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10/18/85

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: BENTON

ALTERNATE NAMES:

SANTA CRUZ COUNTY MILS NUMBER: 39

LOCATION: TOWNSHIP 24 S RANGE 16 E SECTION 15 QTR. SE  
LATITUDE:N 31DEG 22MIN 08SEC LONGITUDE:W 110DEG 41MIN 44SEC  
TOPO MAP NAME: LOCHIEL - 15 MIN

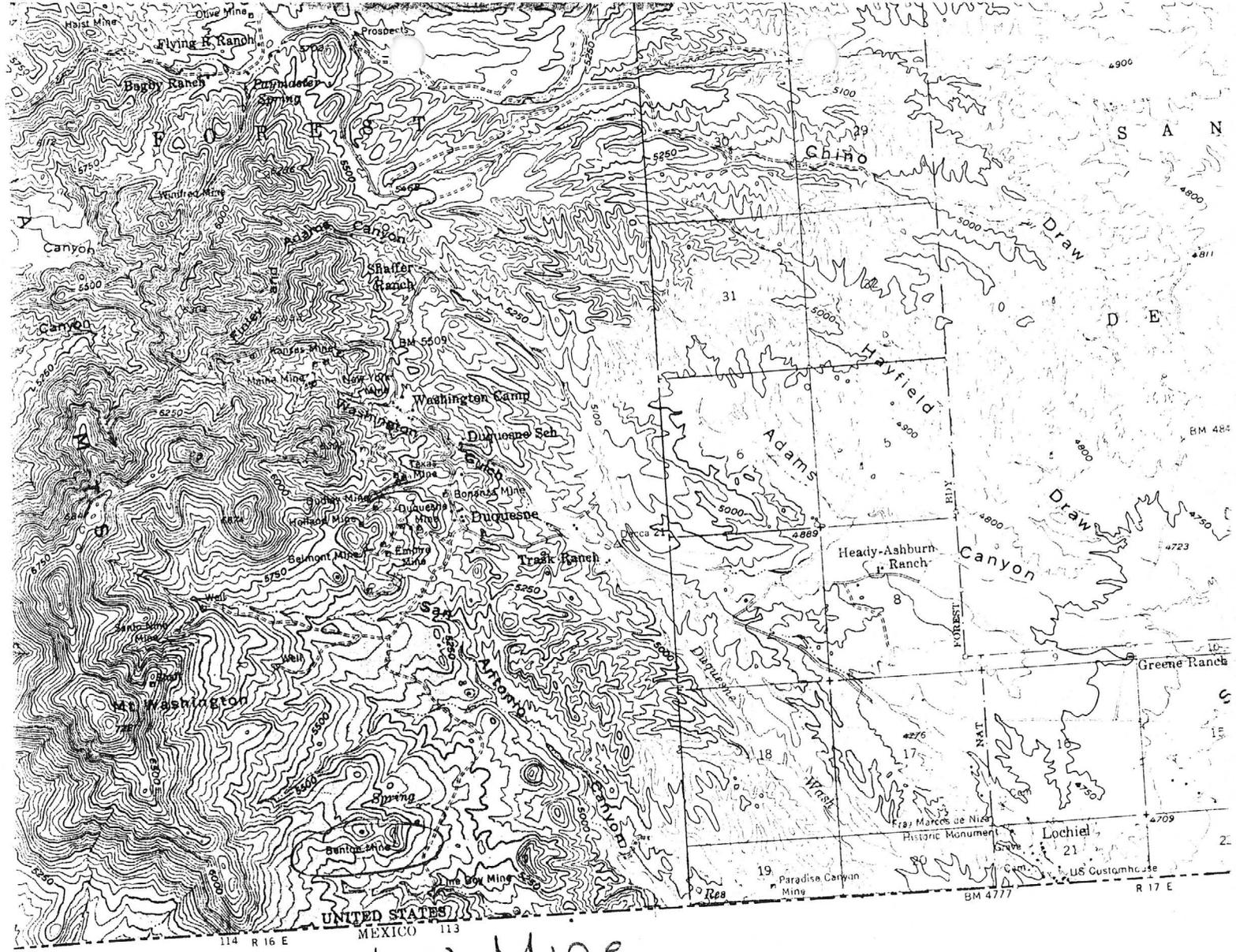
CURRENT STATUS: PAST PRODUCER

COMMODITY:

COPPER-PRINMARY  
GOLD-BYPRODUCT  
MOLYBDENUM-BYPRODUCT

BIBLIOGRAPHY:

USGS BULL 430, P. 161  
USBM FIELD NOTES  
AZBM CARD FILE SANTA CRUZ CO.  
SCHRADER, F.C., 1915, USGS BULL. 582,  
P. 346-347  
ADMMR BENTON MINE FILE  
USGS BULL. 430, P. 161

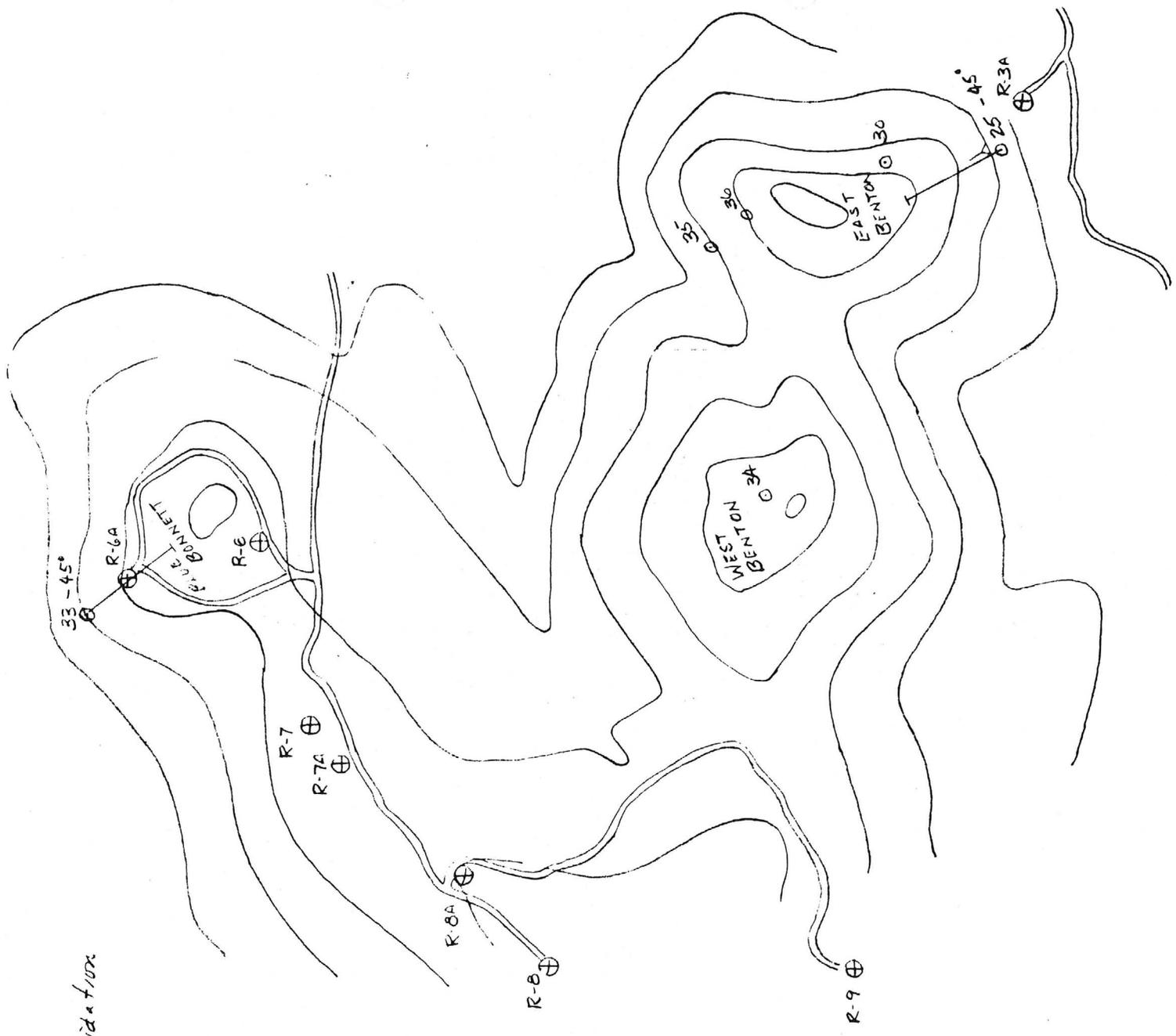


Benton Mine  
T4S R16E Sec. 15

Lochiel, AZ 15'

EXPLANATION

- ⊕ Rotary drill holes for validation
- Core holes



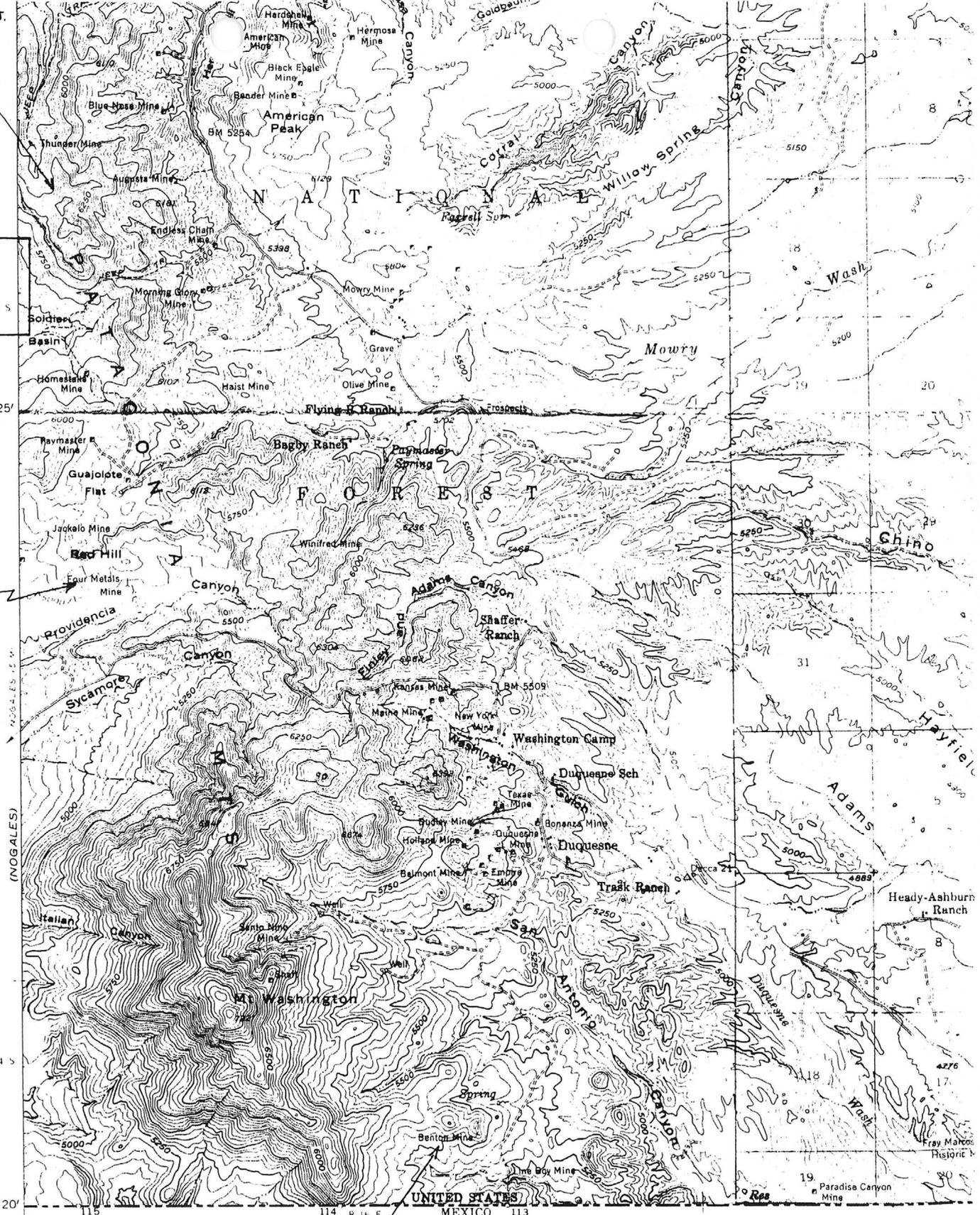
THUNDER MT. GROUP

MOLLY ROCK GROUP

FOUR METALS PROSPECT

UNITED STATES  
MEXICO  
CHAPMAN-MOREHOUSE  
RHUBARB PROSPECT

Lochiel 15' Quad





### BENTON MINE

The Benton mine, owned by Dennis Coughlin and partners, of Duquesne, is situated about three-fourths mile northeast of post 113 of the international boundary line, on open ground, at an elevation of about 5,200 feet. It is developed principally by a 155-foot tunnel. The country rock is granite, intruded by granite porphyry and aplitic granite. The granite porphyry contains the values of the mine, which consist of low-grade copper and gold ore. The ore occurs chiefly in a dike of this rock 60 feet wide, which is impregnated with pyrite, chalcopyrite, and a little flaky molybdenite. Its contact with the granite is marked by a sericitic zone a few feet in width.

### LINE BOY PROSPECT

The Line Boy prospect, owned by Captain O'Connor, of Duquesne, is located just north of post 113 of the international boundary, about three-fourths mile southwest of the Benton mine, at an elevation of about 5,400 feet. It is developed to a depth of 80 feet by three shafts and a tunnel.

The country rock is gray granite, intruded by a north-south dike of granite porphyry 300 feet in width. The ore deposits are contained in the granite, which near the dike is impregnated with pyrite, chalcopyrite, molybdenite, and a little bornite. The metallic minerals are particularly abundant along the contact of the two rocks and are concentrated in joint planes and fissures, locally with a little associated quartz. In one place occurs a 3-foot band of fine-grained, friable, and relatively pure specularite.

The molybdenite occurs also unassociated with the other sulphides, in the form of comparatively pure lumps or crystals, in places one-eighth of an inch thick and more than half an inch in diameter, in a coarse siliceous, sericitic phase of the granite. It also, with quartz in about equal amount, forms veinlets of considerable continuity that traverse less acidic portions of the granite and range from microscopic width or one-sixteenth inch. It is also present in small amount in microscopic to a very small macroscopic veinlets or seams traversing a dense phase of the granite. The veinlets are parallel, ten or twelve being contained in a single thin section made for microscopic study. They contain and are associated with microscopic druses.

### ORIGIN OF THE DEPOSITS

At all the localities here described the molybdenite, whether found in veins, as impregnations in the rock, or in other forms, occurs in granite or in quartz veins cutting the granite. All the deposits, besides being intimately associated with considerable quartz, are also more or less intimately associated with granitic intrusive rocks--aplite, granite porphyry and allied acidic rocks. From the constancy of these conditions it seems probable that some genetic relation exists between the deposits and the intrusive rocks, and that the deposits were probably formed by precipitation from thermal solutions whose circulation accompanied or followed the intrusions.

**CONTINENTAL MATERIALS CORPORATION**  
Interoffice Correspondence

To: C. H. Reynolds

Date: April 2, 1965

From: G. L. Brooke

Copies: Bill Cox

Subject: Rubarb Group, Santa Cruz Co., Arizona

The above group was visited on April 1, 1965. It consists of 108 claims located in the Santa Rita Mountains south of Duquesne and immediately north of the Mexican border.

These claims were staked approximately one year ago, reportedly because of a tip from a local geologist who had become intrigued by the copper possibilities of the area. During the process of staking the crew ran into a geophysical crew doing IP work for Bear Creek Mining Company. As the story goes, Bear Creek stopped the geophysical work and started staking also. They staked a block of ground to the east of the Rubarb Group. Apparently the discovery work was never performed on these claims even though they were laid-out by transit and covered the remainder of an IP anomaly that exists along the mutual boundary. The Bear Creek geophysicist reportedly is convinced the anomaly is caused by sulphides.

Apparently there has been a free exchange of information with Bear Creek, and this company has done considerable geochemical work on cuttings from validation drill holes and on core splits.

Ownership: The Rubarb Group is owned by the Chapman & Morehouse Mining Company of Grand Junction, Colorado, or locally at 121 Bankard, Nogales, Arizona (Ph. 287-3733).

Geology: The Rubarb Group is underlain by Tertiary Quartz Monzonite. It has a medium-to fine-grained texture, and in the weathered outcrop is tan to brown in color. Only locally does it take on a red hue. It weathers to broad flats and low, rounded hills.

Alteration is very pervasive, both in the outcrop and in the core. It is not at all striking as at San Manuel or Silver Bell and consists of kaolinization, silicification, and the introduction of "secondary" biotite and pink potash-rich feldspar. There has been some alteration of magnetite to hematite, but the iron content appears to be relatively low. There has also been minor amounts of pyrite introduced along with the ore minerals.

Mineralization consists of chalcopyrite, molybdenite, barnite and minor amounts of chalcocite

There appears to have been very little secondary enrichment due to the low pyrite content.

The molybdenite appears to be associated with quartz stringers, but to some extent is disseminated, while the copper values are largely disseminated.

The only structural features immediately discernible are small breccia pipes. These occur in a northwest-southeast trend, starting at the Line Boy patented claim on the south and running through the Justice and Santo Nino to the northwest. These structures were prospected by the old timers and have all yielded small amounts of high-grade copper. They also contained some high-grade molybdenite, which was largely wasted.

The largest of these oreshoots was at the Santo Nino, but it bottomed out at a depth of approximately 200 feet. The molybdenite from this dump was later recovered.

At the Line Boy, the only one visited, the alteration would indicate a diameter of approximately 150 feet.

Exploration: In addition to the IP and geochemical (cuttings and core only) work completed by Bear Creek, Chapman and Morehouse have run some check IP and a few magnetic lines. The check IP is reported to have confirmed the Bear Creek IP anomaly, but the magnetic work appears to have been inconclusive.

Some mapping and the drilling of 36 holes rounds out the exploration work completed to date. The first 22 or 23 holes were drilled for validation work and were shallow, rotary holes. Most of these were drilled outside the main areas of interest. Several shallow core holes were drilled over the IP anomaly, with no success. Then drilling was concentrated on the Line Boy and on an adjacent but smaller breccia pipe with the hope of developing a small high-grade deposit. Only low-grade mineral was encountered in this drilling. Recently drilling has been concentrated on the so-called Blue Bonnett, West Benton and East Benton Complex. These are the names of three small hills (see map) in the central part of the group. These hills represent a rather large area of alteration and drilling here has met with limited success.

Hole No. 36 is now drilling, which is the last in the current program. The drilling data has not been compiled as yet, but we have been promised a copy when it is put together. The following is Bear Creek's resume of their geochems of the holes in the B.B., W.B. & E.B. complex.

<u>Hole</u>	<u>Interval</u>	<u>Thickness</u>	<u>% Cu Equivalent</u>	<u>Total Depth</u>
25	No data			
30	234'-283'	49'	0.347*	326'
33	85.5'-243'	157.5'	0.469	500
	419.5'-443'	23.5'	0.909	
34	39.5'-79.0'	39.5'	0.304*	500'
	250'-281'	31.0'	0.376*	
35	No data			
36	Now drilling			

\* No appreciable Mo.

Bear Creek uses a factor in calculating their copper equivalents whereby each unit of Mo is equal to 5.7 units of Cu. Very few assays have been made for precious metals, but they would appear to run less than 50 cents per ton.

The above holes are sketched on the attached map, and were drilled vertical except for Nos. 25 and 33.

Deal: No deal was discussed, but I gathered that Chapman and Morehouse would be happy to turn the property for a drilling commitment.

Conclusions: Having had only limited experience with porphyry coppers, I am not sure that my judgement of the merits of the property are valid, but it would be my guess that it is not a good porphyry copper prospect. For one thing, there is very little secondary enrichment. However, the mineralization encountered would justify some additional work.

In my opinion the property warrants a program of detailed mapping, surface geochemical survey, magnetometer survey and some additional drilling, but I don't think it is the type of prospect that Continental Materials should try to develop.

## FUTURE PROSPECTS OF THE DEPOSITS

The only one of the above-described localities at which molybdenite seems to be present in workable quantities is at Helvetia, notably in the Leader mine. However, as all the deposits occur under geologic conditions ~~favorable~~ favorable for molybdenite and are still in the prospect stage, it is possible that with development some others may prove to be of economic value. At the time of visit with the Madera Canyon prospects were being exploited for molybdenite. An important point in the selection of deposits for development is the absence of chalcopyrite, for this mineral is difficult to separate from molybdenite and thus reduces its market value.

## GENERAL OCCURRENCE OF MOLYBDENITE

According to Crook, the molybdenite at fifty or more localities in different parts of the world which have been described occurs in a great variety of rocks, including practically all the main groups, but its occurrence with granite is by far the most usual and typical. Hillebrand also states that molybdenite accompanies the more acidic rocks and is a well-known constituent of some granites.

According to Crook, "the association with sulphides and oxides is that most characteristic of the occurrence of molybdenite in quantity in veins." In small quantities the mineral is not at all uncommon in the fissure veins of the Cordilleran States. The deposit at Crown Point, Washington, economically one of the most important in the United States, is a quartz vein in which molybdenite occurs in association with chalcopyrite.