2. February 15, 1933

University of Arizona
Bulletin

ARIZONA BUREAU OF MINES
G. M. Butler, *Director*

# GEOLOGY AND MINERAL DEPOSITS OF SOUTHERN YUMA COUNTY ARIZONA

By
Eldred D. Wilson

Published by
University of Arizona
Tucson, Arizona

Arizona Bureau of Mines, Geological Series No. 7
Bulletin No. 134

ther steeply eastward, but another strong system dips in the opposite direction. Other joints strike nearly east-west and dip steeply northward. Several pegmatite dikes cut the gneiss and in places contain garnet and lodestone.

These claims were located early in 1931 by Mr. John Miller. When visited in June of that year, they were held by Messrs. John Miller and C. R. Norman, who were exploring them with a few shallow cuts. These prospectors obtained water for their camp from a few rather inaccessible rock tanks of the region. As burros were found unable to carry enough water for their own needs, all supplies and equipment had to be packed to the crest of the ridge by men.

A shallow prospect hole on the eastern slope showed an eight-inch quartz vein that strikes a few degrees south of east and dips southward. This quartz, which is rather fractured and cellular at the surface, contains abundant iron oxide and a little visible gold. Although this vein pinches and swells, it is traceable for some distance eastward.

A few hundred yards farther southwest and on the opposite slope, a horizontal cut into the steep slope exposes a vein that strikes N. 20° W. and dips about 15° NE. As exposed, this vein contains more pulverent iron oxide than quartz and has an irregular width of not more than one foot. It appears to follow a fault, and is traceable, with minor interruptions, for about ½ mile southward. Many fractures and a few minor faults join it, but without effecting any visible displacement. Part of the iron oxide of the vein is red, and much of it is black and sooty, but chemical tests of the black portion failed to reveal any manganese. The quartz is of even grain, but broken by many fractures that are filmed with iron oxide. In places, thin, fine flakes of gold are abundantly scattered over the fracture surfaces, and a few rounder particles are within the more solid quartz. Pyrite, generally in grains less than 0.03 inch in diameter, occurs sparsely scattered throughout the quartz. Many specks of iron oxide, probably representing altered pyrite, are similarly present. In places, veinlets of iron-stained calcite occur within the quartz. A little sericite occurs in the immediately adjacent wall rock.

Several hundred yards farther north, a nearly vertical quartz vein, about one foot wide, strikes southward. It shows abundant iron oxide and some copper stain.

*McKay Prospect:* The McKay Prospect is near the northeastern tip of the Gila Mountains, in a saddle 500 feet above sea level.

Here, black schist strikes N. 75° W., dips 70° S., and has been cut by several faults. Two neighboring quartz veins, generally less than two feet wide, strike and dip approximately with the schist. The quartz of these veins, which is dense, vitreous, and white, contains fairly numerous small pseudomorphs of limonite after pyrite. In places, it is extensively brecciated, and cemented with ferruginous calcite and hematite that weather black.

Workings on these veins consist of an old, shallow shaft and a few old tunnels.

A short distance farther north, a small vein of similar quartz is slightly stained with copper carbonate.

## COPPER PROSPECTS

*Blue Butte copper prospect:* The Blue Butte claim is four miles southeast of the Fortuna mine, at a fork in a rugged westward-trending canyon, 1,500 feet above sea level.

In this vicinity, the granite is extensively sheeted by several systems of jointing, of which the most prominent dip steeply and strike N. 15° W., S. 40° W., and S. 40° E. It is cut by a few narrow pegmatite dikes the feldspar of which locally contains crystals of hematite. A quartz vein, up to six inches thick, strikes NE., dips 35° SE., and is traceable for more than 200 feet. It contains a few inclusions of biotite. The quartz, which normally is coarse grained, vitreous, and white, has been extensively stained by copper. It contains small, irregular masses of malachite, azurite, and chalcocite. For three or four inches from the vein, the feldspars of the wall rock are stained with copper, and thin fractures extending out from the vein are lined with malachite and hematite for distances up to one foot.

*McPhaul copper prospect:* A copper prospect, held by Mr. Harry McPhaul, is at the northern end of the Gila Mountains, in the central segment of the marble deposit described on pages 202-207.

Here, the schist and marble, which strike S. 85° W. and dip from 55° to 75° S., have been cut by several faults of minor magnitude. A strike fault, with schist footwall and marble hanging wall, contains a vein of coarse-grained, vitreous, gray quartz that ranges from a few inches up to four feet thick. This vein contains chrysocolla, malachite, limonite, and hematite in irregular cavities and narrow fractures. In places, the copper minerals are sufficiently abundant to color the whole width of the vein. Near the surface, and particularly near the walls, abundant small crystals of wulfenite occur associated with the copper minerals or grouped within small cavities and fissures. In places, the quartz contains numerous small pseudomorphs of limonite after pyrite. The vein carries a small amount of gold. Along the vein walls, coarse-grained sericite is abundant.

Workings on this prospect consist of a few shallow pits.

## MICA DEPOSITS

Small deposits of muscovite mica occur within pegmatite dikes that cut the schist in the central portion of the Gila Mountains. The most prominent of these deposits are exposed in the central

segment of a decomposed pegmatite dike that follows a fault zone for 1½ miles west-southwestward from the divide 2¼ miles east of the Fortuna mine. The schist near this dike shows intense alteration to coarse-grained sericite and, for distances up to 150 feet on each side, is marked by brown and yellow limonitic stain. A tunnel through this zone shows the following section:

*Section through mica-bearing zone 1½ miles east of Fortuna mine*

| | Thickness in feet |
|---|---|
| 1. Slope mantled by clay containing flakes of muscovite | 5 |
| 2. Aggregate of kaolin, gypsum, fragments of fine-grained pegmatite, and thin books of muscovite plates up to three inches across | 1.5 |
| 3. Fine-grained, graphic, garnetiferous pegmatite containing less mica than 2 | 3.0 |
| 4. Quartz-feldspar-kaolin aggregate rich in mica | 1.5 |
| 5. Like 4, but contains less mica and more iron oxides | 8.0 |

The mica exposed throughout this section forms thin books that generally are less than one inch across. Although very clear and highly cleavable, it is slightly ruled and plicated, and probably could be used only for grinding. In 1929, workings on the deposit consisted of a few surface cuts and short tunnels. According to Mr. S. E. Montgomery, holder of the claims, the mica in the decomposed portion of the vein is easily concentrated by washing.

## MARBLE DEPOSITS

### SITUATION AND ACCESSIBILITY

Marble deposits occur within a belt that extends across the northern portion of the Gila Mountains, southwest of Dome, a station on the Southern Pacific Railway. The western limit of these deposits is accessible by a mile of road that branches eastward from the Dome-Yuma highway at the railway trestle 1¾ miles north of Blaisdell station. Their east-central portion is reached by 1½ miles of secondary road that leads southwestward from Dome, and their easternmost exposure extends into the railway right-of-way between culvert markers 754H and 754I.

### HISTORY

Because of its nearness to the Gila River, railway, and highway, this marble has long been known, and portions of it have been held as copper claims. At present, ten claims upon the marble belt are held by H. Duty, H. McPhaul, and others, of Yuma. Considerable assessment work has been done, but very little marble has been produced.

### TOPOGRAPHY

Here, the Gila Mountains rise steeply for more than 1,400 feet above a pediment cut on loosely consolidated Tertiary beds. The



range is 1,616 feet above sea level at its northern end, but rises higher southeastward. Many V-shaped, steep-sided canyons trend perpendicularly to the borders of the mountain mass and everywhere culminate in sharp-edged features, such as are shown in Plate 29. Slopes on the hard rock are generally steeper than 35° from horizontal, but, on the adjoining, dissected pediment, they flatten abruptly to 150 feet or less per mile. Around the northern end of the range, the Gila River has limited this pediment to a width of ¼ to 1¼ miles, and, on the northeastern edge, has entirely removed it.

### GEOLOGY

Plate 1 indicates the distribution of rock formations at the northern end of the Gila Range.

*Schists:* The oldest exposed rocks are sedimentary schists that strike eastward, dip 20° to 80° southward, and occupy an irregular area slightly more than 3½ miles long by one mile or less wide. Local, small-scale folding is apparent in them. Faulting, mostly transverse to the strike, is common but not of important magnitude except in the eastern half and at the western end of the area. Several systems of jointing obtain. Near the northernmost peak of the range, a large mass of granite intrudes the schists and forms the main mass of the mountains for some three miles southeastward. Irregular dikes of granite, pegmatite, and aplite have invaded the older rocks at many places. The total exposed thickness of the schists was roughly estimated at 2,000 feet.

Where first seen upon ascending the central portion of the northern end of the range, these rocks are fairly constant in character for a maximum exposed thickness of approximately 1,000 feet. They are marked especially by angular, blocky erosional forms, patterned upon joints and beds. Weathered surfaces are brownish, but fresh surfaces are light gray, mottled and streaked with black. Close scrutiny shows that the gray portion is fine-grained quartz, the black is partly mica, and the brownish coat is mainly iron oxide. Viewed in thin section under the polarizing microscope, this rock is seen to be more than ninety percent quartz, arranged in a granular mosaic with minor amounts of biotite mica and pyroxene. Most of the quartz grains are less than 0.01 inch in diameter, except in certain veinlets of secondary origin, in which they are several times larger. In the main mass of the rock, the quartz grains are of rather round contour and regular size, but, in the veinlets, they are of very irregular shape. All of the quartz shows wavy extinction. The biotite mica is generally grouped in longitudinal zones of small flakes or of sharply irregular leaves as much as 0.5 inch long. Associated with it are a few small, granular and tabular masses of epidote. Small, black specks (magnetite?) occur as inclusions in the sec-