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PIMA

E-W trend
various fracture
sets. Some post-min
movement

Banner property
on the West.

Pima has old
Alpha Mine

Frank Ramsey

4602 E 17th
St

Texas

$$50 \times 1,000 \times \frac{16}{150}$$

500,000

PIMA

Not developed
to W. as H_2O

1- 1.5oz Ag

Tr. Au

Primer
Top \wedge reefs

± 300 L, Very
irreg

$\pm 1,500$ g anomaly
corresponding
electromag
anomaly

SP-
HG.

PIMA

4th L -

200 ft long
up to 100 ft. wide

26,000 tons @ 5+%

(90% is dev. ore)

cpy in wide alt
zone, 100' wide

Exploring 5 & 6 ^{now} ~~was~~

Stoke prep. on 4 Lamp

No ^{at} 45, garnet, magnetite

Poor wall sh

requires support

BANNER

Contact with

Cpy, garnet, chlor, epidote
Mag. Py.

Old ore body area
at intersection 3 fts

NE-SW \times fts

E-W = B " South by

NW-SE - Mineral Hill fts

grey, ore bodies in this block
Fits bring in granite

on bottom level

Best ore along 3 fts

are in zone 45

Arizona Club
Phoenix, Arizona

To the Old. Pueblo Club 10/15 1953

Gentlemen: This will introduce our member
Mr. E. N. Pennebaker

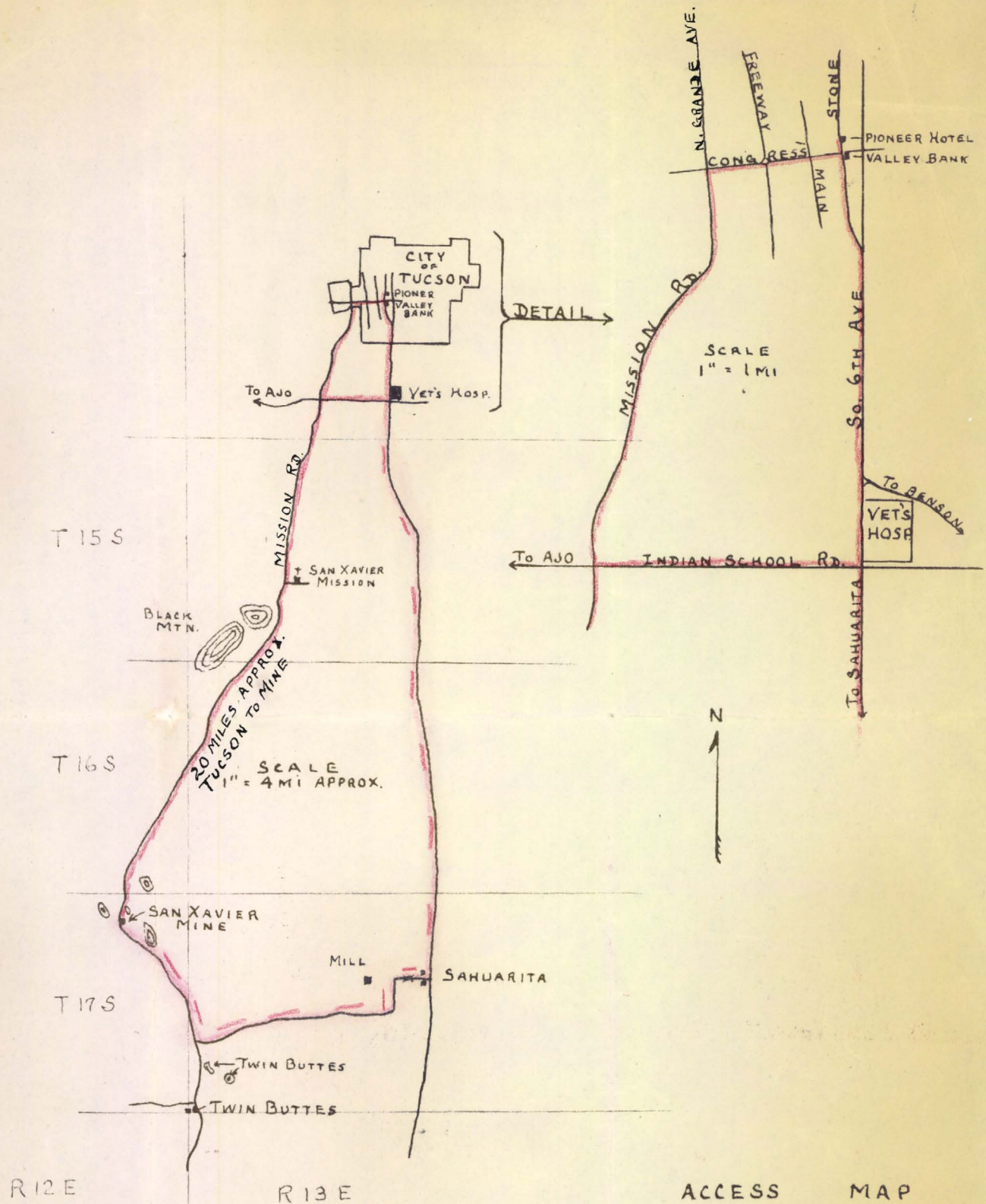
Kindly extend to him
visitors courtesies of your Club

MEMBERSHIP CARD FOR CURRENT YEAR
MUST BE PRESENTED WITH THIS CARD
WITHIN ONE MONTH OF ABOVE DATE

M. S. Good

MANAGER

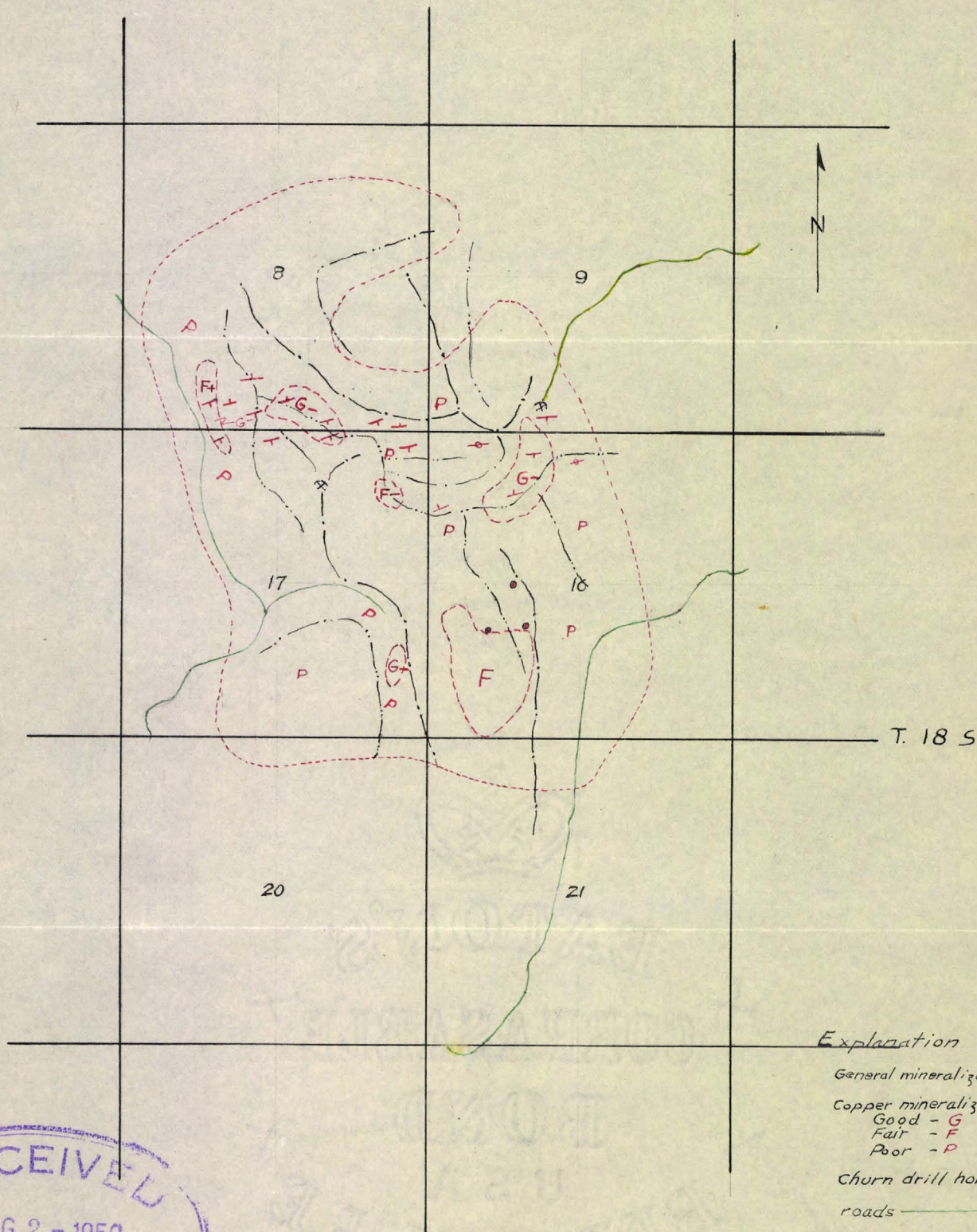
SM



ACCESS MAP
 ROUTE FROM
 TUCSON TO SAN XAVIER MINE
 PIMA COUNTY, ARIZ.
 SCALE 1" = 4 MI APPROX.

Twin Buttes Mineralized Area

TWIN BUTTES QUADRANGLE



Explanation

General mineralization
 Copper mineralization
 Good - G
 Fair - F
 Poor - P

Churn drill holes •

roads —————

ridges - - - - -

streams - . - . -

mineralized veins,
 usually containing a
 considerable amount
 of quartz

Scale 2" = 1 mile



October 19, 1953

Geological & Exploration Department
The American Metal Company, Limited
61 Broadway
New York 6, N. Y.

Dear Sirs:

RE: PIMA MINING DISTRICT
PIMA COUNTY, ARIZONA

At a recent meeting of the Mining Geology Division of the Arizona Section, A.I.M.E., held in Tucson a short visit was made to the Pima mining district where various company officials discussed the geological features of the three principal properties. Very short excursions were made over the surface, but no underground inspections were scheduled.

The district is of current interest because of the recent discovery of a substantial ore body and also because this property is now for sale.

PIMA MINING DISTRICT

The Pima mining district is situated about 18 miles south of Tucson on the east side of the Sierrita Mountains and about 5 miles west of Highway 89.

The San Xavier mine of Eagle Picher Mining & Smelting Company lies on the south. About one mile to the north is a generally east-west zone containing the copper properties of the Banner Mining Company on the west and the Alpha mine of the Pima Mining Company on the east.

Geologically the area appears to be complex, and much of the surface is covered by gravel. Precambrian granite occurs and is followed by a rather full development of the Paleozoic rocks. Whether or not Cretaceous formations are present is a matter of argument. Apparently Tertiary intrusives cut the sediments, and considerable contact metamorphism has occurred with the abundant development of garnet and magnetite.

Ore deposits have generally been small and erratic and of the so-called contact metamorphic type. The more recent discovery by the Pima Mining Company appears to be much larger and, ^{more} regular than the earlier-known ore bodies.

BANNER MINING COMPANY

Formerly controlled by the Grimes estate of Tucson, this property has recently been purchased by the Tintic Standard Mining Company in association with the U-Tex Oil Company, John M. Wallace, L. L. Travis, and Earl Hollandsworth.

The Banner Mining Company recently was awarded a D.M.P.A. contract for 12,960,000 lbs. of copper @ 31¢. It formerly held a D.M.E.A. exploration contract. A geophysical survey was made by Sherwin Kelly.

The mineralized area of present interest lies within a triangle bounded by three faults that are presumably pre-mineral in age. These breaks run NE, EW, and NW. Within this block occur small, irregular ore bodies with the better ones along the east-striking Beta fault. Barren granite is faulted in at depth, and the possible ore-bearing zone may be limited by this feature.

The ore is reported to be in metamorphosed Naco limestone and consists of chalcopyrite associated with garnet, magnetite, chlorite, epidote, and pyrite.

Tonnage and grade were not stated, but presumably 150,000 to 175,000 tons at 4 or 5% copper is a reasonable guess and exploration chances for finding some other small ore bodies appear fairly good.

PIMA MINING COMPANY

The Pima Mining Company is controlled by Herbert Hoover, Jr. (in association with Combined Metals?)

An ore body was discovered on this ground a few years ago by drilling a gravel-covered area in the course of a planned campaign to search for ore bodies by geophysical methods. Contact metamorphic zones carrying magnetite and sulphides were selected as best suited physically to respond to this kind of search. Magnetic and electro-magnetic surveys gave essentially corresponding anomalies along the general strike of the Banner zone trending easterly away from Mineral Hill. Diamond drilling was successful in finding a substantial ore body that is now being developed by underground workings.

The mine is called the "Alpha mine", but this is a new mine in a formerly unexplored area and is not the old Alpha

mine to the south and nearer Twin Buttes.

The magnetic anomaly is reported to have a closure about 1,500 feet long and an intensity of about 1,500 gammas. There is a covering electromagnetic anomaly that is somewhat eccentrically placed. A self potential survey did not yield helpful results.

Drilling and underground development have now revealed chalcopyrite in a wide east-striking altered zone that has been followed for 800 feet on the 400 level. In some places, the mineralized zone is said to be up to 100 feet wide. The general average stoping width was not stated but I obtained the impression that it might be 50 or 60 feet, and a Mitchell slice stoping method is proposed.

To date 26,000 tons of ore at about 5% Cu. has been shipped, and 90% of this is ore supplied by mine development and only 10% by stoping. I understand that a fair amount of zinc is also present.

Exploration is now being conducted on the 500 and 600 levels whereas stope preparation is underway on the 400 level. Underground exploration has not yet been carried to the west under the full extent of the known anomalous zone because of a water hazard. Apparently the ore body is going down satisfactorily.

Chalcopyrite occurs disseminated in the wide altered zone which here and there also carries lenses of rich, massive chalcopyrite. The gangue consists of limestone, garnet, and magnetite with little or no quartz. The ore contains about 1.5 oz. silver per ton but only a trace of gold. It was my impression that the zone of secondary chalcocite, although present, was not strongly developed. The top of the primary sulphide zone comes in at about the 300 level but is very irregular. The disseminated copper sulphides are of exceedingly fine grain for this type of ore deposit.

SAN XAVIER MINE

The Xavier mine of the Eagle Picher Mining & Smelting Company was described as being in an area where sedimentary formation were thrust over Precambrian granite, the latter being intruded by Tertiary granite. The productive zone is near a steep contact between limestone and a rock that is called an arkose.

The mineralized sections are reported to be pipe-like in form with the development of hedenbergite and garnet in

which lenses of ore occur erratically. These contain disseminated marmatite and galena with a minor amount of chalcopyrite in siliceous rocks of debatable original character near their contact with marble. The marble is also said to contain bodies of solid sulphides.

The mine is developed to the 900 level. Barren granite has been projected to a position near the 1100 level, which, if correct, would presumably bottom the mine.

Since Eagle Picher has operated the property about 750,000 tons of ore have been produced. This is reported to have contained about:

10% zinc
5.5% lead
3.5 oz. silver
A little copper

PIMA PROPERTY FOR SALE

Until recently the Pima Mining district produced typical contact metamorphic deposits that were small in size and erratic in distribution. Nevertheless, the more recent discovery by the Pima Mining Company now promises to be more regular as regards continuity and more substantial in tonnage.

Although exploration and development work are being steadily carried forward, the Pima Mining Company is frankly up for sale. A.S. & R., Anaconda, Kennecott, and Eagle Picher all have or are examining it, presumably having been invited to do so by Pima Mining Company. I get the impression that the price is high and is based on the assumption that the full expanse of the anomaly will be filled out with ore to some unknown but substantial depth.

Eagle Picher, with a mill nearby whose full capacity has never been used, is the logical purchaser. They have examined the property carefully (including an appraisal by young Robert Haffner) but I gather that this job is not entirely completed and no offer has yet been made. Apparently Phelps Dodge is not interested.

PIMA COUNTY

DURAH . RESERVES SAID TO BE:

65 x 10⁶ tons @ 0.60% Cu
+ MoS₂

March 27, 1956

Mr. Jack A. James
Mgr., Exploration Division
The American Metal Co., Ltd.
61 Broadway
New York 6, N. Y.

Dear Jack:

RE: Duval Copper Exploration
Pima Mining District
Pima County, Arizona

On March 20, 1956, I visited the Duval exploration project south of Tucson, Arizona. This is in Section 16, T18S, R12E, but there is apparently some doubt whether it is actually in the Pima or the Papago mining district.

I visited the property in company with Wm. E. Heinrichs, Jr., and we were shown over the ground by a Duval geologist named Toombs, who is working under the direction of Harrison Schmitt. The project is in charge of Ben G. Messer, formerly chief mining engineer for Miami Copper but recently chief engineer for Duval Sulphur & Potash Company.

This general area was examined in the summer of 1950 during Consolidated Coppermines' and Amco's campaign of search for leached outcrops indicative of copper mineralization, and I believe this was not long after Amco joined in to form the Joint Venture. The area was given a fair amount of attention and a reconnaissance sketch map was made roughly classifying the leached croppings. Most of these were classified as "poor", with smaller, limited areas of "fair" and "good" quality. Shortly before we found this area, the Mudd interests had optioned some ground and had put down, I believe, three churn drill holes. These were unsuccessful and they pulled out. Our samples taken from drill sludge remaining on the surface returned only a few tenths of one per cent of copper, and consequently we dropped our interest in the area.

Recently the Duval people have made a supposedly substantial discovery in the same mineralized area, but north of the Mudd holes, and a review of the relation of the cropping to the sulfide zone is in order. This is solely for the purpose of trying to learn why a mediocre capping is above a low-grade but allegedly commercial ore body, so that other

areas can be more shrewdly appraised in the future.

The area of interest is one where small plugs and tongues of porphyry or granitic rock intrude a variety of volcanic types of late Cretaceous or early Tertiary age. The volcanic rocks are severely silicified and closely resemble quartzite. There is some associated clay alteration, which appears to be more abundantly developed in the intrusive rocks along with the development of a green biotite.

Mineralization, as determined by drilling, consists of pyrite and chalcopyrite enriched by secondary chalcocite. This occurs as a blanket under about 100 feet of capping, and its undulations are reported to conform rather well to the surface topography. It is also reported that the blanket persists through various rock types with little change in character.

The tonnage and grade of ore found was not told to us. Rumor from sources in Tucson gives 30 million tons at about 0.7% copper. Inasmuch as the area that is more closely drilled appears to be about 3000 feet long and 1500 feet wide this may indicate about the right order of magnitude for a relatively thin body of secondary ore.

At two localities on the north, the Duval people have driven tunnels into the shallow sulfide zone in order to check the copper values in two vertical drill holes by raising and sinking along these holes. The material to be checked is crushed, and we were shown a pile of about 50 tons from one of these tunnels that is stored on the surface. I took about six grabs from different places in this pile to make up a sample for assay. This material looked good and I guessed it to run about 0.75-1.00% copper. On assay it returned:

SAMPLE #1

Total copper	0.40%
Oxide copper	<u>0.05%</u>
Sulfide copper	0.35%

The reason for the low tenor is probably because the chalcocite grains have cores of pyrite.

A silicified niggerhead preserved in the cropping contained sulfides and was assayed with the following results:

SAMPLE #2

Total copper	0.30%
Oxide copper	<u>0.05%</u>
Sulfide copper	0.25%

It is difficult to say how representative my Sample #1 is of the ore body as a whole or of the particular hole that it was drilled to investigate. My only conclusion is that it probably demonstrates that the Duval ore body is generally quite low in tenor and that even this low grade rock may be uneven in quality. This would demand rather close drill hole spacing to give a reliable estimate of grade.

The Duval drilling pattern is designed to locate a hole at the apices of equilateral triangles that are 500 feet on a side. A few intermediate holes have been or are being put down in the center of some of these triangles. In my opinion this drilling is too widely spaced for this particular zone of mineralization. Consequently I would be skeptical of a reserve estimate based on such drill hole spacing unless the ore body were at least completely tested by the intermediate drill hole locations. As pointed out by one geologist, in places at present there are only three holes across the Duval ore body's width (N-S) and these are not sufficient to give a reliable estimate.

Silicified niggerheads preserved in the cropping carry chalcocite and chalcopyrite, so it is evident that these minerals were exposed at the surface. Nevertheless, the croppings do not display a corresponding amount of the maroon "relief limonite" after chalcocite (which does occur in the croppings at Silver Bell) nor a corresponding amount of "chalcopyrite boxwork", like the croppings above the Copper Cities deposit near Miami, Arizona. Thus the leached outcrops do not reflect the quality of the low grade material below, and Richard and Courtright of A.S. & R. concur with me in this opinion.

The reason for the misleading quality of the croppings is judged to be due to the non-reactive character of the highly silicified volcanic host rock, the extremely fine grain of most of the sulphides, and perhaps a lateral component to the enriching solutions.

Examination of specimens of the ore revealed that the majority of the sulfide grains have diameters that range from one-twentieth to one-half millimeter. Although chalcocite grains in this size range are reflected in leached croppings of sericitized and argillized host rock (as at Silver Bell), apparently they leave no relicts in a highly silicified host. Furthermore, it was my conclusion at Castle Dome and Copper Cities that chalcopyrite grains with diameters smaller than 1 millimeter do not leave a recognizable boxwork upon oxidation. Therefore the fine grain of the sulphides and the predominance of a highly siliceous host prevented the formation of a diagnostic leached cropping over much of the Duval deposit.

Drilling has apparently delimited the ore body on the north and west. Because of the unreliability of the capping it is difficult to say whether important extensions will be found on the south and east.

The Duval area presents a group of bold hills on which hard silicified ribs of volcanic rocks crop out. It is not, like the Pima mine area, covered by a thick blanket of alluvium.

The Duval geologist maintains that the Mudd drilling was unsuccessful because their holes were located in a portion of a relatively high pyrite-low copper ring that surrounds a core where copper mineralization is somewhat better and where the new deposit is situated.

Yours very truly

E. N. Pennebaker

ENP:mc

January 4, 1955

Mr. John Payne, Jr.
Manager, Mining Department
The American Metal Co., Ltd.
61 Broadway
New York 6, N. Y.

Dear John:

RE: Pima Copper Mine near Tucson.

When I was in Tucson about a month ago I inquired of Guy Edwards, who is Geological Consultant to United Geophysical Company, regarding activities at the Pima property since the Mudd interest took over. He replied to the effect that there was a great deal of activity on their part but did not say whether this was drilling or driving or precisely where it was taking place. Beyond this I have no further knowledge of activities at Pima but shall try to acquire more information when the opportunity permits.

With kindest personal regards,

Yours sincerely

E. N. Pennebaker

ENP:mc

THE AMERICAN METAL COMPANY, LIMITED
61 BROADWAY
NEW YORK 6, N. Y.

TELEPHONE BOWLING GREEN 9-1800
CABLE ADDRESS: EFFLUX, NEW YORK

PLEASE ADDRESS REPLY TO Mining Department

SUBJECT:

December 31, 1954

Mr. E. N. Pennebaker
Box 817
Scottsdale, Arizona

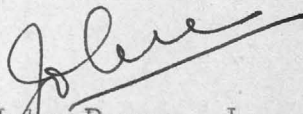
Dear Penny:

Re: Pima Copper Mine near Tucson

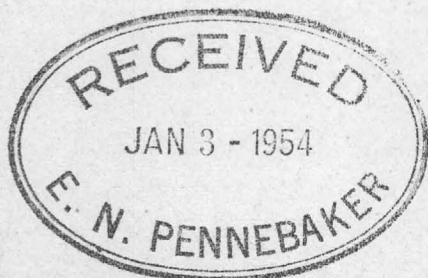
As you know, we examined the above property but the Mudd interests subsequently acquired an option on it. We assume they have carried out work and would appreciate any information you may have as to what is going on.

Best regards,

Sincerely,


John Payne, Jr.

JP/art



July 14, 1950

Mr. A. J. O'Connor, General Manager
Consolidated Coppermines Corporation
Kimberly, Nevada

Dear Art:

We were recently advised that the Mudd interests have given up their option on ground south of Twin Buttes, Pima County, Arizona. Our scouts encountered a man living in a trailer on the property who alleges he is an owner. He told them to go ahead and look the ground over, which they are now doing in some detail.

Yours very truly,

March 28, 1951

Mr. Fred P. Gerold
Route 3, Box 360
Tucson, Arizona

Dear Mr. Gerold:

Many thanks for your letter of March 20th.

As you know, our geologists looked over your ground and some of the other properties nearby. Our conclusion was that the chances of finding a mine in this area were very limited. Consequently, at this time we are unable to give the area further examination or consideration.

Later on when we are less rushed, or if other information on the ground becomes available, we may be able to look it over again.

Thank you kindly for writing me.

Yours sincerely

enp:d

Mr. Fred P. Gerold.
Route 3, Box 360.
Tucson, Arizona.

March 20, 1951.

Mr E.M. Pennebaker
Consolidated Copper Mine
Globe, Arizona.

Dear Mr. Pennebaker:

Word has reached me that you
are seeking a large Copper deposit.

I hold Ten claims in the Twin Buttes
Mining District, to which Fifty other
claims from various owners are available,
all adjoining forming a large group of claims,
with very interesting possibilities for an
open pit operation.

I believe your geologists have made a
partial examination of the properties,
And I would deem it a great favor if you
can give me an expression of their findings
or whether you can be interested in
exploring the same.

Your very truly,

Fred P. Gerold.
Mr. Fred P. Gerold.

Pima County

April 30, 1950

Mr. A. J. O'Connor
General Manager
Consolidated Coppermines Corporation
Kimberly, Nevada

Dear Art:

I recently requested that Guynn & Twitty ascertain the ownership of and the possibility of options already covering a large block on ground in the southwesterly portion of the Twin Buttes area not far from Tucson, Arizona. Frank Sharp assisted in this investigation, and Mr. Guynn has prepared a report of their findings, a copy of which is enclosed for your attention.

Mr. Guynn's letter contains much useful information. One point is that the Mudds probably control most of the main body of porphyry. Another is that the A. S. & R. Company was apparently approached and turned the proposition down because the terms were too tough. We can then assume that a somewhat more reasonable deal was made to the Mudd interests, but the terms to them are probably pretty rugged also.

From my quick view of the ground not long ago, it appeared that the Mudds have prepared roads and drilling sites to serve from 4 to 6 holes in a very limited area on the south-east. If their option terms are tough, I am guessing that they will soon make their decision from the results of drilling on this "postage stamp" without testing the ground on the north.

I shall instruct John Hope to have one of our men check the situation now and then to see how many holes are drilled and where they are put down. If the Mudds quit the project, this will also be apparent to our scout soon after their departure.

We should also check the county records to see if an option has been recorded or if there is an indication of an abandonment. Frank Sharp should do this once again before he leaves and can also show John Hope or Ludden how it is done.

In the meantime, we shall confine our scouting activities in the Pima mining district to a lobe of porphyry well away on the northwest. Although the extensive claim group apparently

Page Two
April 30, 1950
Mr. A. J. O'Connor

controlled by the Mudds covers most of the main body of porphyry, there is a portion of it on the northwest that still may be open and we must now look into this possibility.

If the Mudds quit the district after testing only the limited area on the southeast, where they are now active, we might be interested in carefully studying the ground on the north where outcrops appear somewhat better. If the Mudds pull out, we should be in a good strategic position to drive a sharp bargain. Next year's assessment work on these 85 claims will be quite an item for these locators to handle, and any road work to drill sites would probably cover this requirement. Another point is that these claims were apparently located by careful surveying, and our surveying expense in this area should be less than that which we usually encounter.

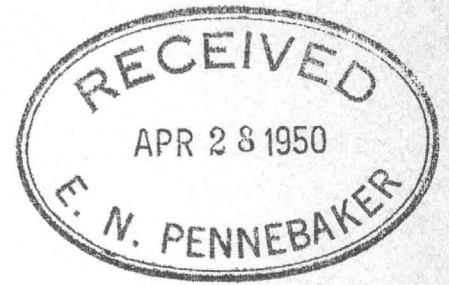
We shall watch this situation carefully and keep you advised of current developments. My most recent word from White is that he is not too favorably impressed as a result of further study of the ground, so we shall proceed cautiously. Until the situation becomes clearer, I think there is no need to bring up this matter before our eastern front.

Yours very truly,

cc: Mr. John Hope, Jr.
Mr. J. Frank Sharp

LAW OFFICES
GUYNN & TWITTY
TITLE & TRUST BUILDING
PHOENIX, ARIZONA
April 27, 1950

C. LEO GUYNN
HOWARD A. TWITTY



Mr. E. N. Pennebaker
Box 2996
Globe, Arizona

Dear Penny:

Pursuant to your request I made a trip to Tucson last Tuesday where I met Frank Sharp shortly before noon and we spent the afternoon Tuesday and a part of the forenoon on Wednesday in the office of the County Recorder and County Treasurer of Pima County checking on certain ground located in the Pima Mining District in which you had expressed an interest.

Checking particularly Sections 8, 9, 16 and 17 of T-18-S. R-12-E we found that all of the ground which you were anxious to know the status of had within recent months been located under three large group locations as follow.

On July 20, 1949 Alfred G. Johnson of Tucson, Arizona located 45 claims, Cuprite #1 to Cuprite #45. These locations are recorded in Book of Mines 77 at pages 594 through 638. On October 15, 1949 Mr. Johnson abandoned 31 of the claims above mentioned and three days later on October 18, 1949 his wife, Audrey N. Johnson, relocated all of the claims which her husband had abandoned. The notice of intention to abandon the claims is recorded in Book 204 at page 93. The relocation notices are in Book 204 at pages 94 through 124. You will be interested to know that all of the Cuprite claims are surveyed into the Mineral Monument shown in Section 16 and that these locations were witnessed by Deputy U. S. Mineral Surveyor (Higgins).

A second group of 20 claims namely Copper Jack #1 to Copper Jack #20 were located in March 1949 by R. H. McGee and D. R. McGee. These locations are recorded in Book of Mines 77 at page 430 through 449. Shortly thereafter amended location notices were recorded on all of the Copper Jack group. A careful study of the record disclosed that the original location notices had placed these claims in T-17-S. R-12-E. The amended notices correctly described the location of the claims as being in T-18-S. R-12-E.

A third group, Copper John #1 to Copper John #20 were located early this month by Roy Harris and A. F. Coughanour. These location notices are recorded in Book 242 at page 591 to the end of the docket and in Book 243 at Pages 1 to 15. On

*Howard:
Good on Leo's Pap*
*A man named Fred Jerral claims
to be an owner. See Whit's report of 7/9/50*

April 27, 1950

April 20, 1950 Harris and Coughanour deeded the Copper John group to R. H. McGee. The deed was recorded the same day in Docket 244 at page 496.

Taking into account the fact that the location of the Cuprite group can be exactly determined being tied into the Mineral Monument and considering further mention made in the location notices on the Copper Jack and Copper John groups to their proximity to the Cuprite claims, it is possible to ascertain that the 85 claims involved cover a good portion of Sections 8, 9, 16 and 17, and that they very definitely cover the Wheeler-Perry group and the Sneider Group as shown on the T. N. Stevens map which you gave me.

In addition to the information found in the Recorder's office I was able to obtain the following from a close friend who is reliable and also in a position to know what activity is taking place in the Pima Mining District. According to my informant Alfred G. Johnson until recently was the owner of a restaurant in Tucson and is the man who took the initiative which resulted in the drilling program which is now being carried on by the Coronado Copper Company (Mudd interests). Mr. Johnson spent several thousand dollars of his own money having the ground surveyed and the Cuprite group located. Later he brought Roy Harris into the picture. Harris is the leader of a small colony of Mormons living a few miles south and west of Eagle-Picher's San Xavier mine. Harris in turn brought the two McGees and Coughanour, who are members of his group, into the deal. According to my informant Johnson and Harris are the spokesman for all of the five locators and were the two who finally reached an agreement with Coronado Copper Company. They first negotiated with American Smelting and Refining Company. However, their terms were such that A. S. & R. would not take an option on the claims. I was told that they were asking \$5000.00 down, \$25,000.00 after three months, and I believe something in the neighborhood of \$300,000.00 for the entire group. My informant did not know the terms under which Coronado Copper had optioned the claims. However, he seemed reasonably certain that an option had been taken, this, notwithstanding the fact that Mr. Sharp nor myself could find anything of record to indicate that any agreement had been reached between the parties. It would appear certain, however, that Coronado Copper would not be drilling on the ground unless they had these claims tied up in some manner. Either their option has not been recorded or a final agreement has not been reached and they are now working under some temporary arrangement. The fact that the Copper John claims were transferred from Harris and Coughanour to McGee within the last week might indicate the latter to be the case.

One other point which you asked to have covered was to determine the ownership of two patented claims, the Esperanza

Mr. Pennebaker

- 3 -


April 27, 1950

and the Frazier River. In the County Treasurer's office we learned that I. C. Elston, Jr. is the present owner of the Esparanza claim and that his mailing address is c/o Anton Zamboni, Ruby Star Route, Box 8, Tucson, Arizona. The Frazier River claim is owned by Fred W. Fickett and his wife, Ruth Fickett, of Tucson. Mr. Fickett is one of the prominent and well respected attorneys practicing in Pima County. Current taxes on both claims are paid.

Hoping we have supplied the information you desire and that you will call on us if anything has been omitted, we remain with kind personal regards

Very truly yours,

GUYNN & TWITTY

By 

CLG/mec

Pima County

April 30, 1950

Mr. C. Leo Gynn
907 Title and Trust Building
Phoenix, Arizona

Dear Leo:

Many thanks for your letter of April 27, 1950, concerning your investigation in Tucson of various claim groups southwest of Twin Buttes. This covers the situation adequately, and we shall now sit back and see what takes place.

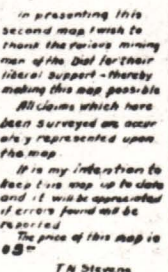
If you have no further use of the claim map which I gave you, I shall appreciate your returning it so that I can have a map to take up north with me to show Art O'Connor.

Please accept our thanks for helping us out on this matter at a time when your office was so badly disorganized by Howard's absence.

With kindest personal regards,

Yours sincerely,

T.N. STEVENS - U.S. MINERAL SURVEYOR - TUCSON
SCALE OF FEET

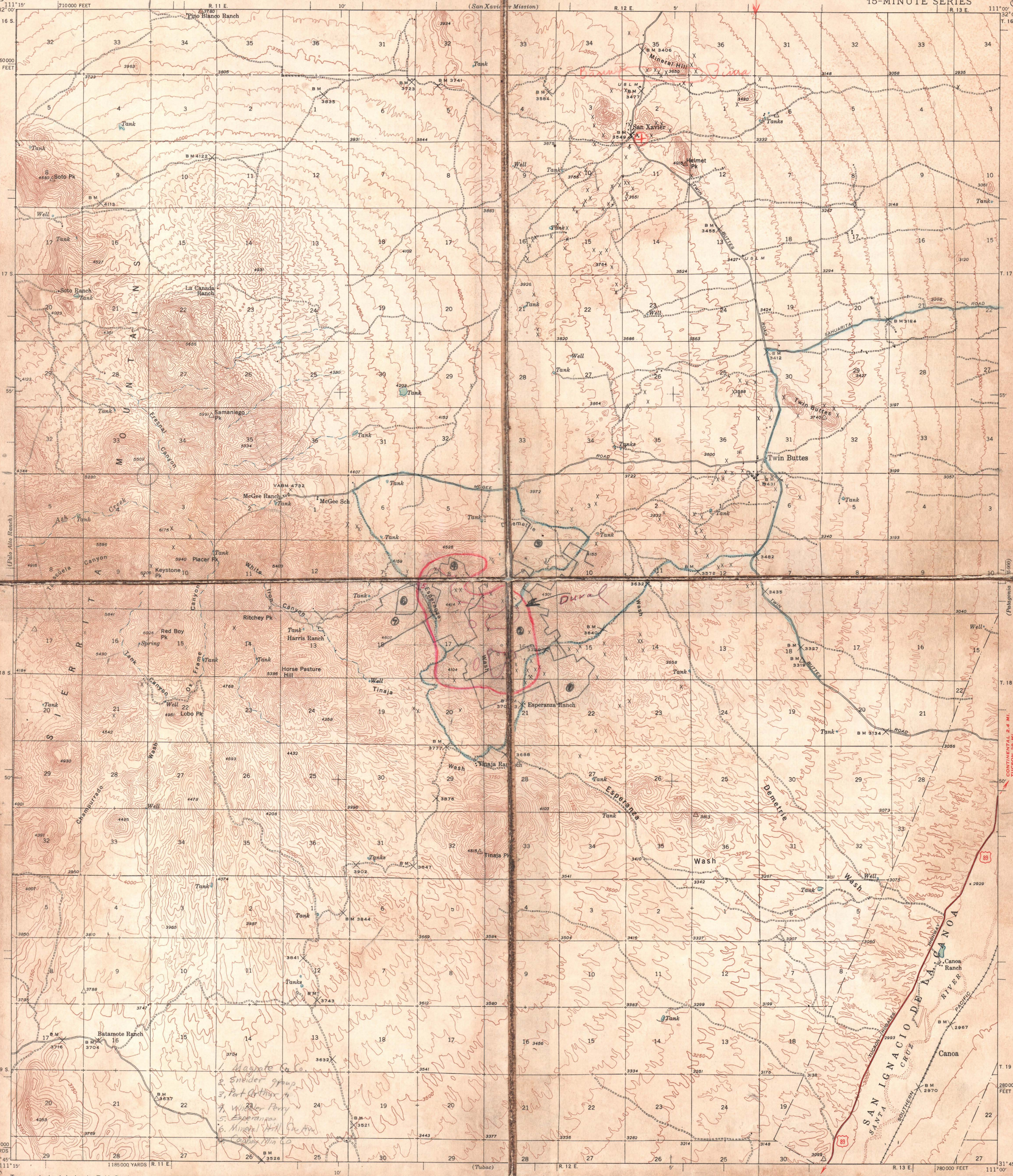
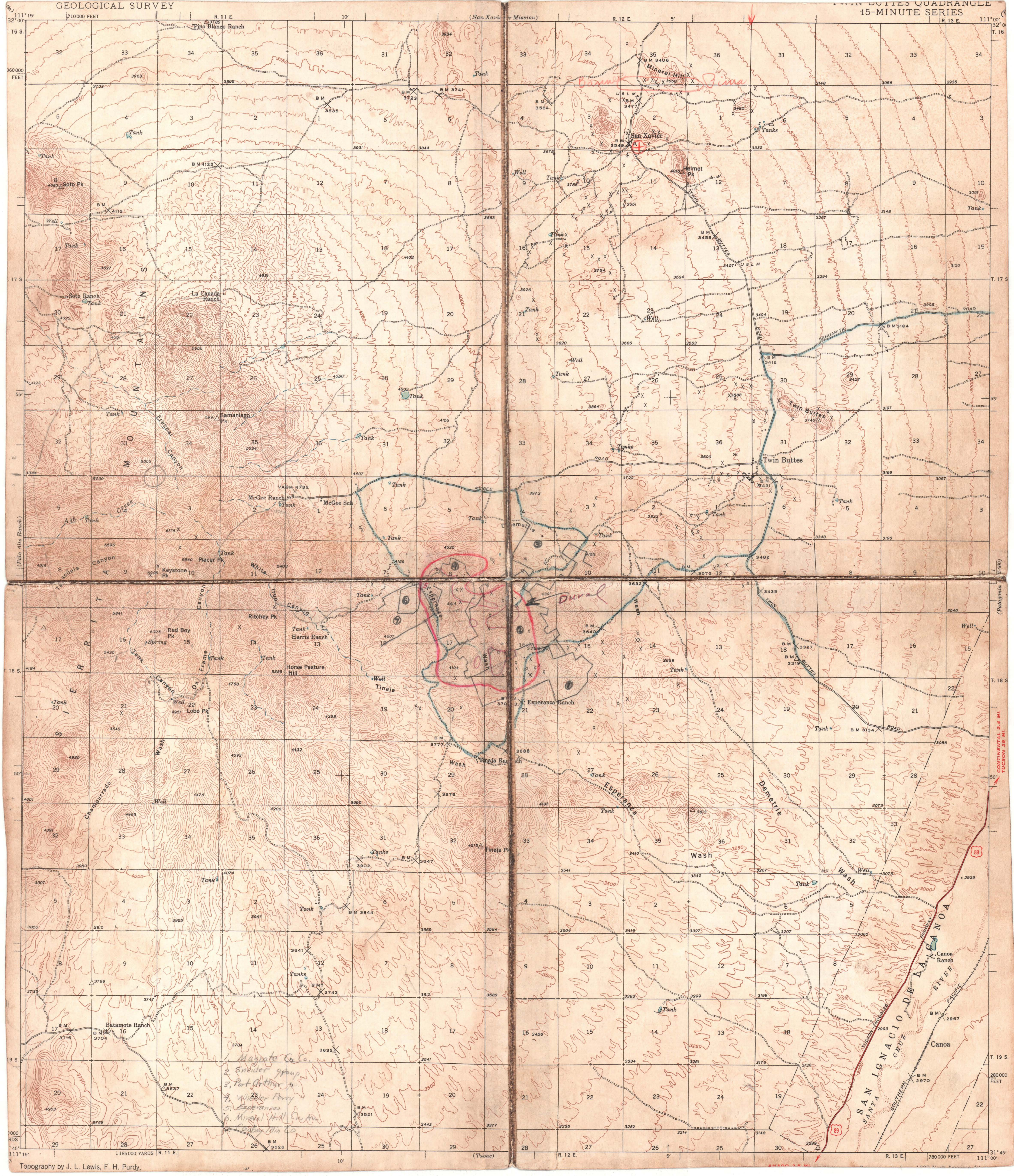


Esplanade Jun - 1882 ✓

Fraser River - Nov. 1882 -

In Sect - 21

Twin Buttes



The United States Geological Survey is making a series of standard topographic maps to cover the United States. This work has been in progress since 1882, and the published maps cover more than 47 percent of the country, exclusive of outlying possessions.

The maps are published on sheets that measure about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard maps are of nearly uniform size, the areas that they represent are of different sizes. On the lower margin of each map are printed graphic scales showing distances in feet, meters, miles, and kilometers. In addition, the scale of the map is shown by a fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale $\frac{1}{62,500}$ means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 of the same units on the earth's surface.

Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys and the resulting maps have for many years been of three types, differentiated as follows:

1. Surveys of areas in which there are problems of great public importance—relating, for example, to mineral development, irrigation, or reclamation of swamp areas—are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{62,500}$ (1 inch = one-half mile) or $\frac{1}{24,000}$ (1 inch = 2,000 feet), with a contour interval of 1 to 100 feet, according to the relief of the particular area mapped.
2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{62,500}$ (1 inch = nearly 1 mile), with a contour interval of 10 to 100 feet.
3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, and the high mountain area of the northwest, are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{250,000}$ (1 inch = nearly 2

A survey of Puerto Rico is in progress. The scale of the published maps is $\frac{1}{50,000}$.

The features shown on the maps are grouped into three groups—(1) water features, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), including towns, cities, roads, railroads, and boundaries. The features are shown and described in the same manner as some earlier maps, and in some special maps.

All the water features, including streams and canals, are shown by double lines. The larger streams and lakes are shown by blue lines and blue tint. Intermittent streams—those whose beds are shown by lines of blue dashes.

Relief is shown by contour lines. The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped: in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. In order that the contours may be read more easily certain contour lines, every fourth or fifth, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road intersections, summits, surfaces of lakes, and benchmarks—are also given on the map in figures, which show altitudes to the nearest foot only. More precise figures for the altitudes of benchmarks are given in the Geological Survey's bulletins on spirit leveling. The geodetic coordinates of triangulation and transit-traverse stations are also published in bulletins.

Lettering and the works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Public roads suitable for motor travel the greater part of the year are shown by solid double lines; poor public roads and private roads by dashed double lines; trails by dashed single lines. Additional public road classification if available is shown by red overprint.

Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. More than 4,100 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

Geologic maps of some of the areas shown on the topographic maps have been published in the form of folios. Each folio includes maps showing the topography, geology, underground structure, and mineral deposits of the area mapped, and several

in progress. The scale of

maps may be arranged in seas, lakes, rivers, canals; (2) relief, including features of the land surface; (3) culture (works of man), including towns, cities, roads, railroads, and boundaries. The features are shown and described in the same manner as some earlier maps, and in some special maps.

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ing spurs separated by ravines. The spurs are truncated at their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined tableland that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped: in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. In order that the contours may be read more easily certain contour lines, every fourth or fifth, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road intersections, summits, surfaces of lakes, and benchmarks—are also given on the map in figures, which show altitudes to the nearest foot only. More precise figures for the altitudes of benchmarks are given in the Geological Survey's bulletins on spirit leveling. The geodetic coordinates of triangulation and transit-traverse stations are also published in bulletins.

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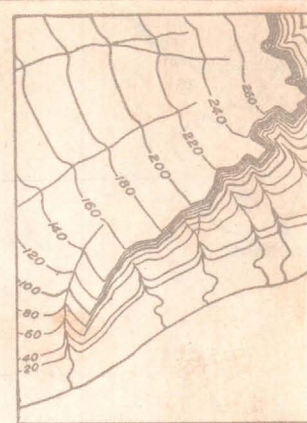
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which show only drainage and culture, have been made for some areas in the United States. By the use of stereoscopic plotting apparatus, aerial photographs are utilized also in the making of the regular topographic maps, which show relief as well as drainage and culture.

A topographic survey of Alaska has been in progress since 1898, and nearly 44 percent of its area has now been mapped. About 15 percent of the Territory has been covered by maps on a scale of $\frac{1}{500,000}$ (1 inch = nearly 8 miles). For most of the remainder of the area surveyed the maps published are on a scale of $\frac{1}{250,000}$ (1 inch = nearly 4 miles). For some areas of particular economic importance, covering about 4,300 square miles, the maps published are on a scale of $\frac{1}{62,500}$ (1 inch = nearly 1 mile) or larger. In addition to the area covered by topographic maps, about 11,300 square miles of southeastern Alaska has been covered by planimetric maps on scales of $\frac{1}{125,000}$ and $\frac{1}{250,000}$.

The Hawaiian Islands have been surveyed, and the resulting maps are published on a scale of $\frac{1}{62,500}$.



The sketch represents a valley that lies between two hills. In the foreground, a hooked hill is enclosed by a hooked line, which represents a cliff. The hill on the right is shown with contour lines indicating its elevation.



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STANDARD SYMBOLS

SYMBOLS

NOTE:—Effective on and after October 1, 1946, the price of standard topographic quadrangle maps will be 20 cents each, with a discount of 20 percent on orders amounting to \$10 or more at the retail rate.

