



CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
3550 N. Central Ave, 2nd floor
Phoenix, AZ, 85012
602-771-1601
<http://www.azgs.az.gov>
inquiries@azgs.az.gov

The following file is part of the John E. Kinnison 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.

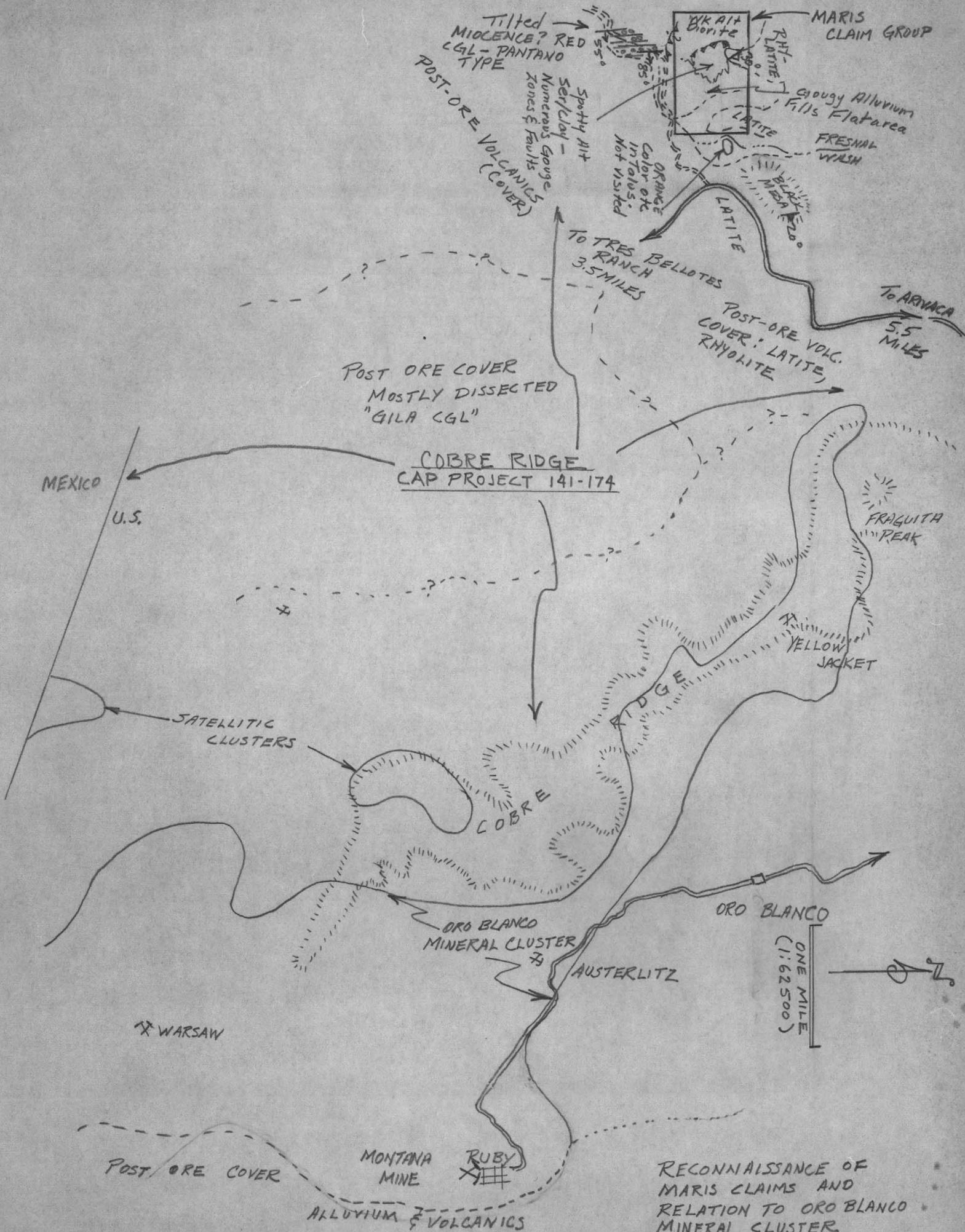
CONSTRAINTS STATEMENT

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.



MEMORANDUM

TO: J. D. Lowell

FROM: J. E. Kinnison *JEK*

DATE: August 25, 1978

SUBJECT: Maris Claims submittal (Ken Brook),
Arivaca Mining District, Pima County, Arizona

At your request I examined the subject property, and made a limited reconnaissance of the general region.

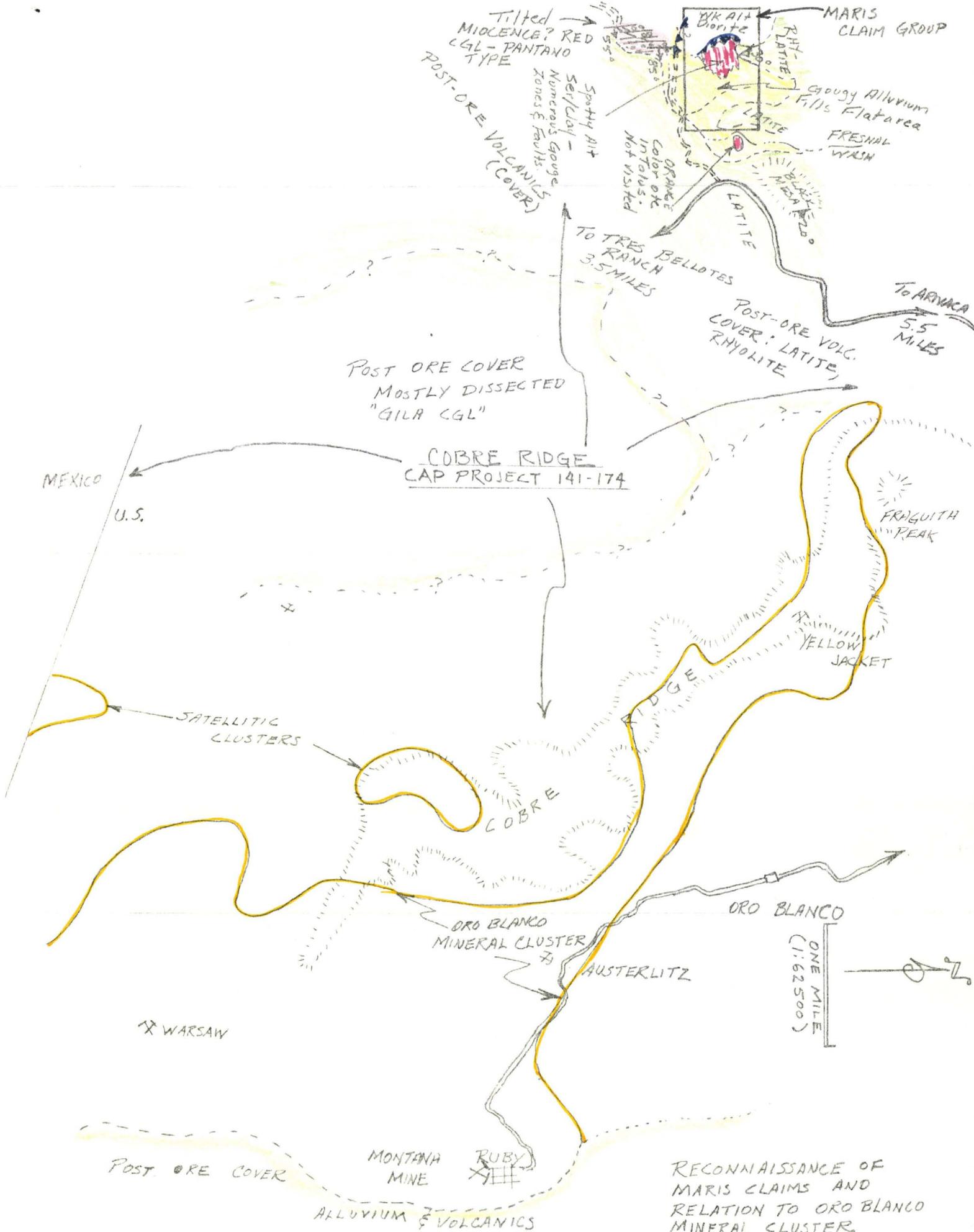
I have concluded: (1) that the alteration/mineralization on the subject claims is generally weak and spotty, that much of the sericite is a metamorphic product, and that argillization is largely the result of multiple faults and gouge zones. Some sericite and clay is of hydrothermal origin, and former pyrite locally approached 3% by volume, although the general sulfide content was less than 1%; and (2) that the altered zone is underlain by one or more major flat faults.

The intense faulting evident in well-exposed cut-bank washes suggests the entire zone, which occupies only about two to three hundred feet of relief about the underlying "flat faults", may be regarded as a wide fault zone with diverse and intersecting fault attitudes.

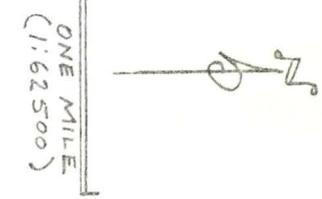
The sense of direction of flat faulting seems to be from the east to the west, and there may be a structural relationship between the spotty mineralization of the Maris group, and the Oro Blanco mineral cluster to the west, along Cobre Ridge. The basin between Cobre Ridge and the high terrain extending south from Black Mesa offers a potential area of investigation, for which I have defined a CAP project, "Cobre Ridge" (141-174).

A simplified sketch is attached, as well as the definition of the Cobre Ridge project area, and edited tape recorder notes made in the field, which list additional geologic data.

JEK:sbc
atchs.



MEXICO
U.S.



RECONNAISSANCE OF
 MARIS CLAIMS AND
 RELATION TO ORO BLANCO
 MINERAL CLUSTER.
 JEK AUG 1978

Notes on Reconnaissance

John E. Kinnison

August 15, 1978

AREA: Maris Claim Group, south of Arivaca and west of the Tres Bellotes Rd. in and near Fresnal Canyon, Pima County, Arizona

I have circled on foot the alteration and mineralization which appears in a basin and a small group of low lying hills north of the road down Fresnal Canyon, which switches off the Tres Bellotes Road and passes south of Black Mesa. A diversity of rock types, including both granitic and schistose rocks, appear to be present. Alteration is extremely spotty and consists of patches of red stained aplites and granite, intermixed with less mineralized metamorphic rocks - possibly volcanics or sediments.

- Evidence for original sulfides is spotty and consists of empty voids or limonite stained rock, but much of the red coloration stems from breakdown of mafic minerals in the granitic rocks. The general percentage of original sulfides was not only spotty, but generally low - not exceeding anywhere 2% or 3% at most.

The mineralization appears to be limited to the north where it passes into fresh metamorphic or gneissic rock with quartz seams. To the west and south the limits of stronger alteration also appear to fade into metamorphosed sediments or unaltered but metamorphosed granite. One interesting item of note is that the best showings are on the slopes or tops of the hillside, and where gullies cut deeply I find mostly gouge and in a few places it appears that barren rock underlies the mineralized rock above, even though a fault cannot necessarily be seen. Also, considerable gouge is exposed throughout where steep-walled gullies have trenched through the altered material.

The above cited factors, taken in conjunction with the fact that to the south a very steeply tilted section of thick red fanglomerate-similar to the Helmet or Pantano fanglomerates is present in Fresnal Wash, leads almost conclusively to the belief that the area is sliced by flat faults. The rather flat topographic terrain between the hilly altered area on the west and the volcanic capped mesa known as Black Mesa on the east, and which is separated by Fresnal Wash where it swerves sharply north along the west flank of Black Mesa, is underlain by a gougy-looking alluvial material - generally gray in color. This may be a soil derived in large part from a thick gouge zone itself.

Except for an exposure which was not visited on this trip, but which was seen on the steep west slope of Black Mesa above Fresnal Wash, and is noted by a light reddish tan color, the eastern extension of the zone is not exposed. If, however, as I suspect, the zone which we see lies on a flat fault, there may be a relatively thin zone of alteration beneath Black Mesa before passing into some other, perhaps unmineralized, unit.

Indeed, there are sufficient gouge zones within the upper plate to suggest the entire mass might be interpreted as a zone of slices, and this may in part explain the spotty characteristic of the altered zone itself. In other words, it may represent slices of unevenly altered material brought together in a broad flat fault zone of considerable thickness.

The direction of movement, based on the strike and dip of a red fanglomerate similar to the Pantano or Helmet fanglomerates, which is southwest of the area in Fresnal Wash, suggests movement from the east to the west. The position of the conglomerate is somewhat like a piece of jigsaw puzzle which does not fit - and its apparent relationship to rocks outcropping along its strike rather than below it in sedimentary contact suggest that it underlies a flat fault just north of the fanglomerate outcrop in Fresnal Canyon. This fault would appear to dip northerly to accommodate the topographic expression and distribution of the red fanglomerate. The dip, however, need not be more than about 20°. Similarly, the western margin of alteration seems to be fading naturally, but it also (in at least one area) appears to overlie a gouge zone with unaltered diorite beneath it on the west, and this would suggest a flat fault zone dipping beneath the altered rock of the Maris group, at an unknown dip. It may be bowl-shaped and surface on the low topographic basin between Black Mesa and the altered hills of the Maris altered area. As previously noted, the flat terrain apparently is occupied by a soil developed from a thick gouge zone.

The altered material examined today may be interpreted as low angle fault slices which are separated from the main Oro Blanco mineral cluster which is approximately 3-4 miles to the east, and is separated in part by postmineral cover. The movement is suggestive that the mines around Oro Blanco which include the Yellowjacket, the Austerlitz and others along Cobre Ridge could be flanking a covered deposit between them and the faulted outcrops on the Maris claims.

ADDENDUM:

On leaving the Fresnal Wash area where I have observed the red fanglomerates, I note a view northerly into the Maris group from along their south claim line, and as viewed from the road, I can see a very diagnostic fault dipping somewhat easterly in which a cliffy western face of red stained material is overlain by a whiteish quartose material. Viewed from east to west coming in, I had assumed this was a quartose "blow out". However, it now seems that there is definitely a different rock type -- possibly a silicified granite, which overlies a fault above a different rock type which is stained red with hematite.

Having reached the Tres Bellotes Road and driven southerly from the Forest Service turnoff, about 1 mile, I can view the valley between here looking southeast or east to a ridge which I believe to be Cobre Ridge. There is considerable dissected gravel in the basin between this high point on the road and Cobre Ridge, and also some volcanics immediately to the east of the road. I note some orangish coloration in gullies possibly beneath the volcanics, but these may represent coloration within the volcanic section itself.

FILE MEMORANDUM

Subject: Definition of new CAP area

"Cobre Ridge" - 141-174

Arizona

A recent examination of a claims submittal by Ken Brook revealed evidence on reconnaissance suggesting a potential covered target area adjacent and east of the mineral cluster which extends along Cobre Ridge into the Ruby Mine area. Tertiary volcanics and "Gila" conglomerates cover the area of interest which may be defined as:

- 1) Secs. 24, 25 and 36, T 22 S, R 9 E.
- 2) Secs. 19, 20, 21, 27, 28, 29, 30 and 31 through 35 incl., T 22 S, R 10 E.
- 3) All of T 23 S, R 10 E, north of the U.S.-Mexico boundary
- 4) Secs. 1, 12, 13, T 23 S R 9 E.

John E. Kinnison

August 22, 1978



Consulting Mining Geologist

5450 N. BOWES ROAD • TUCSON, ARIZONA 85715
(602) 749-3453

GENERAL EXPLORATION • DRILLING ENGINEERING

Dove

From the Desk of JOHN E. KINNISON

The area of copper
exposed looks too small,
but the low dipping volcanics
might conceal a better area

East of the one drill hole -

Note that copper is indicated
on a narrow slope of Black
 Mesa.

The conglomerate mentioned
may actually be pebbles,
and I have seen some lithified
Cretaceous? conglomerates in Road
cuts near Pima.

JEK

KEN BROOK

consulting geologist

3865 Chelsea Sq
Reno, Nevada
89509
702 826 2068

3 April, 1978

Mr. J. David Lowell
5115 N. Oracle Rd.
Tucson, Arizona 85704

Dear Mr. Lowell:

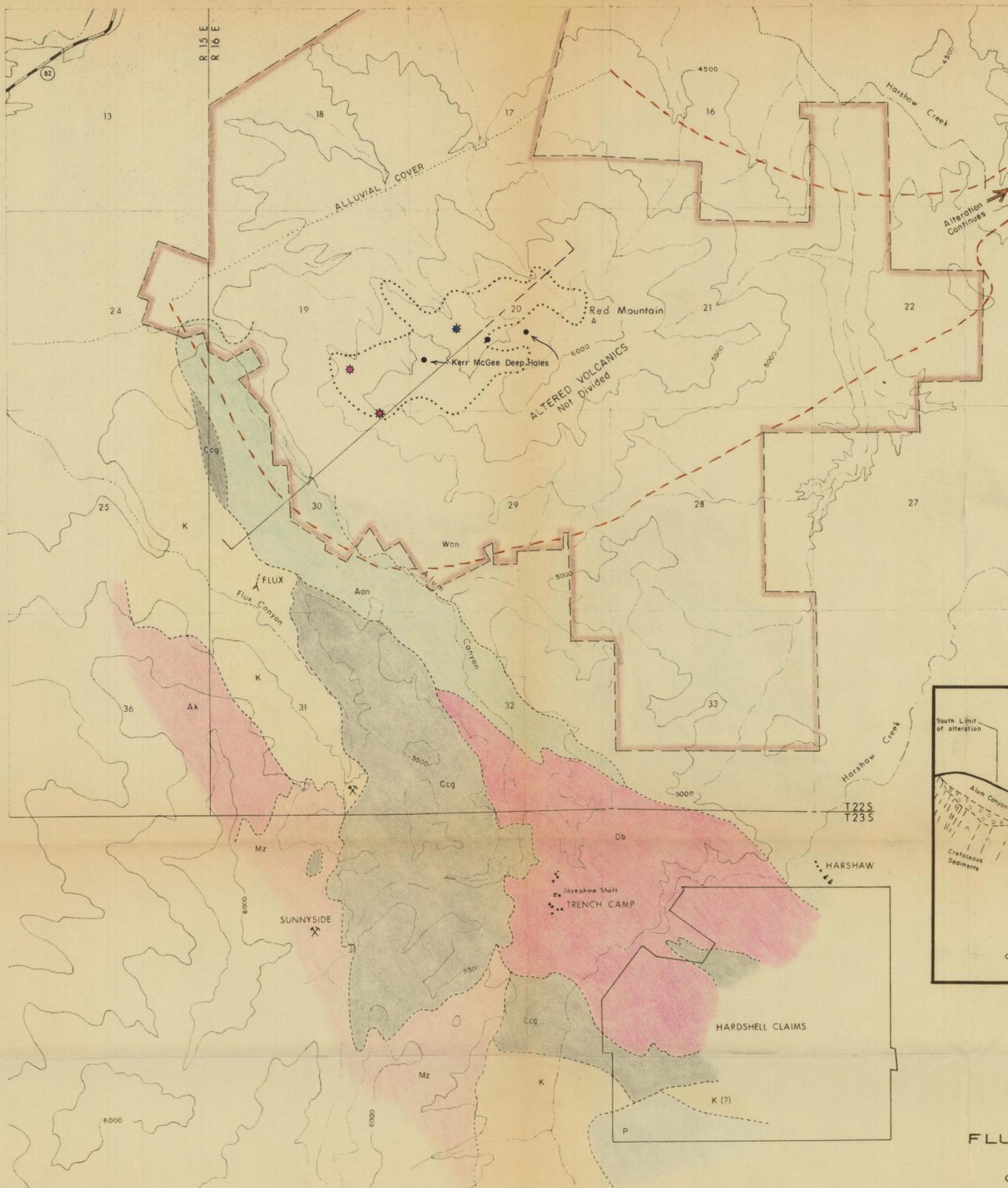
At a recent meeting of the Nevada Geological Society I had the opportunity to discuss a property of mine with John Gilbert. After examining some of the rocks from the property, John suggested I contact you. I have enclosed the basic information about the property as well as some information on myself. Should you have any questions please feel free to call me at any time.

Sincerely

Ken Brook

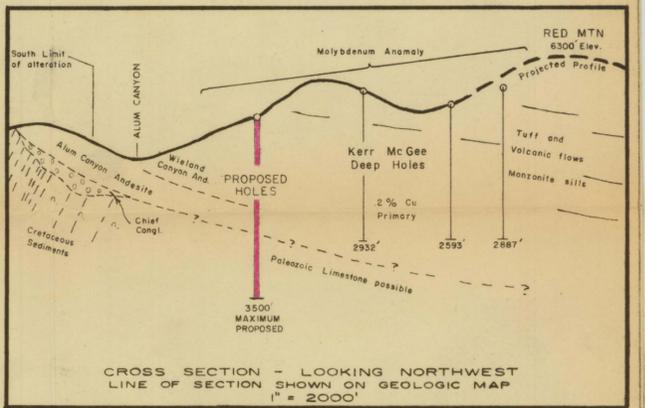
Ken Brook

rec'd 4/7/78



EXPLANATION

Mz	Monzonite
Db	Diabase - sills, dikes
Wan	Wieland Canyon Andesite - Flow
Aan	Alum Canyon Andesite - Flow
Ccg	Chief Conglomerate
AK	Alaskite
K	Cretaceous Sedimentaries
P	Paleozoic - chiefly limestone
(Dotted line)	Molybdenum Anomaly
(Dashed line)	Kerr McGee Claim Outline
(Red dashed line)	Approximate Limit of Alteration
(Star symbol)	Proposed Holes
(Blue star symbol)	Alternate Proposed Holes



**EXPLORATION MAP
FLUX - RED MOUNTAIN - HARSHAW
SANTA CRUZ COUNTY, ARIZONA**

Geology adapted from J.H. Courtright, 1951
U.S.G.S. Topographic Base

SCALE 1" = 2000'
Contour Interval 500'

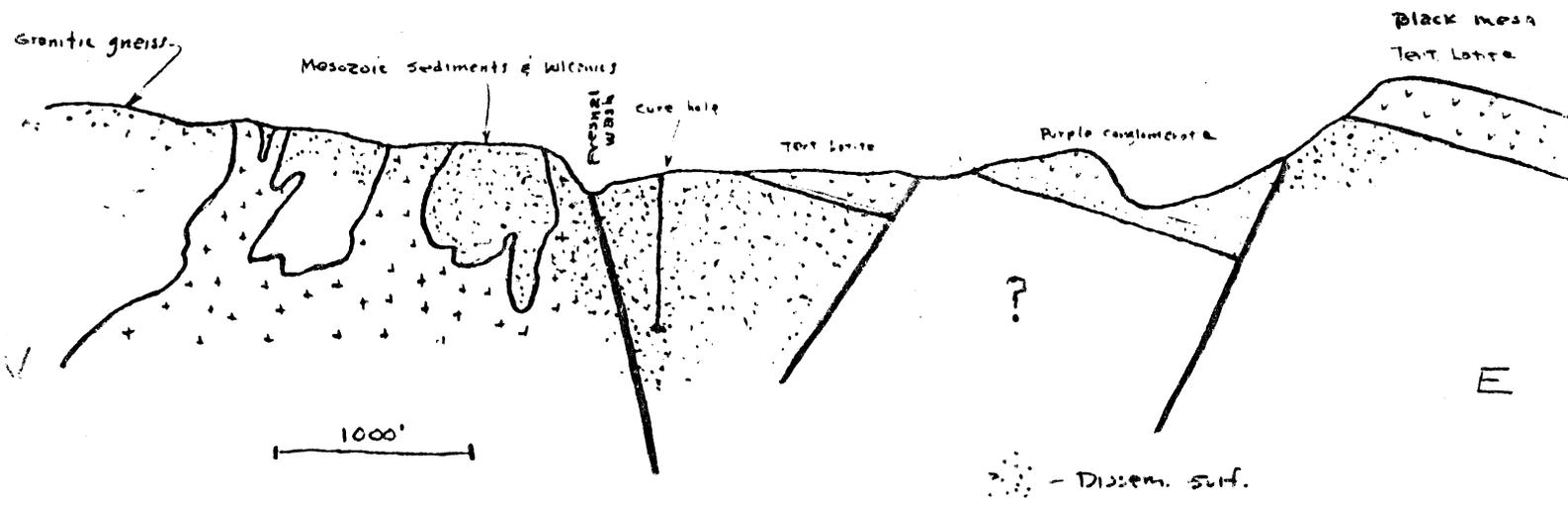
The purpose of this package is to acquaint you with a large, porphyry-type, sulfide system in southern Arizona. I fully realize the abysmal condition of the copper market today; however, copper has had a long history of cyclical prices, and brighter days must surely come.

As in all good porphyry systems the geology is naturally complicated. A cross sectional cartoon and theorized sequence of events is shown in Figure 1. The leached cap comprises intensely sericitized, Mesozoic(?) sedimentary and volcanic rocks as well as a quartz monzonite porphyry. There is abundant, oxidized, disseminated pyrite in all rock types as indicated by the enclosed samples. The area has an orange-red color anomaly, and most of the relict "limonite" is hematitic and not jarositic. The intense quartz-sericite alteration grades laterally into a chlorite-epidote zone which locally contains extremely heavy manganese oxide as well as tourmaline. One of the more puzzling aspects of the area is the 10,000 feet of vertical, Cretaceous(?) conglomerate beds just south of the leached cap. These beds are unconformably overlain by later Cretaceous(?) volcanic flows and tuffs. The techniques and tectonics required to stack a two mile thickness of sedimentary rock on its edge is unknown, but there are major faults in the area. The cap occurs along some very strong and well developed north-east trending faults. This Precambrian structural fabric no doubt

helped localize the intrusion and subsequent metal ization, but hydrothermal activity has strongly altered the rocks more than 1500 feet from the western most fault. Tertiary(?) faulting has tilted the entire area to the east.

There has been a 400 foot core hole drilled on the property, and it bottomed in completely oxidized, intensely altered rock. Hematite and goethite filled pyrite casts were abundant throughout the core with some zones containing 20 to 25% casts. Assay results showed less than 100 ppm copper and 10 ppm moly. Ideally these low values would mean a very throughly leached cap with excellent potential for an enriched zone below. There has been no geophysical work done on the area, and geochemical sampling would no doubt duplicate the low values obtained in the core. In addition to a base metal target, the metasediments seem likely hosts for tungsten as well as precious metals.

I have located 15 claims on the exposed cap and am trying to generate interest in the area. My primary concern is to have a significant exploration program undertaken on the area. In order to accomplish this I am willing to give 12 months free time with a standard lease-option agreement. The enclosed maps should suffice to direct you to the area. However, should you prefer a guided tour, I can arrange to come to Tucson. I really feel this property has great exploration potential, as it is probably the largest, virtually untested leached cap in southern Arizona.

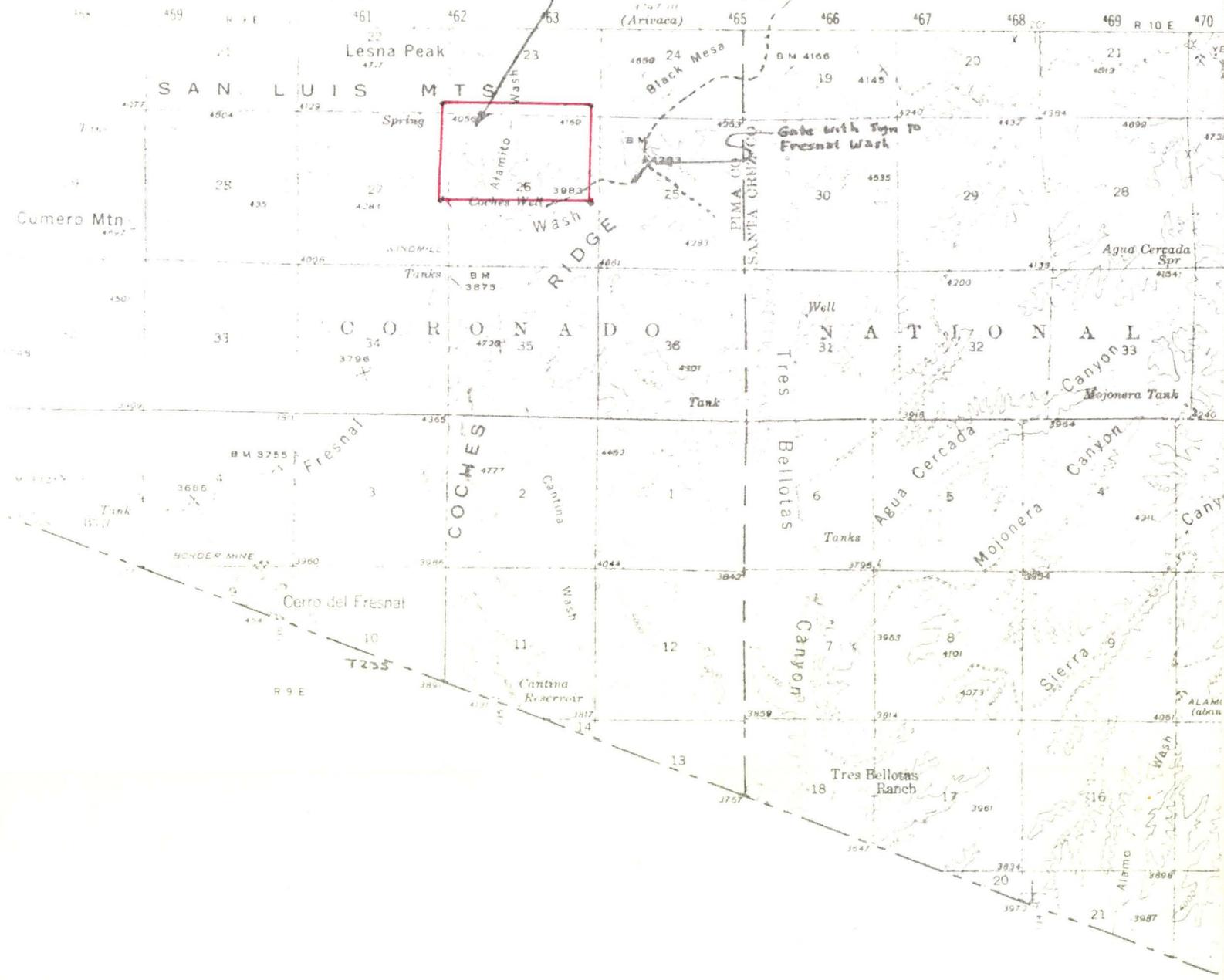


POSSIBLE SEQUENCE OF EVENTS

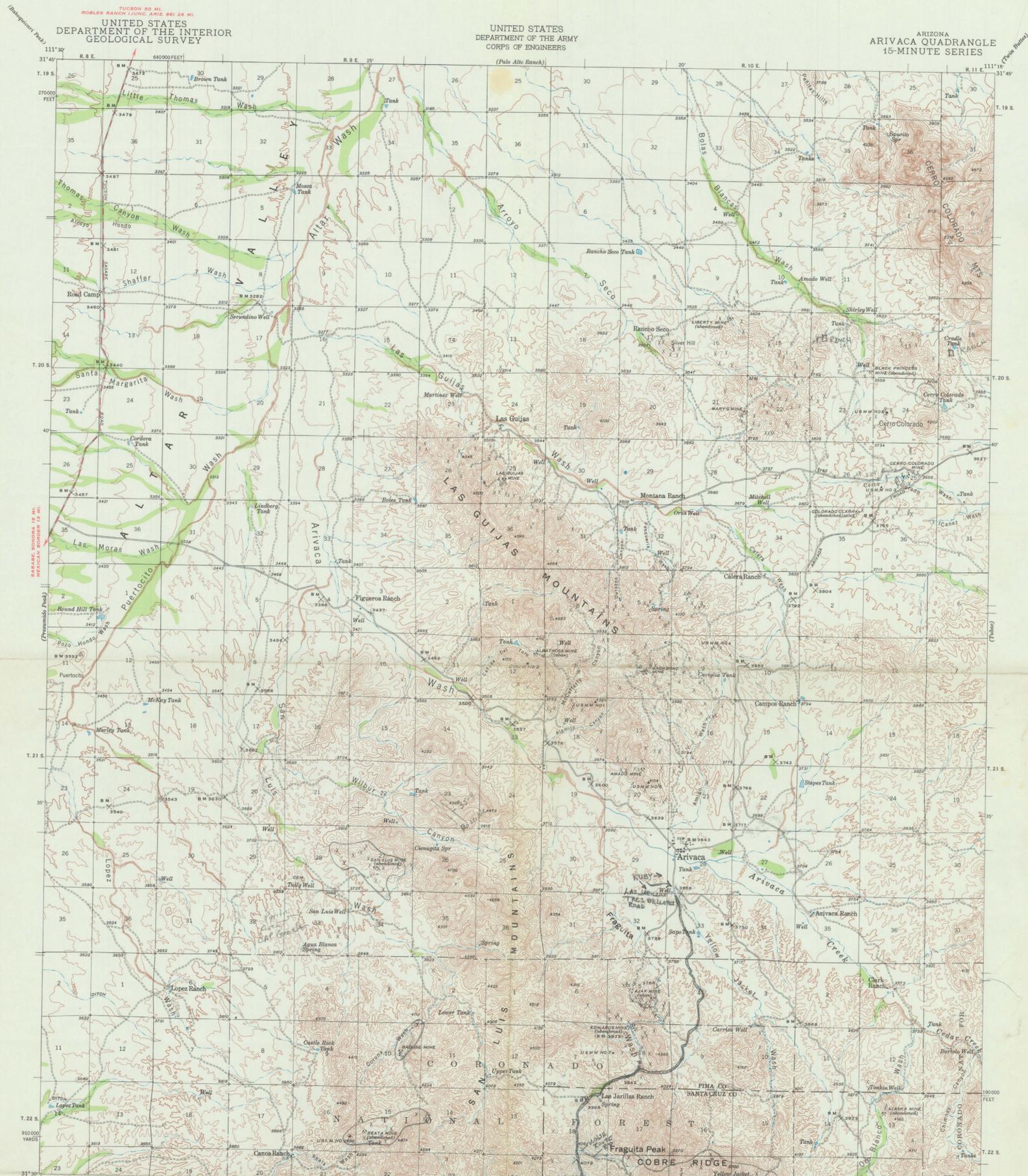
1. UPLIFT - EROSION - DEPOSITION OF CONGLOMERATE south of cap
2. DEPOSITION of MESOZOIC SEDIMENTS + VOLCANICS
3. INTRODUCTION of QMP
4. ALTERATION - METALLIZATION
5. DEEP OXIDATION
6. TERTIARY VOLCANISM
7. TERTIARY FAULTING

GENERALIZED CROSS SECTION
 FRESNAL WASH CLAIMS
 PIMA COUNTY ARIZONA

UNITED STATES
 DEPARTMENT OF THE ARMY
 MARIS CLAIM GROUP CORPS OF ENGINEERS



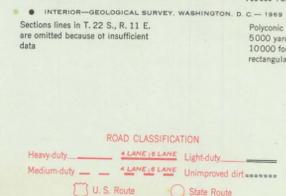
FRESNAL WASH PROPERTY - PIMA CO. ARIZ.
 ORO BLANCO 15' QUAD



Topography by S. C. Kain
 Surveyed in 1940-41



Contour interval 50 feet
 Datum is mean sea level



FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225 OR WASHINGTON, D. C. 20242
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ARIVACA, ARIZ.

N3130-W11115/15

1941

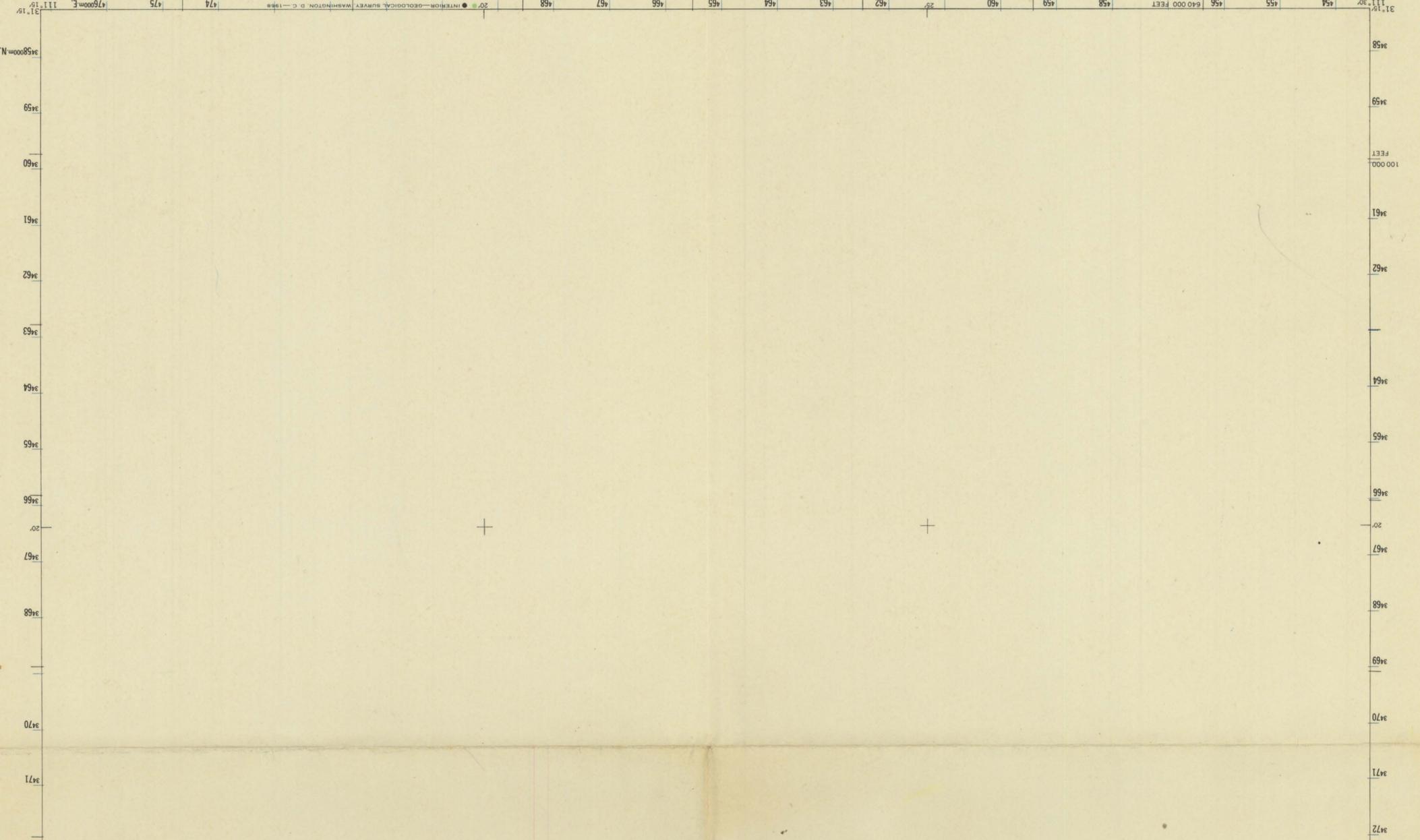
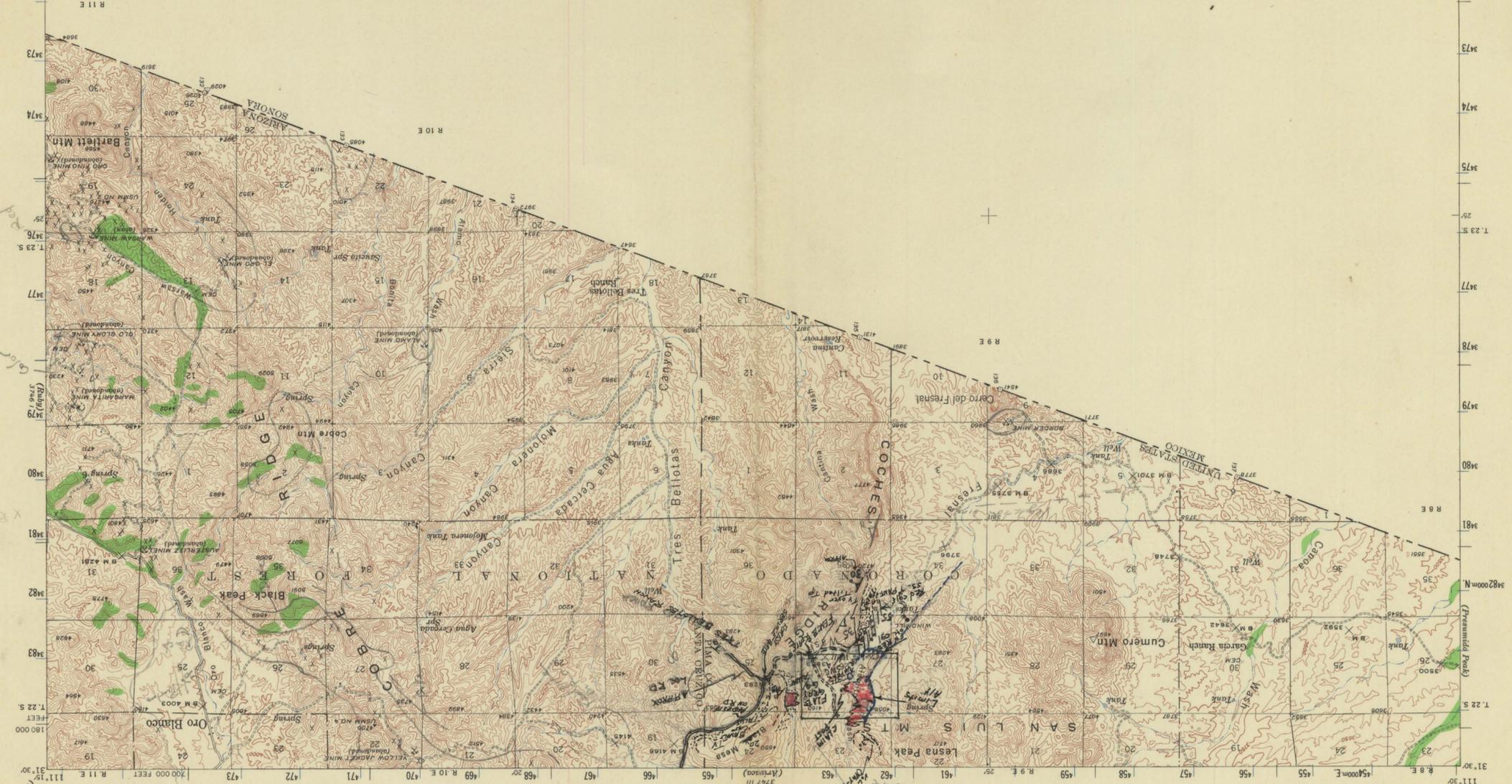
Interior—Geological Survey, Washington, D. C.—1949
 Sections lines in T. 22 S., R. 11 E.
 are omitted because of insufficient
 data

Polygonic projection. 1927 North American datum
 5000 yard grid based on U. S. zone system. F
 10000 foot grid based on Arizona (Central)
 rectangular coordinate system

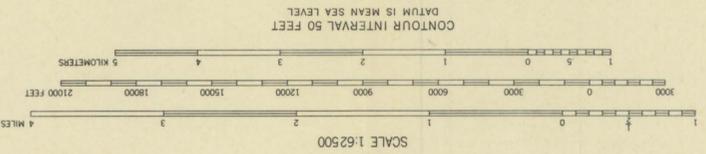
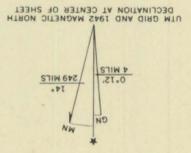
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

ARIZONA
ORO BLANCO QUADRANGLE
15-MINUTE SERIES



Topography by S. C. Kain
Surveyed in 1941-42



CONTOUR INTERVAL 50 FEET
DATUM IS MEAN SEA LEVEL

ORO BLANCO, ARIZ.
N 3115-W 1115/15
1942

Polygonic projection. 1927 North American datum
10,000-foot grid based on Arizona (Central)
rectangular coordinate system
1,000-meter Universal Transverse Mercator grid ticks,
zone 12, shown in blue

FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225 OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

AMS 3746 IV-SERIES V798