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ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: KALAMAZOO MINE

ALTERNATE NAMES:

ADAMS CLAIMS  
PURCELL WINDOW CLAIMS  
LOWER K

PINAL COUNTY MILS NUMBER: 578B

LOCATION: TOWNSHIP 9 S RANGE 16 E SECTION 9 QUARTER C  
LATITUDE: N 32DEG 40MIN 00SEC LONGITUDE: W 110DEG 42MIN 35SEC  
TOPO MAP NAME: MAMMOTH - 7.5 MIN

CURRENT STATUS: EXP PROSPECT

COMMODITY:

COPPER SULFIDE  
MOLYBDENUM  
SILVER

BIBLIOGRAPHY:

ADMMR KALAMAZOO MINE FILE  
"MIN. AND WTR RES OF AZ" AZBM BULL 180, P 137  
ADMMR QUINTANA MINERALS CORP. FILE  
ADMMR MAGMA COPPER CO. FILE - MISCELLANEOUS  
SEE: ADMMR SAN MANUEL COPPER MINE FILE

08/29/86

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R E F E R E N C E S

KALAMAZOO PROJECT

PINAL COUNTY

MINING CONGRESS JOURNAL      Sept. 1968 p11  
E & M J                              Sept. 1968 p199

ABM Bull. 180, p. 137

San Manuel (file)

Quintana Minerals Corp. (file)

"Discovery and Exploration of the Kalamazoo Orebody, San Manuel District, Arizona",  
Mining Engineers, 12/67, p. 41

Geology of the Kalamazoo Orebody, San Manuel District, Arizona, J. David Lowell,  
Economic Geology, Vol. 63, No. 6, Sept.-Oct., 1968, p. 645

**E/MJ—September, 1968**

KALAMAZOO MINE

PINAL COUNTY

KAP WR 1/19/88: Granite fines from the decomposed granite operation on the weathered altered surface above the development work at the Kalamazoo Mine (file) Pinal County are being used by the company, Western Clay Tennis, 7225 Oracle Road, Suite 200B, Tucson, Arizona 85704, phone 297-3355 that builds clay tennis courts for the base material.

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QUINTANA CORP.

Drilling on the Purcell property west of San Manuel. GWI WR 1-7-66

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The Kalamazoo Project near San Manuel is administrated by Quintana Minerals Corporation which has the following officers:

Corbin J. Robertson - President  
Ronald B. Thompson - Vice President  
Marvin H. Morris - Vice President  
John B. Brock - Vice President

This information from J. David Lowell who is managing the Kalamazoo Project in the capacity of consultant and for the time being his office in Tucson is the local headquarters for Quintana. (5215 N. Oracle - Tucson) Letter to FTJ 4-19-66

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The exploration is being done by Quintana Minerals Corp., Houston, a division of Quintana Oil. Albert S. Johnson is engineer in charge. Quintana has conducted the drilling exploration for the past 18 months.

Four deep drilling rigs are being used to explore the Purcell Window Claims in the Tiger Mining district south of Magma Copper Corp.'s San Manuel operation. Two of these big rotaries are being used for exceptionally deep drilling. Other rigs include a CP-50 especially designed for the job and a heavy duty diamond drill. E&MJ 3-1967 p. 140

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Netherlin and Jones reported that Quintana had drilled some deep holes south and southeast of Ajo Pit. Two were at the west foot of Black Mountain and one on the east foot, and at least two on the Greenway Alberts' ground. A large number of short locations holes were drilled. One drill is active. According to Jones the results were generally not very satisfactory, the deepest hole being about 2200'. LAS ASMOA - Ajo 4-4-67

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It was reported that Quintana had drilled three deep holes around Black Mountain, but apparently had not had much success. They also drilled several short holes for location work and to test some of the Greenway Albert ground. Are now inactive. LAS Conf. Ajo 6-6-67

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Active Mine List Nov. 1967 - Expl.

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HM WR 1/23/88: Able Earth Environmental Design, 50 N. Alvernon, Tucson, AZ (795-5259) regularly mines decomposed red granite on a patented mining claim at the Percel Window above the Kalamazoo ore body at Mammoth, AZ. The surface deposit is leased from Magma Copper Co.

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## KALAMAZOO COPPER DEPOSIT, ARIZONA

The Kalamazoo mine lies in the cactus-studded Sonoran Desert, about 7 miles east of Oracle, in Pinal County, Ariz. (fig. 8). Unlike its sister property, San Manuel, there was no direct surface evidence of the presence of the Kalamazoo ore body. Its discovery was the result of sound intuitive reasoning, based upon the geological factors revealed during the development of the San Manuel mine.

Drilling at San Manuel showed that the upper surface of the ore body was a gently undulating, nearly flat surface sloping to the southwest at about 25°. Geologists agreed that the upper portion of the original ore body must have been sheared off and displaced by a low angle fault, but there was no agreement as to the direction or how far the missing upper segment had been shifted.

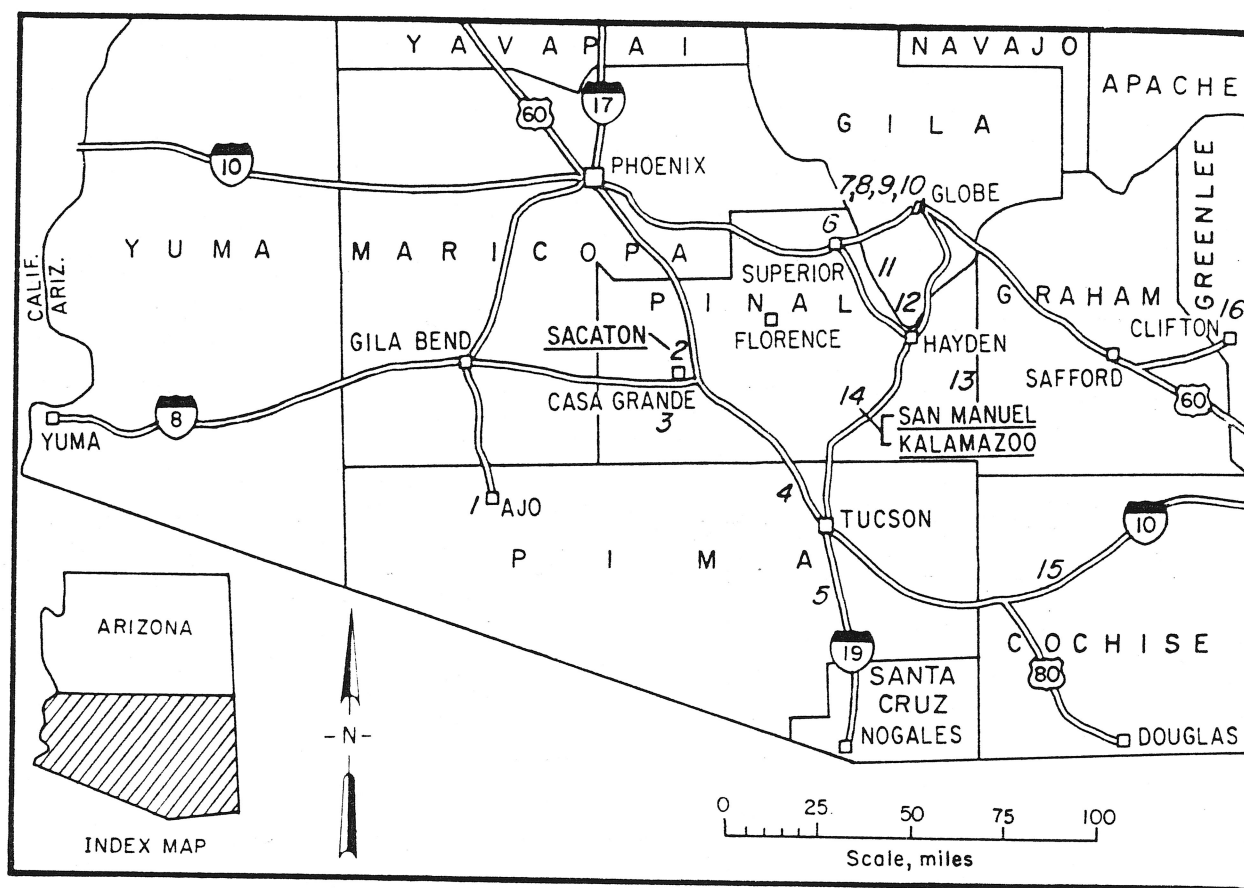


FIGURE 8. - Location map, major copper producers in southern Arizona: 1, New Cornelia mine, open pit; 2, Sacaton mine, open pit; 3, Lakeshore mine, underground; 4, Silver Bell mine, open pit; 5, Mission, San Xavier, Twin Buttes, Pima, Esperanza, and Sierrita mines, open pits; 6, Superior mine, underground; 7, Pinto Valley mine, open pit; 8, Blue Bird mine, open pit; 9, Inspiration mines, open pits; 10, Copper Cities mine, dump leach; 11, Ray mine, open pit; 12, Christmas mine, open pit; 13, Old Reliable mine, in situ leaching; 14, San Manuel and Kalamazoo deposits, underground block caving; 15, Johnson mine, open pit; and 16, Morenci and Metcalf mines, open pits. (Adapted from Arizona Copper Capital, U.S.A., Arizona Mining Association, Phoenix, Ariz., 1975.)

saved and stored by Martha Purcell. The samples had been stored for many years in an old adit with a wooden door. When Lowell tried to open the door, he discovered that a swarm of bees were in residence on the inside surface of the door. He persuaded a local beekeeper in Oracle to collect the bees, but then found that water had dripped from the back of the adit and made one solid mound of the hundreds of paper bags full of drill cuttings. However, by using archaeological dig techniques with a putty knife and a whisk broom, Lowell was able to identify and salvage most of the samples.

Upon microscopic restudy of the cuttings saved from Martha Purcell's drill holes, Lowell and his associates were able to recognize both the mineral zone and the alteration zones which the drill had penetrated. The four holes had entered the outer pyritic zone at depth, and at least one hole had actually encountered the marginal ore zone. Working from the geometry of these showings, and assuming that the fault movement had been southwestward down the fault plane, Lowell postulated the position of the missing ore body. A geochemical survey of surface soils, showing high copper and molybdenum traces above the hypothetical location of the ore body, gave further credence to his hypothesis.

On the strength of Lowell's reasoning, Quintana moved very rapidly and acquired control of the necessary ground. The very first exploratory hole drilled by Quintana passed successively through the types of rocks Lowell had predicted and entered ore-grade rock at about 2,500 feet! Because the ore body was believed to lie along a northeast bearing, a grid system of 25 holes on 600-foot centers was laid out in that direction but centering on the discovery hole. Every hole drilled in the project intersected the ore body. Quintana, with experience gained in oilfield drilling, used a conventional oilfield rotary drill. Holes were drilled rapidly with a conventional bit to about 3,000 feet. As soon as chemical analyses of cuttings reached 0.2 percent copper, core drilling was started, and continued to the bottom of the ore zone at 3,000 to 5,000 feet.

Drilling outlined an ore body the shape of an overturned canoe, precisely as predicted by Lowell. Here, in 1967, was a new ore body, awaiting a name. Lowell related how Corbin Robertson, the president of Quintana, named it. Robertson was a great admirer of the music of bandleader Glenn Miller, who disappeared on a flight over the English Channel during World War II. Robertson was in the habit of naming his properties, oilfields or mines, after favorite Glenn Miller selections. One of his favorites was Miller's rendition of "I've Got a Gal in Kalamazoo," and for it the Kalamazoo mine was named.

Further drilling established that the missing half of the ore body had been shifted horizontally for 8,000 feet and dropped about 3,500 feet vertically. The ore body was estimated to contain 565 million tons of sulfide ore averaging 0.72 percent copper. Clearly this forecast a very large scale, underground operation. The tremendous task of developing and equipping a mine and mill for such a vast copper deposit was beyond the financial and technical resources of Quintana Minerals. Magma Copper, with facilities and know-how already developed at neighboring San Manuel, was approached, and after extended negotiations, Kalamazoo was purchased by Magma for \$27 million in cash and stock equivalent in March 1968.

# NA DEPARTMENT OF MINES & GEOLOGICAL SURVEY

Mineral Building, Fairgrounds

Phoenix, Arizona

Confidential

1. Information from: D. Lowell
- Address: 5215 North Oracle
2. Mine: Kalamazoo Project 3. No. of Claims - (yes) Applied For  
Unpatented \_\_\_\_\_
4. Location: \_\_\_\_\_
5. Sec 2-3-9-10 Tp 9S Range 16E 6. Mining District Old Hat
7. Owner: Quintana Mineral Corp
8. Address: 5215 N Oracle
9. Operating Co.: Same
10. Address: \_\_\_\_\_
11. President: \_\_\_\_\_ 12. Gen. Mgr.: \_\_\_\_\_
13. Principal Metals: \_\_\_\_\_ 14. No. Employed: \_\_\_\_\_
15. Mill, Type & Capacity: \_\_\_\_\_
16. Present Operations: (a) Down ☐ (b) Assessment work ☐ (c) Exploration ☒  
(d) Production ☐ (e) Rate \_\_\_\_\_ tpd.
17. New Work Planned: \_\_\_\_\_
18. Misc. Notes: Drilling program probably completed 25 holes  
to ore body (Prob. 2500' or more) Ore body more compact  
shape but deeper than San Manuel.  
Mining methods, shaft sinking costs, Mill,  
railroad & smelter cost now being discussed.  
Claim Pat application being processed by B.L.M.  
& covers most of 4 sections adjoining San Manuel  
on the west

Date: 7/13/67

(Signature)

G. L. M.

(Field Engineer)