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PRINTED: 05-12-2006

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: GOLD HILL

ALTERNATE NAMES:
HOUGHTON DEVELOPMENT

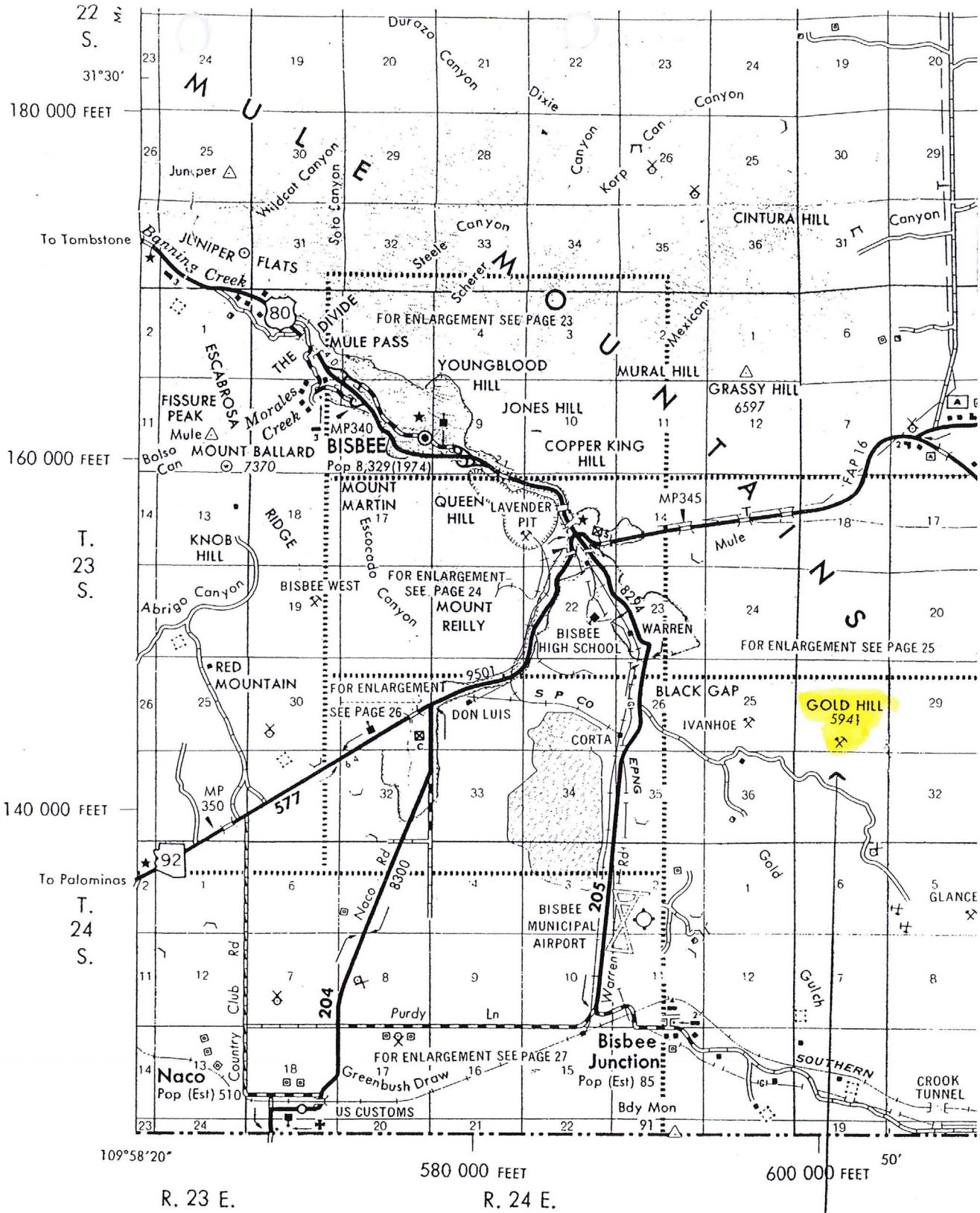
COCHISE COUNTY MILS NUMBER: 275

LOCATION: TOWNSHIP 23 S RANGE 25 E SECTION 30 QUARTER SW
LATITUDE: N 31DEG 23MIN 51SEC LONGITUDE: W 109DEG 50MIN 54SEC
TOPO MAP NAME: BISBEE NE - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
MANGANESE
COPPER OXIDE
BARIUM BARITE

BIBLIOGRAPHY:
KEITH, S.B., 1973, AZBM BULL. 187, P. 87
USGS BULL 710, 1920, P 113
USBM IC 7990, 1961, P 23
AZBM BULL 127, 1930, P 44
ADMMR GOLD HILL FILE



GOLD HILL PROJECT
BISBEE, ARIZONA

IMMEDIATE FINDINGS:

From the studies just completed, it was found that the geology of the Gold Hill area is very similar to the Carlin Trend in Nevada, and is unique to the Bisbee area, and to Arizona in general.

GOLD HILL

This is a brief geology report on the Gold Hill Mine or Gold Hill deposit located at Gold Hill, Bisbee, Warren Mining District in the Mule Mountains, Cochise County, Arizona. The mine is located in the SW ¼ , Section 30, 31 and 32, T.23S, and R.25E. approximately 5 miles southeast of Bisbee on the south slope of Gold Hill at the upper part of Gold Gulch.

The over thrust fault of Gold Hill is connected with the Laramide orogeny. The Laramide orogeny occurred in a series of pulses, with quiescent phases intervening.

This event had its origins off the west coast of North America where the Farallon Plate was sliding (being sub ducted) under the North American plate. The Farallon Plate dragged along the bottom of the continental crust of the North American Plate, causing significant folding and faulting due the shallow angle of seduction and drag. Folds and faults in the Laramic strata resulted from block faulting and thrust faulting of the underlying basement complex and ore producing intrusions.

The Warren Mining District has been the largest gold producer in Arizona. The geology of Gold Hill is complex and is related to the Laramide orogeny and plate tectonics. At Gold Hill the Glance conglomerate beds are overridden by an over thrust block of Paleozoic limestone, and are locally turned up to a nearly vertical position in a compressed and slightly overturned anticline. Near the Gold Hill over thrust, the beds are upturned until they are practically vertical from the normal dip of 20 to 25 degrees to the northeast. Wherever the contact between the Paleozoic and Cretaceous rocks is exposed, the former are found to overlie the latter and to be separated from them by a zone of fracturing and brecciation. The approximate line of the fault can be readily followed along the north slope of Gold Hill, where it has a rather steep dip to the south and is accompanied by much crushing and disturbance of the underlying conglomerate and overlying Escabrosa and Naco Limestone.

The Cretaceous beds upon which the over thrust Paleozoic rocks rest are much disturbed in the vicinity of the fault. They are crushed and sheared and in some places metamorphosed to much-crumpled greenish sericitic schist. It is noteworthy that throughout its course, the Gold Hill fault actually outcrops with a somewhat steeper dip that might be expected from then general character of the over thrust. It is probable that this dip becomes less beneath the mass of the block and that its steepness near the present exposures of the fault is local.
The over thrust was affected by strong compression acting along northeast-southwest lines. There is reason to believe that the hanging wall of the fault has been thrust over the footwall for a distance of at least 2 miles. As movement along the fault continued, the Paleozoic rocks of the hanging wall were thrust forward and upward until they pressed against the Cretaceous beds northeast of Gold Hill, and squeezed the latter into a closely compressed anticline in the immediate vicinity of the fault. The effect of the thrust appears also to have been recorded, at a distance from the fault, in the change of strike

and upturning of the Mural Limestone near the Easter Sunday Mine. It is probable that the over thrust Paleozoic beds never extended much farther to northeast than the present outcrop of the fissure. The steep dip of the fault where actually exposed and the nature of the folding and squeezing of the Cretaceous beds in its vicinity, are phenomena to be expected along the plowing front of a rigid over thrust mass, rather than in those portions of the footwall which have been greatly overridden.

Bulletin 194, Metallic Mineral Districts and Production in Arizona, from the Arizona Bureau of Geology and Mineral Technology reveals that the Gold Hill deposit shipped 1700 tons of ore from 1901 to 1911 which yielded 1600 ounces of gold and 100 ounces of silver. It also produced 50 tons of manganese ore which contained 52,600 pounds of manganese.

The Gold Hill Mine consists of fourteen (14) patented claims which comprise over 250 acres. Silver Nickel Mining Co. has an interest in numerous patented claims in close proximity to the north of the Gold Hill Mine.

There is a two-mile-long northwest-southeast fissure along Gold Hill. The replacement masses contained copper oxides, barite, calcite and iron oxides and gold. About 50 tons of manganese oxide were produced in 1918 (one carload). In the upper part of Gold Gulch many placer gold deposits have been worked. The Gold Hill Mine is a prime exploration target for gold along the over thrust fault fissure and Gold Hill block. Gold has been produced from this area, and the surrounding area has been a placer gold source.

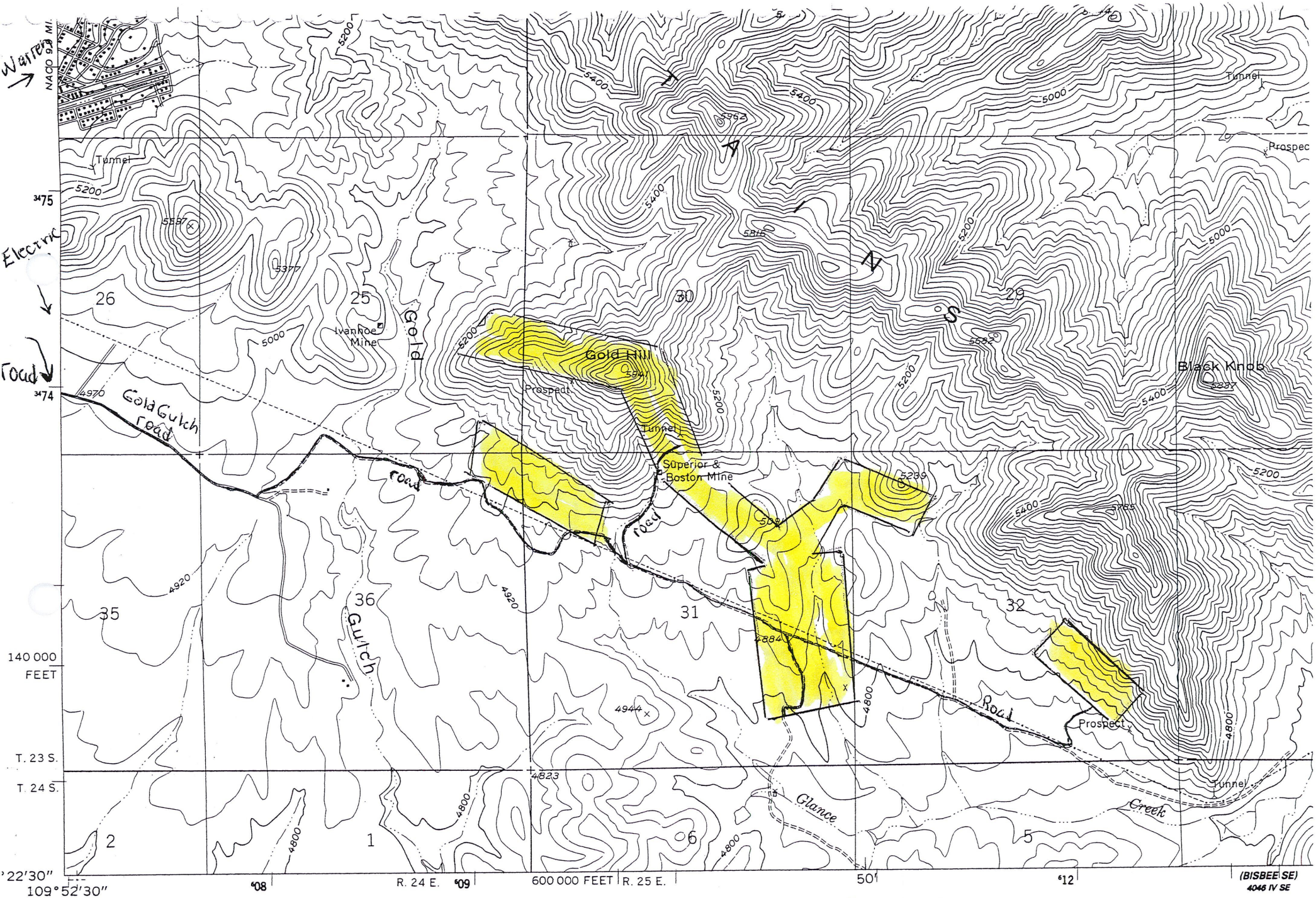
The high-gold, low copper character of the Gold Hill mine bodies, and their smaller size, might reflect a zoning pattern from copper-rich, gold poor bodies in the center of the district to gold-rich, copper-poorer bodies at the fringes of the system. The presence of this metal zoning pattern and of peripheral manganese mineralization is similar to that observed in some porphyry and/or intrusion related carbonate-hosted distal gold deposits (e.g. Yauricicha (Peru) Bau (Malaysia) Cove (Nevada).

Chalocite is found irregularly but widely distributed through the large area of Glance conglomerate stretching from Gold Hill southward for two to three miles. The mineral occurs in minute reticulating veinlets, often microscopic in ; size, and in little rounded bunches, rarely over half an inch in diameter, usually enclosed within a thin envelope of malachite. The chalocite is usually accompanied by the development of secondary quartz in veinlets. Both chalocite and quartz have in part filled minute fissures in the conglomerate, but have also in part replaced some of the finer interstitial, calcareous matrix by which the pebbles are held together. Micron gold is also widely distributed with the copper mineralization in the conglomerate.
In conclusion geological conditions are very favorable to the existence and presence of large and profitable gold ore bodies.

Sincerely,

John B. Rothermel
Company Geologist

Frederic M Rothermel Ph.D.
Project Manager
Solomon Springs Copper Co.
5822 W. Michelle Drive
Glendale, Arizona 85308-1244
(602) 626-8604

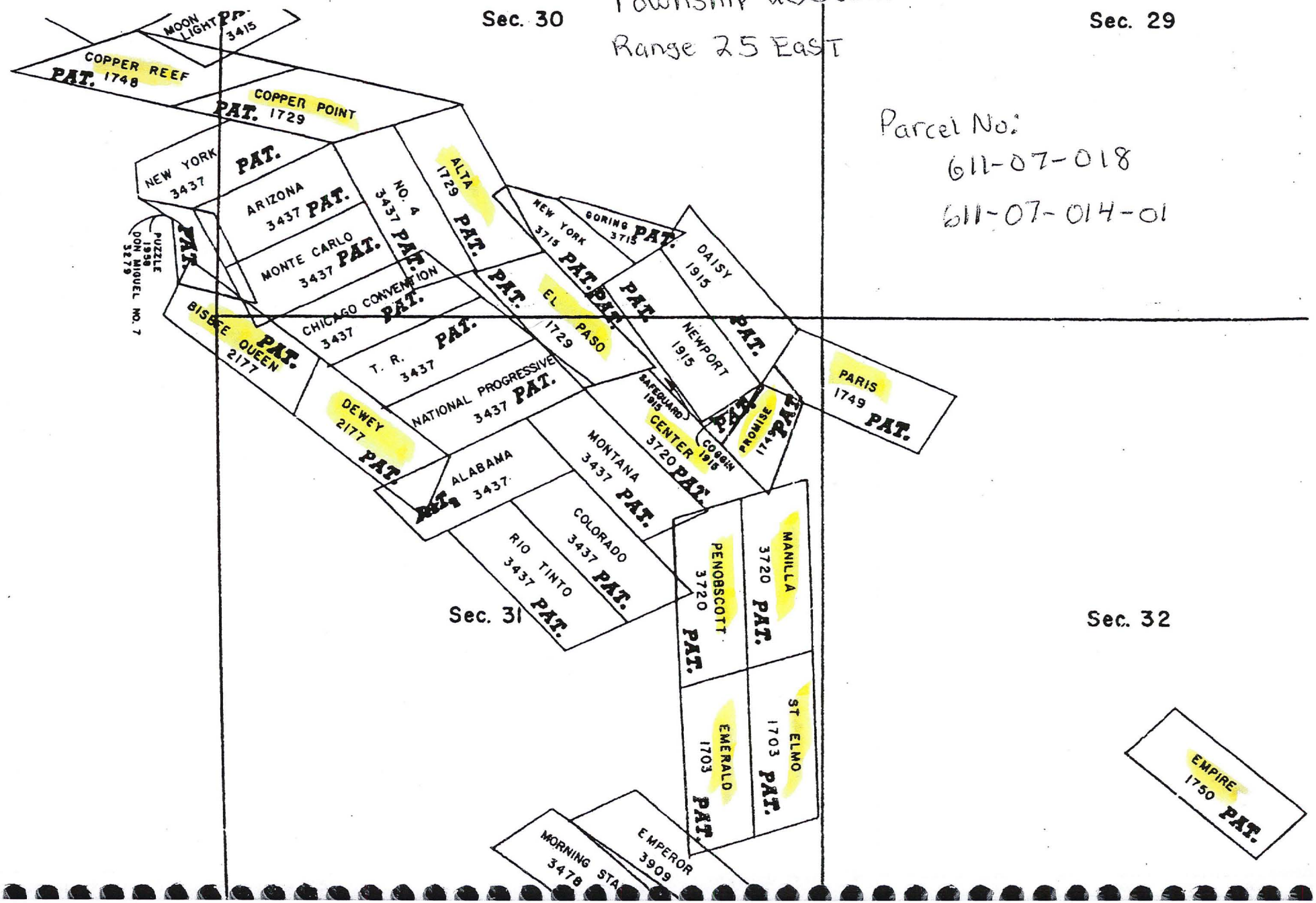


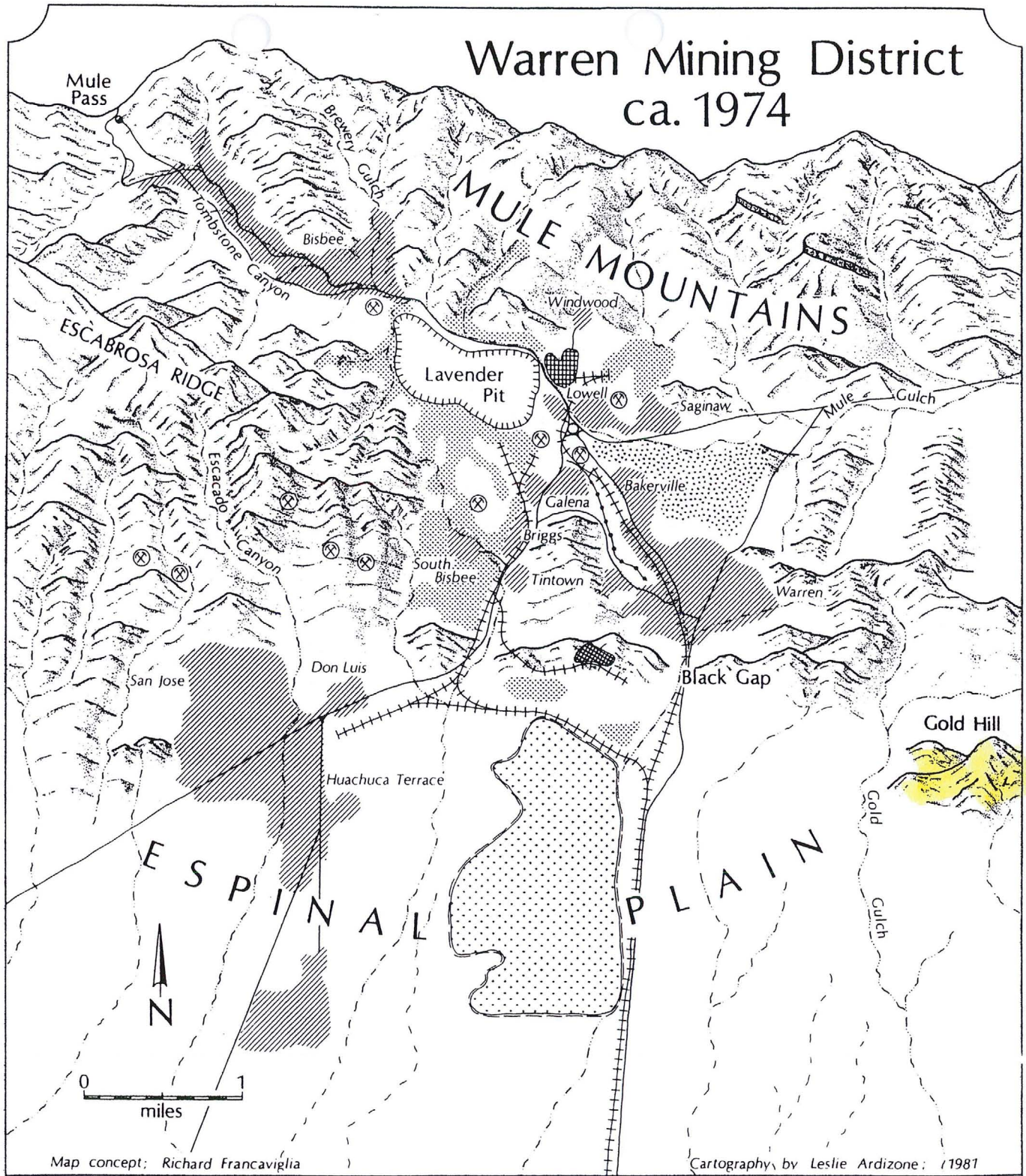
Mapped, edited, and published by the Geological Survey

Superior & Boston Mine

Township 23 South
Range 25 East

Parcel No:
611-07-018
611-07-014-01

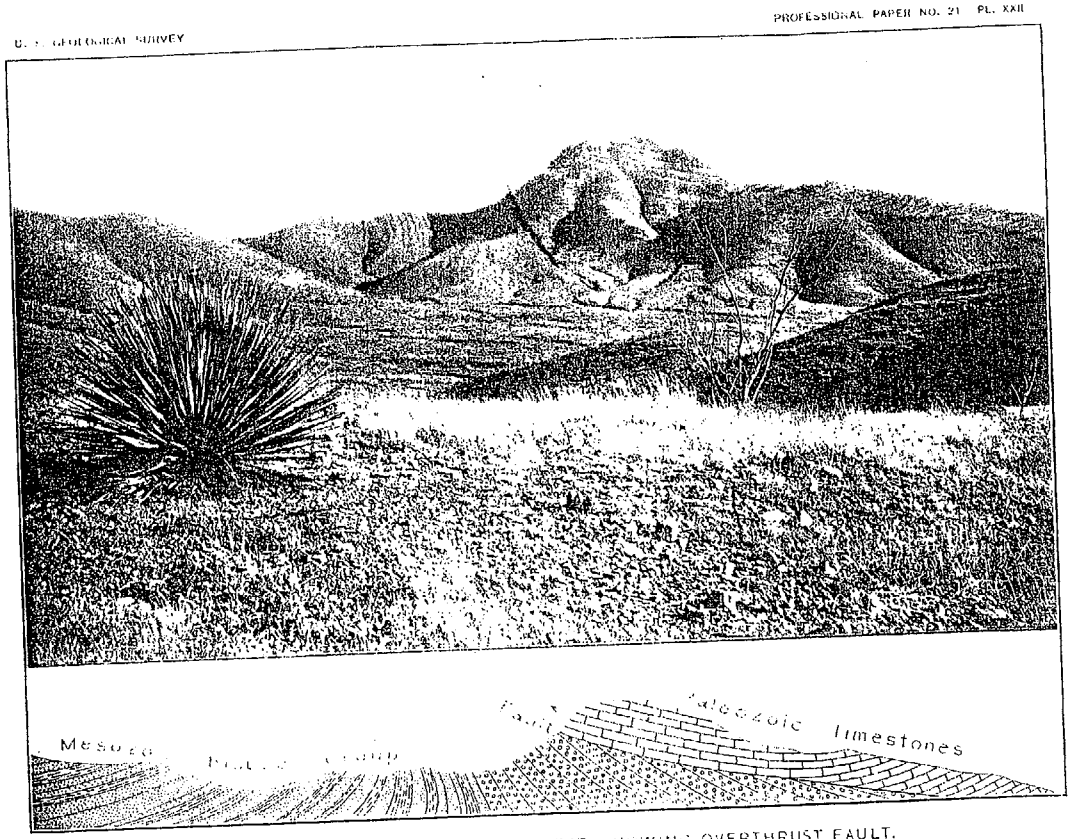




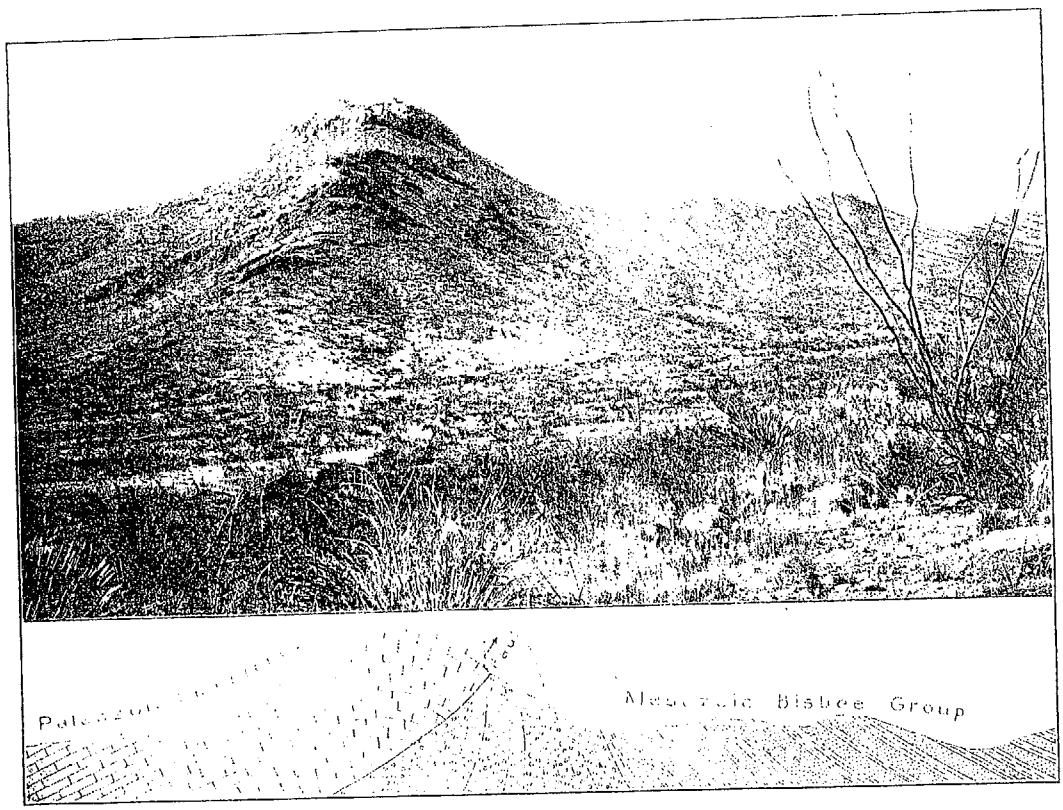
Legend

- Road
- Railroad
- Flume
- Mine
- Urbanized Area
- Concentrator (abandoned)
- Concentrator (active)
- Open Pit
- Tailings Pond
- Ore Dump or Overburden Pile
- Leach Dump

1904



A. GOLD HILL FROM THE NORTHWEST, SHOWING OVERTHRUST FAULT.



B. GOLD HILL FROM THE SOUTH, SHOWING OVERTHRUST FAULT.

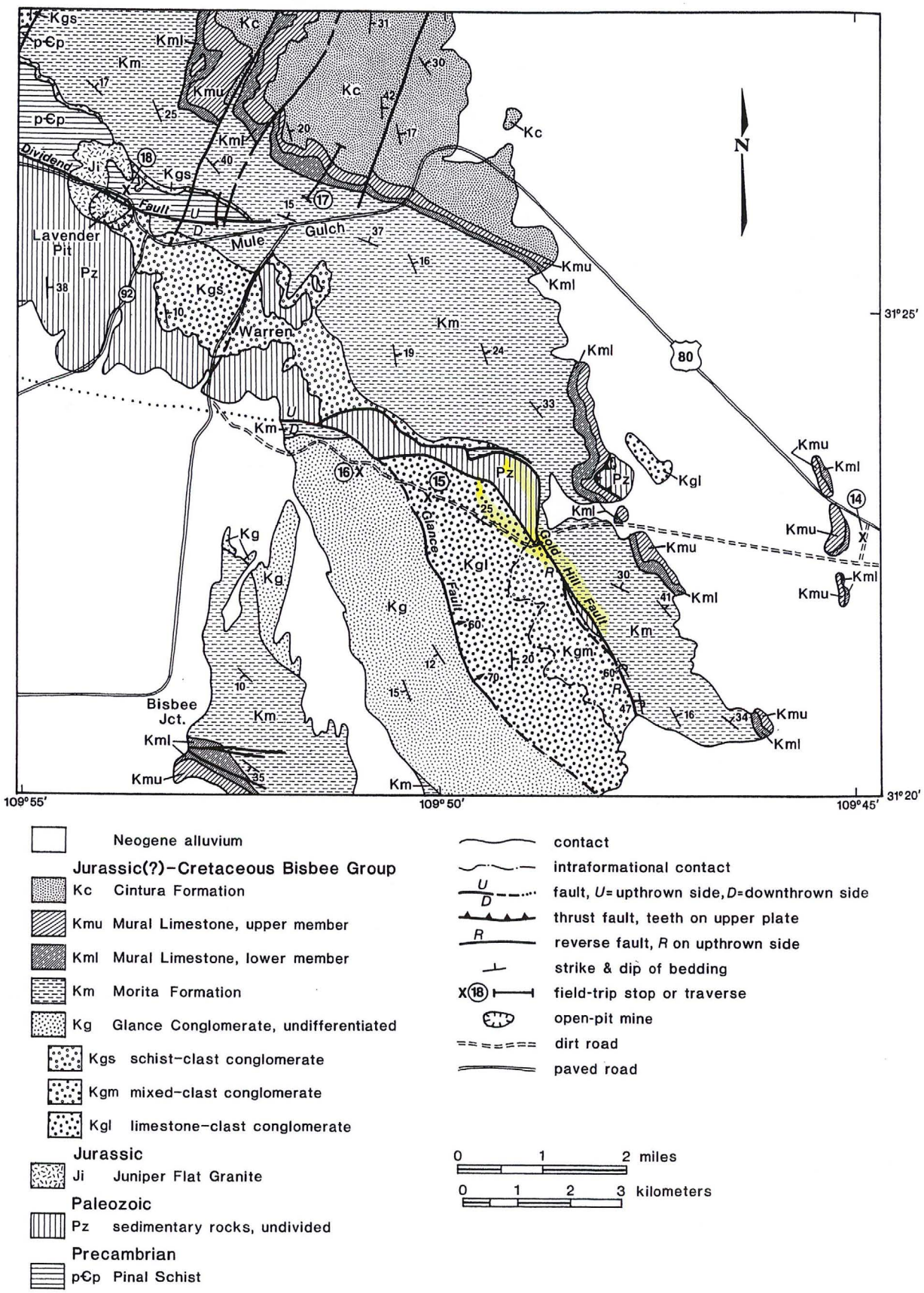


Figure 9. Geologic sketch map of the southern Mule Mtns (after Bilodeau, 1979).

HORSE SHOE COPPER MINING CO. **ARIZONA.**

Dead. Former office, Park Row Bldg., New York. Lands, near Safford, Graham County, Arizona, have passed to another corporation. Ignatius L. Qualey, president; Frank S. Weller, secretary; Chas. Carbonelle, treasurer, "Baker Tom" Putnam and "Larry" Summerfield, alias Fred Herbert, all have been sentenced to the penitentiary for swindles connected with sales of stock of this company, their frauds being of a flagrant nature.

HORSESHOE GOLD MINING CO. **COLORADO.**

Mine office: Central City, Gilpin Co., Colo. N. H. Scheur, superintendent. Property is the Barnes mine, carrying ores of gold, silver and copper. Has steam power.

HORSFAL MINING CO. **COLORADO.**

Mine office: Gold Hill, Boulder Co., Colo. D. Wiggens, superintendent. Ores carry gold, silver and copper. Has steam power and employed about 15 men at last accounts.

HOUGHTON DEVELOPMENT CO. – GOLD HILL **ARIZONA.**

Office: Houghton, Mich. Mine office: Bisbee, Cochise Co., Arizona. Employs 20 men. Graham Pope, president; J. R. Cooper, vice-president; F. G. Coggin, secretary; W. B. McLaughlin, treasurer; Geo. C. Lawton, superintendent. Organized August 15, 1903, under laws of Arizona, with capitalization $1,000,000, shares $25 par; issued, 34,000 shares, $5 paid in. Lands 13 claims, area 225 acres, in the Solomon Springs district, about 5 miles southeast of Bisbee. The surface showing, as is the case nearly everywhere in the Warren district, gives but small outcrops of ore, but geological conditions are favorable to the existence of large and profitable ore bodies at depth. Development is by 2 tunnels, the upper showing leached ground such as occurs near large bodies of copper ore elsewhere in the district. The lower tunnel, about 700′ in length, has cut auriferous silver-lead ore of $26 to $55 value per ton, and it is hoped to find copper ore further on. Management is of the best and developments to date are of a rather encouraging nature.

HOULIHAN GOLD & COPPER MINING CO. **ARIZONA.**

Mine office: Jerome Junction, Yavapai Co., Ariz. J. T. Whedon, president; Geo. Houlihan, vice-president; Geo. C. West, secretary and treasurer. Has a 100′ shaft, said to cut a 35′ vein.

HOWARD COPPER CO. **MONTANA.**

Letter returned unclaimed from former office, 618 Broadway, New York. Mine office: Phillipsburg, Granite Co., Mont. Organized under laws of South Dakota, with capitalization $1,500,000, shares $1 par. Lyman N. Loomis, of Butte, Montana, president and treasurer. Lands, 60 acres, on which a little development work has been done. Title supposed to have been lost. President said to be an honest man, but company was promoted by Ralph M. Jacoby.

HOWARD MINING CO. **VIRGINIA.**

Mine office: Virgilina, Halifax Co., Va. C. N. Howard, general manager. Property is the Chappel mine, 10 miles from Virgilina and adjoining

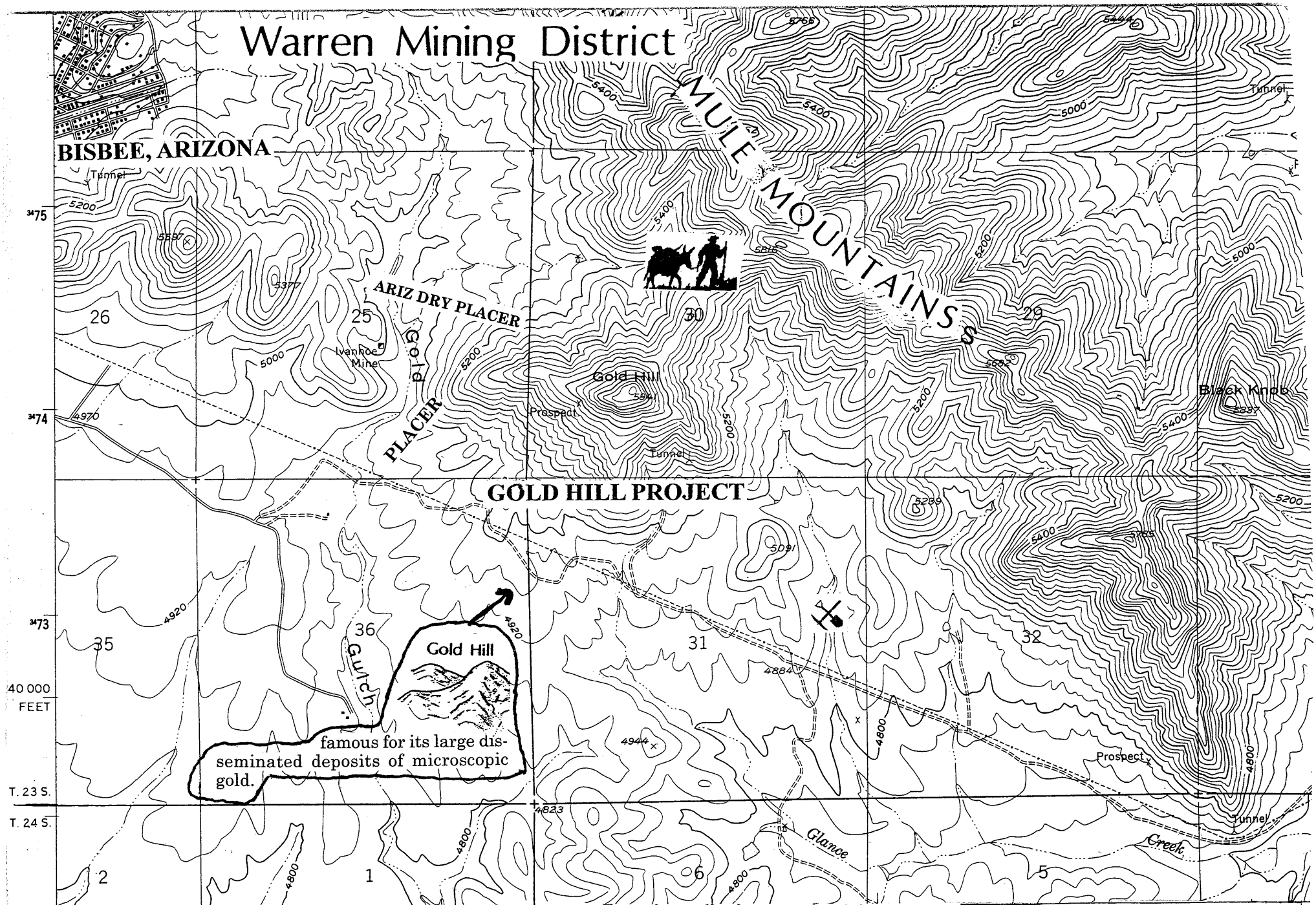
GOLD HILL PROJECT
BISBEE, ARIZONA

IMMEDIATE FINDINGS:

From the studies just completed, it was found that the geology of the Gold Hill area is very similar to the Carlin Trend in Nevada, and is unique to the Bisbee area, and to Arizona in general.

March 2006

Warren Mining District



famous for its large disseminated deposits of microscopic gold.

From the studies just completed, it was found that the geology of the Gold Hill area is very similar to the Carlin Trend in Nevada, and is unique to the Bisbee area, and to Arizona in general. PATENTED **LODE GOLD CLAIMS** **FOR SALE OR LEASE • JOINT VENTURE**

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

GOLD HILL PROJECT

The Gold Hill project includes the old Gold Hill and Superior and Boston Mines in the Warren Mining District, 2 miles southeast of Warren, Cochise County, Arizona.

The following report is based on geologic studies completed by John B. Rothermel and Frederic M. Rothermel, PhD in the spring of 2006.

The over thrust fault of Gold Hill is connected with the Laramide orogeny. The Laramide orogeny occurred in a series of pulses sixty million years ago with quiescent phases intervening.

The Laramide orogeny thrust a thick sheet of Paleozoic sedimentary rock (Escabrosa and Naco limestones) from the southwest up a gently inclined undulating fault fracture for a distance of several miles over Cretaceous beds. This thrust sheet is known as the upper plate of the Gold Hill Trend area, while the rocks it slid over are known as the lower plate.

The known ore bodies in the Gold Hill area tend to occur in stratigraphic windows that expose the lower plate rocks.

Several major and many minor faults run in this area.

All of the faulting in the area created many conduits for large hydrothermal cells whose mineral-rich waters emplaced the area. Alteration processes occurred including decalcification and breciation of the host rocks and dolomitization, sericite/illite alteration, silicification, argillization, barite-alunite alteration.

The Gold Hill patented claim group consisting of Mineral Surveys 1703, 1729, 1748, 1749, 1750, and 3720 cover this trend. Additional ground is available on Mineral Survey 2177, the patented acreage encompasses over 250 acres.

From this study and research, the structural geology of the Gold Hill project is very similar to the Carlin Trend in Nevada and is unique to the Bisbee area, and to Arizona in general.

John B. Rothermel
Frederic M. Rothermel, PhD
Project Managers- Gold Hill
5822 West Michelle Drive
Glendale, Arizona 85308-1244
(602) 439-3143

DIRECTIONS

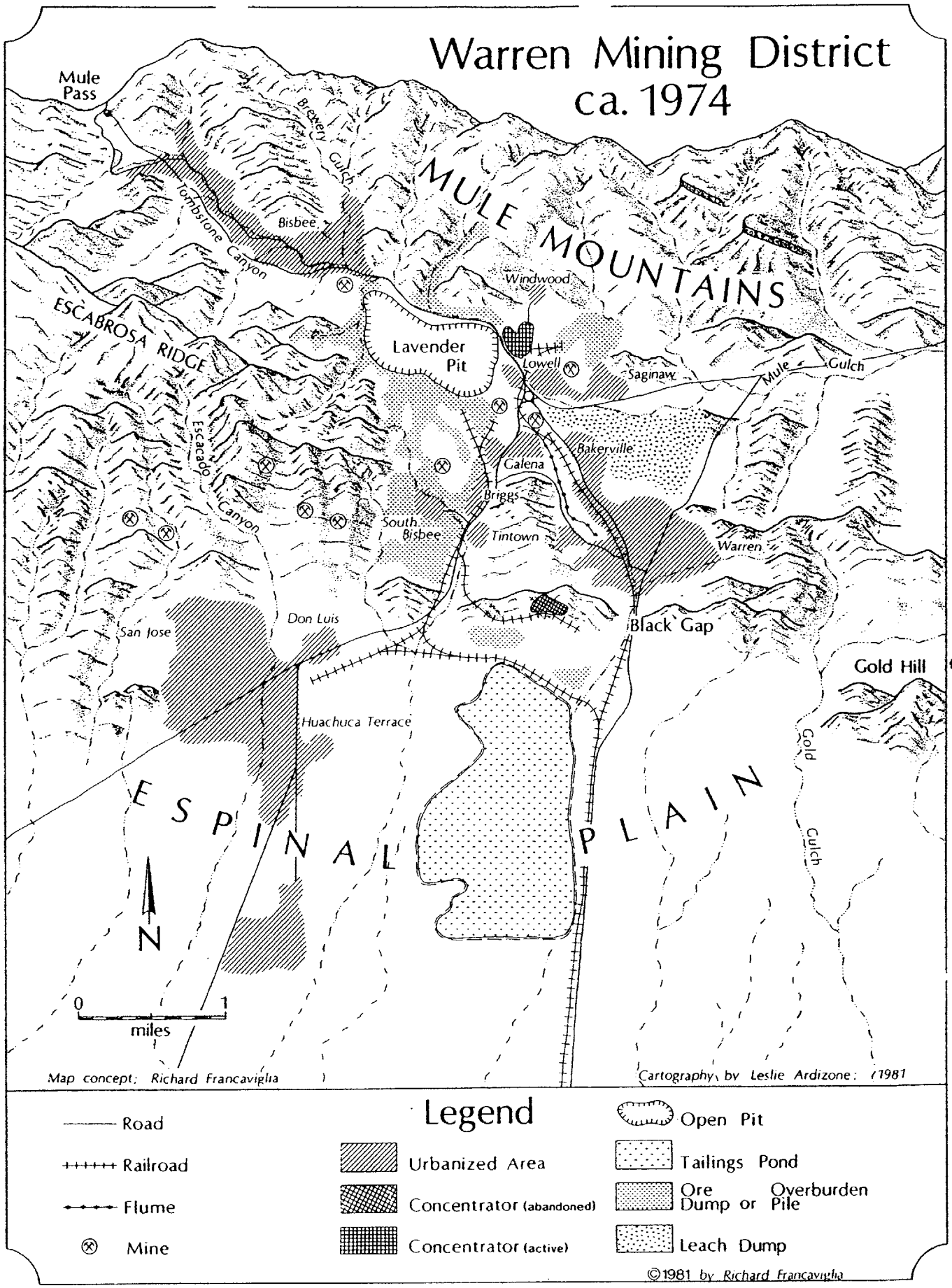
How to get to the Gold Hill Mine, also known on maps as the Superior and Boston Mine.

Property is easily reached by going to Bisbee, Arizona. Bisbee is located 90 miles southeast of Tucson, and is nestled a mile high in the Mule Mountains of Cochise County. Bisbee was recently named one of the "50 Best Places to Live" by Modern Maturity magazine.

Once in Bisbee, travel about two miles SE to Warren, a suburb of Bisbee. Once in Warren, go south on the airport-Bisbee Junction paved road for ¾ mile; turn left (east) onto a gravel road. This is Gold Gulch road and take it for a little over 1 mile until you come to a branch of two dirt roads. Take the road on the left. This is the Gold Hill Mine road (also known as the Superior & Boston Mine) for approximately 1 ½ miles. This country road leads right to Gold Hill and to the property.

There are other roads going to the south end of the property as well. They are listed on the topographical map.

Although no mountainous grades will be encountered, a 4 wheel drive vehicle is recommended.


Warren Mining District
ca. 1974
Mule Pass
Brewery Gulch
Tombstone Canyon
Bisbee
MULE MOUNTAINS
Windwood
ESCABROSA RIDGE
Lavender Pit
Lowell
Saginaw
Mule Gulch
Escacado Canyon
Bakerville
Calena
Briggs
South Bisbee
Tintown
Warren
Don Luis
San Jose
Black Gap
Gold Hill
Huachuca Terrace
Gold Gulch
ESPINAL PLAIN
N
0
1
miles
Map concept: Richard Francaviglia
Cartography by Leslie Ardizone: 1981
Legend
Road
Railroad
Flume
Mine
Urbanized Area
Concentrator (abandoned)
Concentrator (active)
Open Pit
Tailings Pond
Ore Dump or Overburden Pile
Leach Dump
©1981 by Richard Francaviglia

ACREAGE (Surface and Minerals)

The property includes 7 official United States Mineral surveys.

1) Mineral Survey 1703

St. Elmo Lode	19.96 acres	
Emerald Lode	19.96 acres	
Total acreage:		39.920 acres

2) Mineral Survey 1729

El Paso Lode	20.637 acres	
Alta Lode	20.654 acres	
Copper Point Lode	20.645 acres	
Total acreage:		61.936 acres

3) Mineral Survey 1748

Copper Reef Lode	20.645 acres

4) Mineral Survey 1749

Paris Lode	19.45 acres	
Promise Lode	9.483 acres	
Total acreage:		28.933 acres

5) Mineral Survey 1750

Empire Lode	20.245 acres

6) Mineral Survey 3720

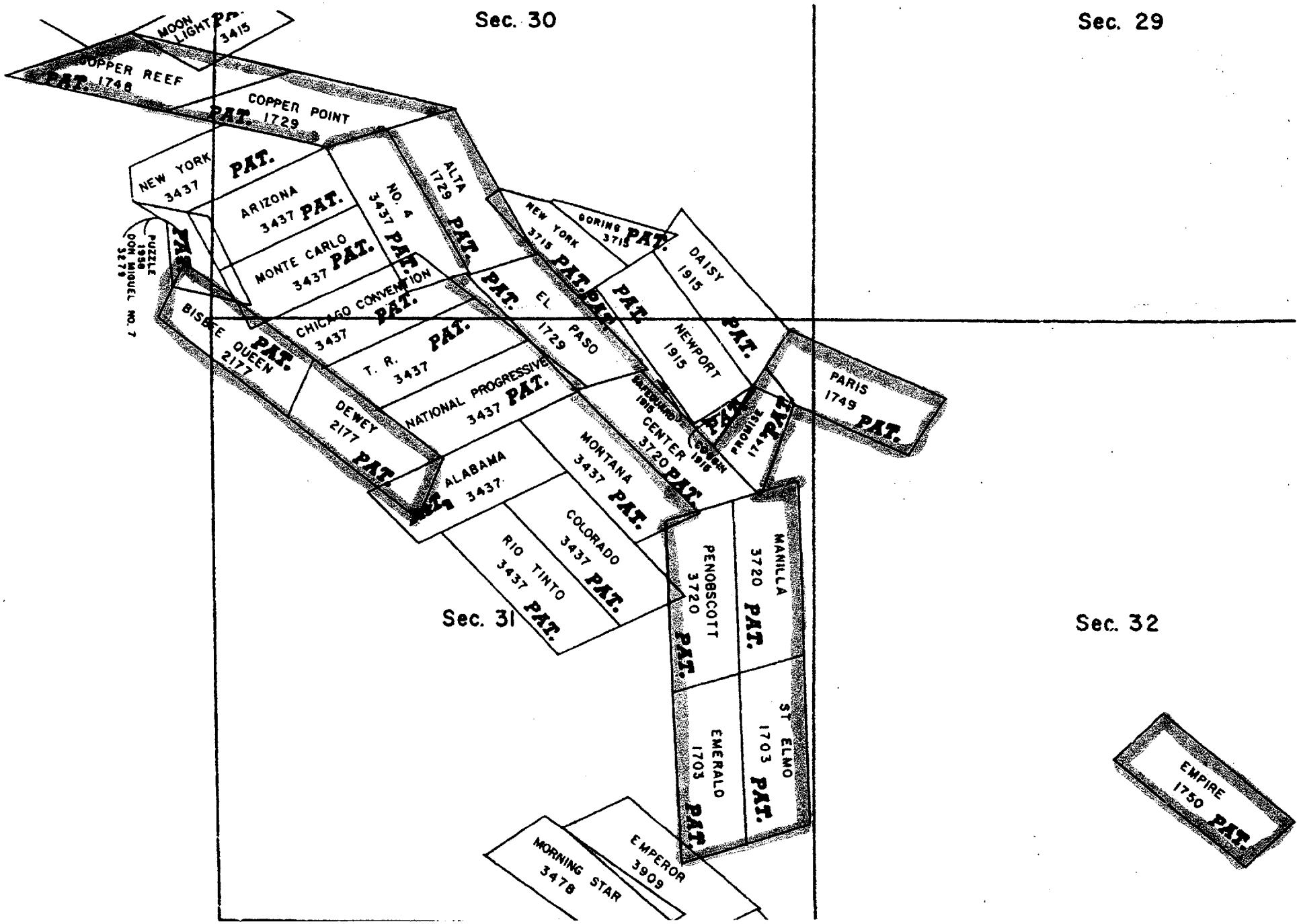
Center Lode	18.573 acres	
Manila	19.968 acres	
Penobscott	19.968 acres	
Total acreage:		58.509 acres

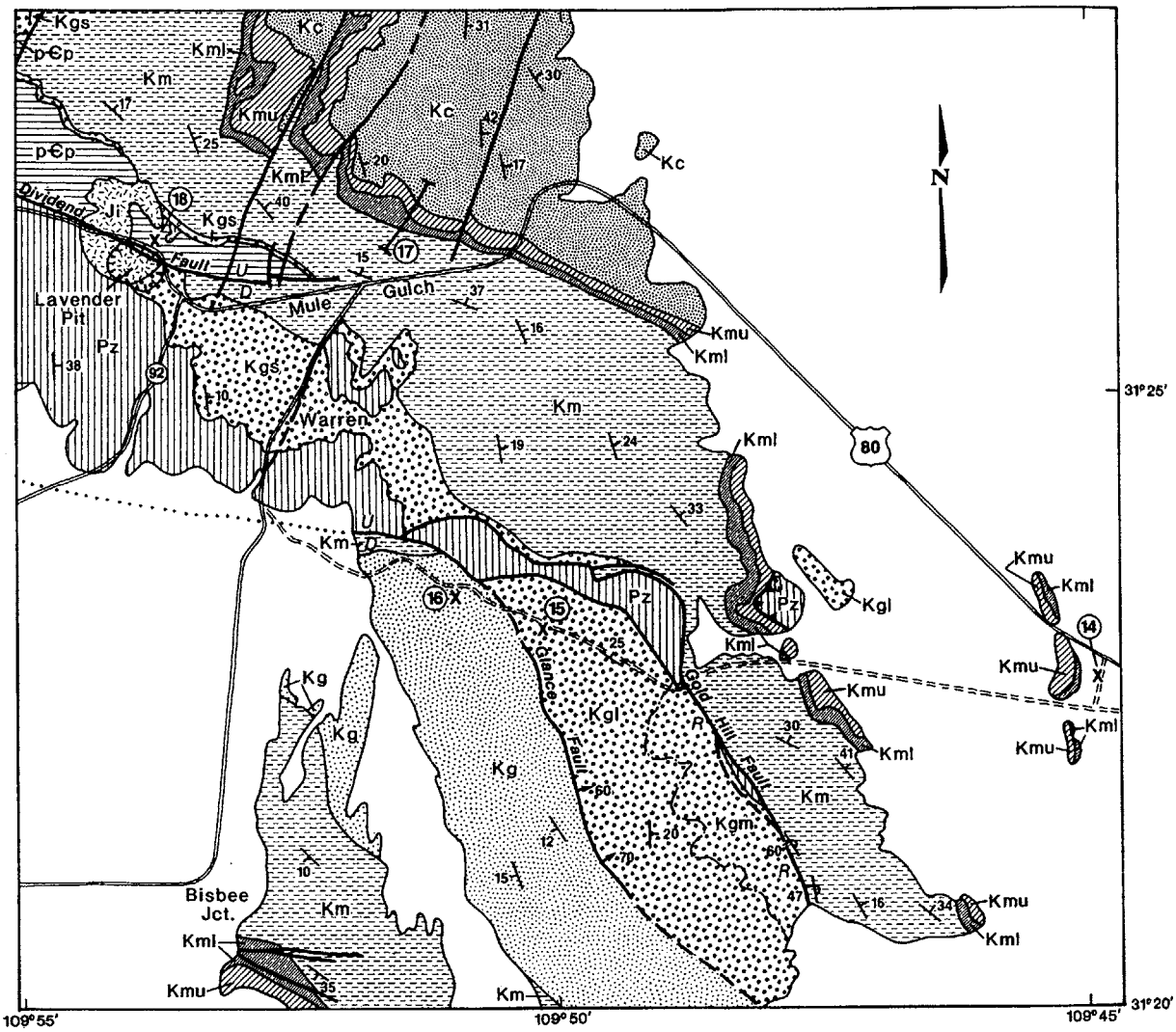
7) Mineral Survey 2177

½ Undivided interest		
Bisbee Queen Lode	17.123 acres	36.762 acres
Dewey Lode	19.040 acres	
½ Undivided interest		18.381 acres

Total acreage of 14 patented mining claims comprising Gold Hill Mine

248.569 Acres


Sec. 30
Sec. 29
Sec. 31
Sec. 32
MOON LIGHT PAT. 3415
COPPER REEF PAT. 1748
COPPER POINT PAT. 1729
NEW YORK 3437 PAT.
ARIZONA 3437 PAT.
MONTE CARLO 3437 PAT.
NO. 4 3437 PAT.
ALTA 1729 PAT.
NEW YORK 3715 PAT.
GORING 3715 PAT.
DAISY 1915 PAT.
NEWPORT 1915 PAT.
PARIS 1749 PAT.
PROMISE 1749 PAT.
CENTER 3720 PAT.
EL PASO 1729 PAT.
CHICAGO CONVENTION 3437 PAT.
T. R. 3437 PAT.
NATIONAL PROGRESSIVE 3437 PAT.
BISBEE QUEEN 2177 PAT.
DEWEY 2177 PAT.
ALABAMA 3437 PAT.
MONTANA 3437 PAT.
COLORADO 3437 PAT.
RIO TINTO 3437 PAT.
PENOBSCOTT 3720 PAT.
MANILLA 3720 PAT.
EMERALD 1703 PAT.
ST ELMO 1703 PAT.
EMPIRE 1750 PAT.
EMPEROR 3909
MORNING STAR 3478
PUZZLE 1890
DOM MIGUEL NO. 7 SC 19



Neogene alluvium

Jurassic(?)–Cretaceous Bisbee Group

- Kc Cintura Formation
- Kmu Mural Limestone, upper member
- Kml Mural Limestone, lower member
- Km Morita Formation
- Kg Glance Conglomerate, undifferentiated
  - Kgs schist-clast conglomerate
  - Kgm mixed-clast conglomerate
  - Kgl limestone-clast conglomerate

Jurassic

- Ji Juniper Flat Granite

Paleozoic

- Pz sedimentary rocks, undivided

Precambrian

- p€p Pinal Schist

contact

intraformational contact

fault, *U*=upthrown side, *D*=downthrown side

thrust fault, teeth on upper plate

reverse fault, *R* on upthrown side

strike & dip of bedding

field-trip stop or traverse

open-pit mine

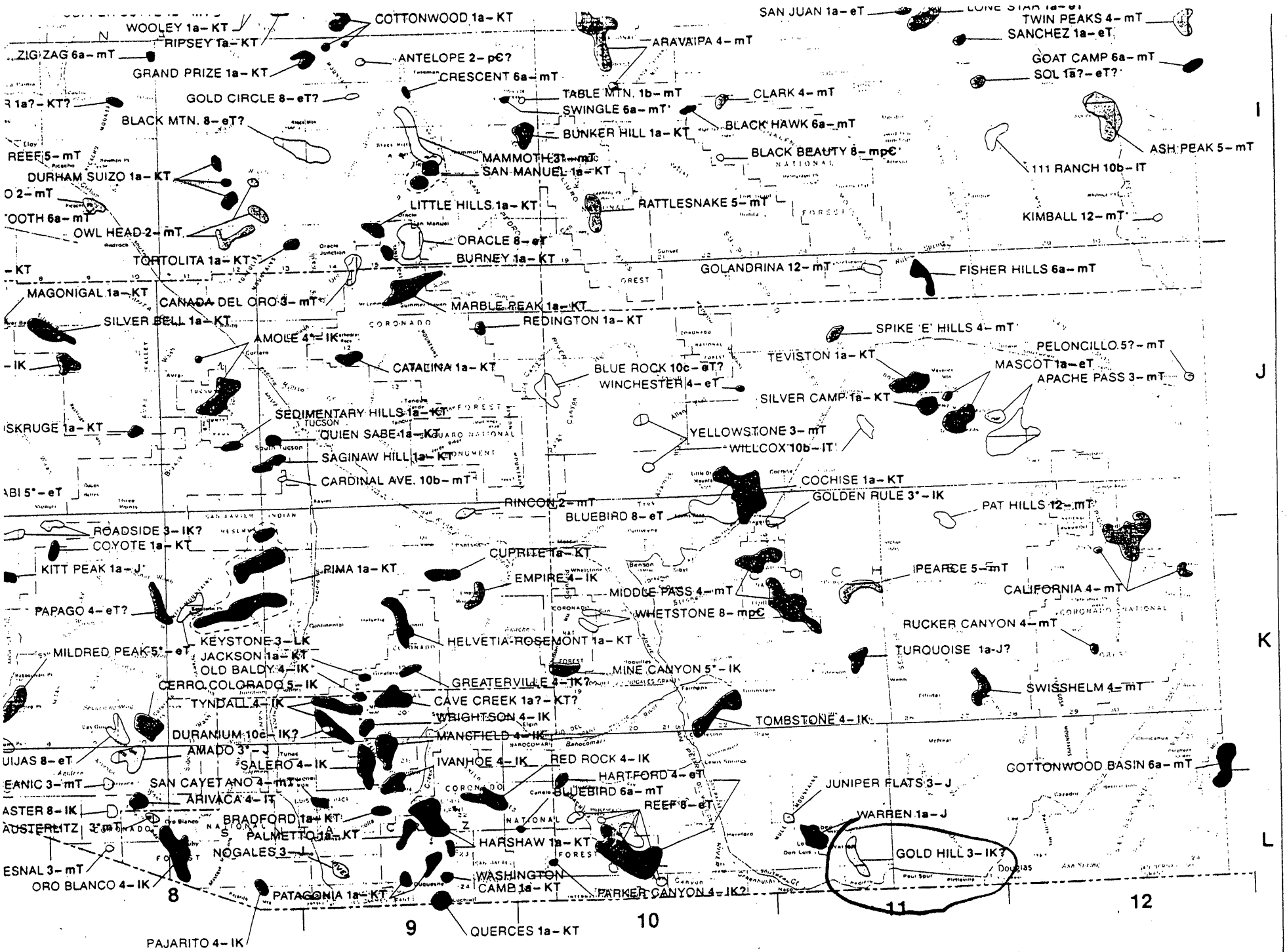
dirt road

paved road

0 1 2 miles

0 1 2 3 kilometers

Figure 9. Geologic sketch map of the southern Mule Mtns (after Bilodeau, 1979).


WOOLEY 1a – KT
RIPSEY 1a – KT
COTTONWOOD 1a – KT
ZIGZAG 6a – mT
GRAND PRIZE 1a – KT
ANTELOPE 2 – pЄ?
CRESCENT 6a – mT
GOLD CIRCLE 8 – eT?
BLACK MTN. 8 – eT?
REEF 5 – mT
DURHAM SUIZO 1a – KT
OWL HEAD 2 – mT
TORTOLITA 1a – KT
MAGONIGAL 1a – KT
CANADA DEL ORO 3 – mT
SILVER BELL 1a – KT
AMOLE 4 – IK
CATALINA 1a – KT
SEDIMENTARY HILLS 1a – KT
QUIEN SABE 1a – KT
SAGINAW HILL 1a – KT
CARDINAL AVE. 10b – mT
ROADSIDE 3 – IK?
COYOTE 1a – KT
KITT PEAK 1a – J
PIMA 1a – KT
PAPAGO 4 – eT?
KEYSTONE 3 – LK
JACKSON 1a – KT
OLD BALDY 4 – IK
MILDRED PEAK 5* – eT
CERRO COLORADO 5 – IK
TYNDALL 4 – IK
DURANIUM 10c – IK?
AMADO 3* – J
SALERO 4 – IK
SAN CAYETANO 4 – mT
ARIVACA 4 – IT
BRADFORD 1a – KT
PALMETTO 1a – KT
NOGALES 3 – J
ORO BLANCO 4 – IK
PATAGONIA 1a – KT
PAJARITO 4 – IK
QUERCES 1a – KT
ARAVAIPA 4 – mT
TABLE MTN. 1b – mT
SWINGLE 6a – mT
BUNKER HILL 1a – KT
MAMMOTH 3 – mT
SAN MANUEL 1a – KT
LITTLE HILLS 1a – KT
ORACLE 8 – eT
BURNEY 1a – KT
MARBLE PEAK 1a – KT
REDINGTON 1a – KT
BLUE ROCK 10c – eT?
WINCHESTER 4 – eT
YELLOWSTONE 3 – mT
WILLCOX 10b – IT
RINCON 2 – mT
BLUEBIRD 8 – eT
CUPRITE 1a – KT
EMPIRE 4 – IK
MIDDLE PASS 4 – mT
WHETSTONE 8 – mpЄ
HELVETIA-ROSEMONT 1a – KT
GREATERVILLE 4 – IK?
CAVE CREEK 1a? – KT?
WRIGHTSON 4 – IK
MANSFIELD 4 – IK
IVANHOE 4 – IK
RED ROCK 4 – IK
HARTFORD 4 – eT
BLUEBIRD 6a – mT
REEF 8 – eT
HARSHAW 1a – KT
WASHINGTON CAMP 1a – KT
PARKER CANYON 4 – IK?
CLARK 4 – mT
BLACK HAWK 6a – mT
BLACK BEAUTY 8 – mpЄ
RATTLESNAKE 5 – mT
GOLANDRINA 12 – mT
SPIKE 'E' HILLS 4 – mT
TEVISTON 1a – KT
SILVER CAMP 1a – KT
COCHISE 1a – KT
GOLDEN RULE 3* – IK
MINE CANYON 5* – IK
TOMBSTONE 4 – IK
JUNIPER FLATS 3 – J
WARREN 1a – J
GOLD HILL 3 – IK?
SAN JUAN 1a – eT
LONE STAR 1a – eT
TWIN PEAKS 4 – mT
SANCHEZ 1a – eT
GOAT CAMP 6a – mT
SOL 1a? – eT?
ASH PEAK 5 – mT
111 RANCH 10b – IT
KIMBALL 12 – mT
FISHER HILLS 6a – mT
PELONCILLO 5? – mT
MASCOT 1a – eT
APACHE PASS 3 – mT
PAT HILLS 12 – mT
IPEARCE 5 – mT
CALIFORNIA 4 – mT
RUCKER CANYON 4 – mT
TURQUOISE 1a-J?
SWISSHELM 4 – mT
COTTONWOOD BASIN 6a – mT
8
9
10
11
12
I
J
K
L

Ge ology and Mineral Technology
ogical Survey Branch
Tucson

Scale 1:1000000
1 inch equals approximately 16 miles

Scale

EXPLANATION

1 Copper.

a) Porphyry with or without Molybdenum, Manganese, Gold and peripheral Lead-Zinc-Silver.

b) Stratabound in rock of age given.

2 Copper with or without Gold or Lead; veins.

3 Gold with or without Copper or Lead.
3* Significant Silver production.

Distinction bas

4 Lead-Zinc-Silver veins and replacements.
4* Significant production of Copper and Gold.

5 Silver with or without Lead and Zinc; veins and replacements.
5* Significant Copper production.

Distinction bas

6 Manganese.

a) Veins with or without Barium, Lead, Silver.

b) Stratabound in rocks of age given.

7 Mercury deposits.

8 Tungsten; skarn and veins or pegmatites with or without Beryllium or Lithium.

9 Copper, Gold and Silver with or without Zinc.
Stratabound volcanogene massive sulfide.

10 Uranium with or without Vanadium.

a) Breccia pipes and/or diatremes with or without Copper.
10a* Breccia pipes with only Copper production.

b) Stratabound in rocks of age given.

c) Veins or fissures.

11 Iron, stratabound and contact metasomatic.

Taconite-like Iron formations, Maricopa and Yavapai Counties.

12 Unclassified (altered zones, no production).

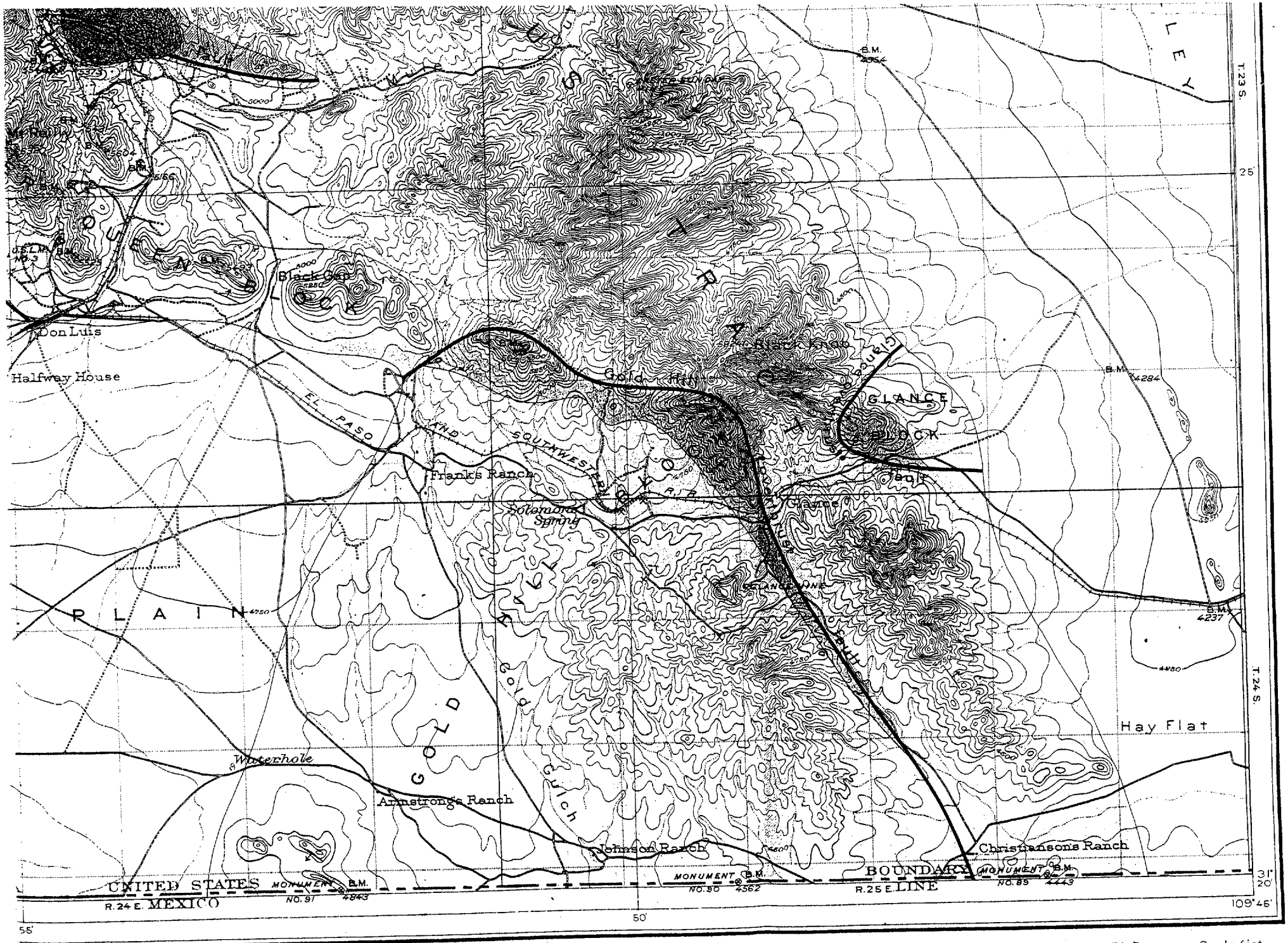
e text).

ɔs (see text).

lT	—Late Tertiary
mT	—Middle Tertiary
eT	—Early Tertiary
KT	—Late Cretaceous to early Tertiary
lK	—Late Cretaceous
mK	—Middle Cretaceous
J	—Jurassic
Ꞧ	—Triassic
Pm	—Permian
PP	—Pennsylvanian-Permian
Dev	—Devonian
ypЄ	—Precambrian (1,250–1,000 m.y.)
mpЄ	—Precambrian (1,650–1,350 m.y.)
epЄ	—Precambrian (1,820–1,650 m.y.)

Districts on this map were defined according to geological criteria and classified by age and style of mineralization, as well as metallic minals produced or present.
Although the districts include most of the known metallic occurrences, some are not shown. Also, placer deposits are not included. The map is not intended to indicate mineral potential.
A district index with synonyms and production table by district are included in the accompanying Bulletin 194.

+ No reported production, through 1981.
† Deposits confined to a stratum, but may be formed by hydrothermal epigenetic processes after sedimentation.



F. L. Ransome, Geologist

: DIAGRAM OF BISBEE QUADRANGLE, ARIZONA

METALLIC MINERAL DISTRICTS AND PRODUCTION IN ARIZONA

Stanley B. Keith, Don E. Gest, Ed DeWitt,
Netta Woode Toll, Beverly A. Everson

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1983

ARIZONA BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY

Production by District continued

DURATION	MINERAL DISTRICT	COUNTY	BASE AND/OR PRECIOUS METAL TONNAGE	COPPER(Cu) (pounds)	LEAD Pb) (pounds)	ZINC (Zn) (pounds)	MOLYBDENUM (Mo) (pounds)
unknown		Greenlee	---	---	---	---	---
1885-1942	(includes O.K., Excelsior, Golden Rule estimates)	Mohave	20,000	400	34,000	---	---
unknown	Gold Circle (W)	Pinal	---	---	---	---	---
1883-1957	Golden Rule	Cochise	34,000	3,000	218,000	---	---
1883-1901	*Golden Rule* (1)	*Cochise*	---	---	*130,000*	---	---
1910-1959	Goldfield	Pinal-Maricopa	23,000	16,000	---	---	---
1880s	*Goldfield* (1)	*Pinal-Maricopa*	---	---	---	---	---
1901-1911	Gold Hill	Cochise	1,700	---	---	---	---
1936-1941	Gold Hill	Mohave	200	---	---	---	---
1880s-1934	Grand Central	La Paz	50	---	---	---	---
1931-1954	Grand Prize	Pinal	400	1,000	---	---	---
1901-1964	Grandview	Coconino	2,200	936,000	---	---	---
1912-1960	Greaterville	Pima	2,000	7,000	652,000	11,100	---
1939-1940	Greenback	Pinal	800	2,000	---	---	---
1901-1958	Green Valley	Gila	7,800	93,000	---	---	---
1902-1964	Greenwood	Mohave	2,000	400	1,000	---	---
1874-1961	Groom Creek	Yavapai	15,000	51,000	25,000	6,700	---
1929-1949	Growler	Pima	100	2,400	7,600	---	---
1881-1966	Gunsight	Pima	6,400	3,000	52,000	200	---
1907-1942	Hackberry	Mohave	3,700	11,000	150,000	22,000	---
1875-1906	*Hackberry* (1)	*Mohave*	---	---	---	---	---
1937-1945	Hacks Canyon	Mohave	600	51,000	---	---	---
1916-1956	Harcuvar	La Paz	100	7,000	---	---	---

(1) *Italic entries in above table are estimates based on data in Elsing and Heineman (1936).*

GOLD (Au) (ounces)	SILVER (Ag) (ounces)	OTHER TONNAGE (Mn-long tons others-short tons)	MANGANESE (Mn) (pounds)	TUNGSTEN (W) (short ton units)	URANIUM (U) (pounds) U_3O_8	VANADIUM (V) (pounds) V_2O_5
---	---	77	74,500	---	---	---
9,400	2,900	---	---	---	---	---
---	---	5	---	2	---	---
10,500	16,300	---	---	---	---	---
200	*300*	---	---	---	---	---
5,100	4,000	---	---	---	---	---
3,000	---	---	---	---	---	---
1,600	100	50	52,600	---	---	---
40	+	---	---	---	---	---
60	+	---	---	---	---	---
200	300	---	---	---	---	---
+	14,000	---	---	---	---	---
300	16,800	---	---	---	---	---
100	3,200	---	---	---	---	---
1,400	5,300	---	---	---	---	---
1,000	600	---	---	---	---	---
5,200	86,000	---	---	---	---	---
---	200	---	---	---	---	---
100	133,500	---	---	---	---	---
400	81,000	---	---	---	---	---
5,000	*560,000*	---	---	---	---	---
---	1,200	1,329	---	---	4,800	---
30	30	---	---	---	---	---

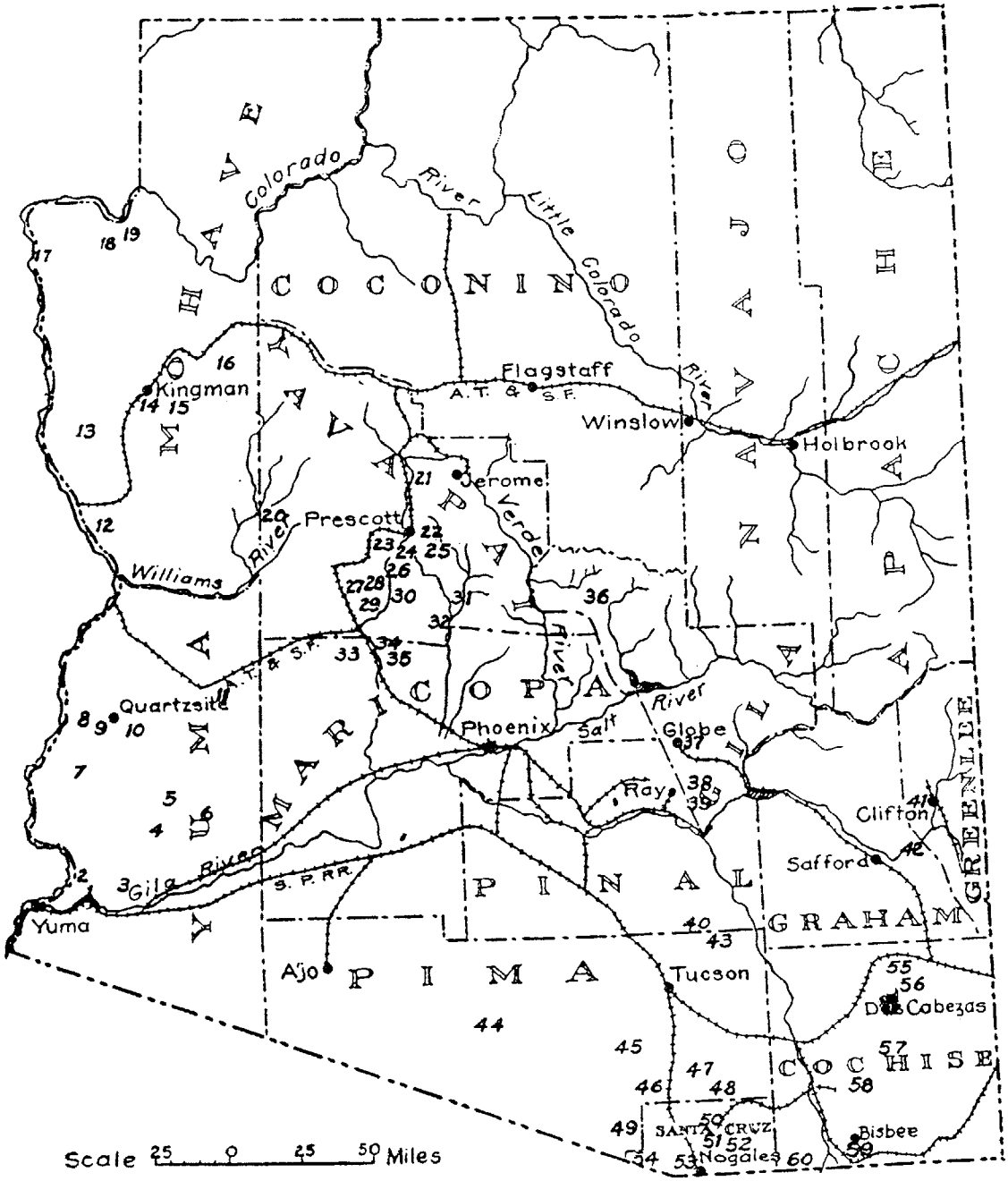

Figure 1.—Index map showing location of Arizona gold placer districts.

1. Gila City (Dome).
2. Laguna.
3. Muggins.
4. Castle Dome.
5. Kofa or S. H.
6. Tank Mountains.
7. Trigo.
8. La Paz.
9. La Cholla, Oro Fino, Middle Camp.
10. Plomosa.
11. Harquahala.
12. Chemehuevis.
13. Silver Creek.
14. Lewis.
15. Lookout.
16. Wright Creek.
17. Willow Beach.
18. Gold Basin.
19. King Tut.
20. Eureka.
21. Granite Creek.
22. Lynx Creek.
23. Copper Basin.
24. Groom Creek.
25. Big Bug.
26. Hassayampa (Yavapai County).
27. Model.
28. Placerita.
29. Weaver, Rich Hill.
30. Minnehaha.
31. Black Canyon.
32. Humbug.
33. Vulture.
34. Hassayampa (Maricopa County).
35. San Domingo.
36. Payson.
37. Globe-Miami.
38. Dripping Spring.
39. Barbarossa.
40. Cañada del Oro.
41. Clifton-Morenci.
42. Gila River.
43. Alder Canyon.
44. Quijotoa.
45. Papago.
46. Armargosa.
47. Old Baldy.
48. Greaterville.
49. Las Guijas or Arivaca.
50. Tyndall.
51. Harshaw.
52. Patagonia or Mowry, Palmetto.
53. Nogales.
54. Oro Blanco.
55. Teviston.
56. Dos Cabezas.
57. Pearce.
58. Gleeson.
59. Gold Gulch (Bisbee).
60. Huachuca.

INDEX OF MINING PROPERTIES IN COCHISE COUNTY, ARIZONA

by
Stanton B. Keith
Geologist

THE ARIZONA BUREAU OF MINES

Bulletin 187
1973

THE UNIVERSITY OF ARIZONA
TUCSON

MINING DISTRICT AND MINES	LOCATION T.	R.	Sec.	MINERAL PRODUCTS	GEOLOGY	TYPE OF OPERATION AND PRODUCTION	REFERENCES
28. Muso mine (Leadville Mng. Co., Calumet & Arizona Mng. Co., Needles Mng. & Smltng Co., U. S. Smltng and Rfng. Co., Andes Copper Co.)	19S	25E	NE¼ 20	Cu, Ag-, Au-	Cupriferous, pyritic replacement orebodies in steeply dipping, highly metamorphosed Cambrian Abrigo Limestone.	Shaft workings. Over 12 thousand tons of ore produced from 1917 to 1924.	Wilson, 1927, p. 61 ABM file data
29. Mystery mine (Mystery Mng. Co., Minerals Exploration Co.)	19S	25E	SE¼ 29 NE¼ -32	Pb, Zn, Ag, Cu-	Oxidized lead, zinc, and minor copper mineralization in irregular replacement orebodies, controlled by fractures and faults in Pennsylvanian-Permian Naco Group limestone.	Tunnel workings. Some 9300 tons of ore produced from 1924 to 1930 and 94 tons in 1942.	Wilson, 1927, p. 77-78 ABM file data
30. Ontario mine (Great Western Copper Co.)	19S	25E	E. Cen. 20	Cu, Ag, Au	Copper carbonates and sulfides in bedded replacement deposits in Cambrian Abrigo Limestone.	Shallow workings. A few tens of tons of ore produced, 1911 and	ABM file data
31. Poorman mine	19S	25E	SE¼ 17	Pb, Ag	Lead carbonate ore along fissures in Cambrian Abrigo Limestone.	Shallow workings. A few tens of tons of ore produced, 1911 and 1920.	ABM file data
32. Sadie, New Year Gift, and Grenadier group mines	19S	25E	E. Cen. 32	Cu, Ag, Au	Irregular pockets of oxidized copper mineralization in faulted and fractured Pennsylvanian-Permian Naco Group limestone.	Surface workings. About 100 tons of ore produced intermittently from 1919 to 1925.	ABM file data
33. Silver Bill mine (Costello group)	19S	25E	No. Cen. 32	Pb, Zn, Ag, Cu-, Au-, Mo-	Irregular small stringers, pockets, and replacement bodies of oxidized base metal sulfides in Pennsylvanian-Permian Naco Group limestone adjacent to a quartz monzonite porphyry contact.	Shaft workings connected to the Mystery mine. Large tonnage mined during the late 1800's, and 6,570 tons produced during the periods 1922-1930 and 1938-1941.	Wilson, 1927, p. 74-75 ABM file data
34. Silverton mine (Calumet & Arizona Mng. Co.)	19S	25E	No. Cen. 21	Cu, Au-	Oxidized copper mineralization in an irregular blanket-like deposit in thrust fault breccia with Cambrian Bolsa Quartzite and Abrigo Limestone above and Carboniferous limestone below.	Shaft workings. A few thousand tons of ore produced in the late 1800's and early 1900's.	Ransome, 1912, p. 7 Wilson, 1927, p. 58
35. (Tejon Mng. Co.)	19S	25E	W. Cen. 32	Cu, Ag, Pb-, Zn-, Au-	Thin, irregular, cupriferous, pyritic, replacement orebodies in Pennsylvanian-Permian Naco Group limestone adjoining intrusive quartz monzonite porphyry.	Extensive shaft workings. A few thousand tons produced in the late 1910's, 5,200 tons during 1923-1928, and 1,180 tons, 1952 to 1956.	Wilson, 1927, p. 72 ABM file data
36. Tom Scott mine (Tejon Mng. Co.)	19S	25E	Cen. 32	Pb, Zn, Cu, Ag, Au	Oxidized base metal sulfide orebodies in irregular stringers in faulted and fractured Pennsylvanian-Permian Naco Group limestone and as bunches in breccia-filled solution cavities in the limestone.	Tunnel workings. A few thousand tons of ore produced in the 1880's and early 1900's, 440 tons in 1929-1933, 890 tons in 1943-1947, and 170 tons in 1954.	Wilson, 1927, p. 72-74 ABM file data

37. Turquoise group mine (Turquoise Copper Mng. & Smltng Co.)	19S	25E	NW¼ 17	Cu, Ag-	Bedded replacement deposits of copper carbonates in steeply dipping Cambrian Abrigo Limestone.	Shallow workings. A few hundred tons produced in the early 1900's.	ABM file data
XVI Warren District (Bisbee area, Mule Mountains) (See Fig. 9.)	22-24S	23-25E	-----	Cu, Pb, Zn, Ag, Au, Mn, F, (Cd, Bi, Se, Te, As, Sb, U)	1. Base metal oxides, carbonates, and sulfides in large, irregular replacement bodies in tilted and faulted Paleozoic limestone formations that have been invaded by Jurassic granitic porphyry stocks, dikes, and sills. 2. Disseminated copper oxides, carbonates, and sulfides in Jurassic granitic porphyry stock. 3. Manganese oxide pods and lenses along fractures and fault zones in Paleozoic limestones. 4. Spotty base metal and gold-silver mineralization in quartz veins in Jurassic granitic porphyry stock.	Shaft, tunnel, and open pit workings. More than 150 million tons of base metal ore and approximately 35,000 tons of manganese ore mined since the late 1870's.	Ransome, 1904, a, b Bonillas et alia, 1917 Ransome, 1920 Trischka, 1931, 1938 Hogue & Wilson, 1950 Burnham, 1959, p. 31 Hayes & Landis, 1964 Bryant & Metz, 1966 ABM file data
1. Bay State mine	23S	24E	E. Cen. 21	Mn	Hard manganese oxide masses in disconnected lenses along fissure zones in limestone.	Adit and surface workings. About 800 tons of sorted ore produced around 1917-1918.	Farnham et alia, 1961, p. 19
2. Bisbee Coalition mines (Eureka and North Bisbee groups; Eureka Mng. Co., North Bisbee Development Co., Bisbee Coalition Mng. Co.)	22S	23E	26-27	Cu, Au-, Ag-	Oxidized copper mineralization in irregular quartz veins in a Jurassic granitic porphyry stock.	Tunnel and shaft workings. About 75 tons of ore produced in 1911-1913.	Copper Handbook, 1912-13 ABM file data
3. Boras mine (Phelps Dodge Corp., Boras Leasing Co.)	23S	24E	So. Cen. 21	Cu, Ag, Au, Mn	Irregular, pipe-like, replacement orebodies of partly oxidized copper mineralization along fault zones in Cambrian Abrigo Limestone. Irregular and spotty stringers, veinlets, and pods of hard manganese oxides along fissures and as replacements in limestone.	Shaft workings. Some 50,000 tons of copper ore produced, mainly from 1920-1926.	Copper Handbook, 1926 Ransome, 1920, p. 104, 110 Wilson & Butler, 1930, p. 43 Farnham et alia, 1961, p. 21 Bryant & Metz, 1966, p. 202 ABM file data
4. Briggs mine (Calumet & Arizona Mng. Co., Phelps Dodge Corp.)	23S	24E	NW¼ 22	Cu, Pb-, Zn-, Ag-, Au-	Irregular replacement orebodies of largely oxidized, base metal mineralization in relatively unaltered Mississippian Escabrosa and Devonian Martin limestones along fracture zones and closely associated with Jurassic porphyry dikes and sills.	Shaft workings. Probably several hundred thousand tons of ore produced and included in Calumet & Arizona and Phelps Dodge yearly figures.	Bonillas et alia, 1917, p. 328 Trischka, 1938, p. 37 Bryant & Metz, 1966, p. 200-201
5. Campbell mine (Calumet & Arizona Mng. Co., Phelps Dodge Corp.)	23S	24E	SE¼ 15	Cu, Pb-, Zn-, Ag-, Au-, (Bi, In, Sn)	Largely oxidized copper, with minor lead and zinc, mineralization in irregular replacement orebodies in Cambrian Abrigo, Devonian Martin and Mississippian Escabrosa limestones in close association with porphyry dikes and sills.	Shaft workings. Probably produced several hundred thousand tons of ore; included in Calumet & Arizona and Phelps Dodge totals.	Trischka, 1938, p. 37-39, fig. 6 Burnham, 1959, p. 17 Copper, 1962 Bryant & Metz, 1966, p. 201 ABM file data