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Cunningham Pass District

CRITIC MINE

September 12, 1969

The ore tonnage estimates and assay figures are taken from the copy of a 1934 report made by C. M. Davis, M. E. Since this report was made, there has been approximately 500 tons of ore shipped from the "C Level" and about 1,000 tons of dump run shipped from "Dump at Mine Shaft." The total amount is so nominal I will not make an allowance for it, and inasmuch also as there has been tonnage added to the dumps from the "C Level."

In compiling the tonnage figures Mr. Davis makes allowance only for the fines and direct smelting product. Quoting Mr. Davis, "There is only one way the dumps can be handled as the values are practically all in the fines. I find that on an average 50% will go fines, with 3% of the gross tonnage making a direct smelting product. This ratio applies to the filled stopes also. The following statements, estimates, are based on the fines and sorted ores available."

	Tons	% Copper	Gold Oz.	Total Copper Lbs.	Total Gold Oz.
Dump at Mine Shaft	4,666	2.03	.10	189,439	46.66
	280	11.6	.692	64,960	193.76
Ore House Dump	3,000	2.6	.541	156,000	1,623.00
Whim Dump	1,427	1.5	.08	42,810	114.16
	75	11.6	.692	17,400	51.90
Tunnel Dump	270	2.4	.15	12,960	40.50
	15	11.6	.692	3,480	10.38

Total lbs. copper 487,049.6 x .48 = $233,783.80
Total oz. gold 473.59 x 41.00 = 19,417.19
$253,200.99

Filled Stopes C Level	798	1.0	.30	15,960	239.40
	47	11.6	.629	10,904	29.56
300 to 400 Foot Level East	625	2.4	.10	30,000	66.50
	37	11.66	.629	8,628	23.27
West	3,780	2.4	.10	181,440	378
	226	11.6	.692	52,432	156.39
Fault to 300 Foot Level	450	2.6	.15	23,400	67.50
	27	11.6	.692	6,264	18.68

Total lbs. copper 329,028 x .48 = $157,933.44
Total oz. gold 605.08 x 41.00 = 25,047.68
$182,981.12

Potential Ores	Tons	% Copper	Gold Oz.	Total Copper Lbs.	Total Gold Oz.
C Level East of Fills and in Backs	2,666	2.0	.40	106,640	1,066.40
C and D Levels including block to surface	5,250	6.0	.25	630,000	1,312.50
300 and 150 Foot Level	18,266	5.0	.15	1,826,600	2,739.90
400 to 300 Foot Level	16,333	5.0	.15	1,633,300	2,449.95

Total lbs. copper 4,196,540 x .48 = $2,014,339.20

Total oz. gold 7,568.75 x 41.00 = 310,318.75

Total $2,324,657.95

Total Value of Ores:

Dumps	$ 253,200.99
Fills	182,981.12
Potential Blocked Ores	2,324,657.95
Total	$2,760,840.06

STATE OF ARIZONA

PECIAL

FIELD ENGINEERS REPORT

1
CRITIC (3 claims)

Date January 10, 1940.

Engineer Elgin B. Holt.

: Ellsworth, Yuma Co.

t:

SYNOPSIS REPORT

OWNER: Mrs. Rhoda Nolencheck Co., Wenden, Arizona.
Nohlecheck

LOCATION: Property located in the Cunningham Pass area, Yuma County, about 12 miles north of Wenden, with which place it is connected ~~with~~ by means of an excellent country road, kept in repair by Yuma County.

METALS: Gold, silver and copper, gold predominating.

HISTORY: The Critic mine has been operated continuously by Mrs. Nolencheck since about 1917. Mrs. Nolencheck generally employs two or three miners and works in the mine herself, or sorts ore, runs hoists, etc. All ore produced is at present shipped to the Hayden Smelter for treatment. At the present time, I was informed by Mr. H. C. Reedall, the average grade of shipping ore is around $50.00 per ton, in gold, silver and copper. Mr. Reedall also estimated total production of the Critic mine since 1917 at $500,000; also that this property has been the main producer of gold, silver and copper ore in the Ellsworth District for the past 20 years.

VEINS: Two veins from 1 to 7 feet wide traverse property, striking from N. W. to S. E.; dip 80 deg. N. E. These veins are 75 feet apart on surface; but on the 410 ft. level of the mine the said veins are only 35 feet apart. Deeper, they will no doubt come together and possibly form a large ore shoot.

DEV. WORK: Main shaft 400 feet deep, with 3 levels, 100 feet apart.

ORE: Engineers estimate 40,000 tons of ore on dumps and in mine fills, with an average assay value of $8.00 per ton in gold, silver and copper. Also an equal amount of ore blocked out in mine, with a probable assay value of $10.00 per ton in the said metals. Character of ore is chalcopyrite and chalcocite, so values can be recovered by flotation. Hence, total ore now available for milling would approximate 80,000 tons with a probable assay value gross of $720,000.

WATER: Water sufficient to supply a 100 ton mill could be secured from wells located 3 miles from property in Butler Valley, per Mr. Reedall.

EQUIPMENT: Mine equipped with one 15 and one 25 H. P. hoist and a two-drill compressor; also a 30-ton old style flotation plant; two boarding houses, store rooms and 3 or 4 dwelling houses. Elevation about 2,000 feet above sea level. Also, the newly constructed Parker-Phoenix power line crosses property.

This mine warrants investigation by any company looking for a property of merit; but inasmuch as it has been worked by owners who have been extracting shipping ore for a number of years, considerable money would have to be spent in new development work in order to open up new and important ore reserves.

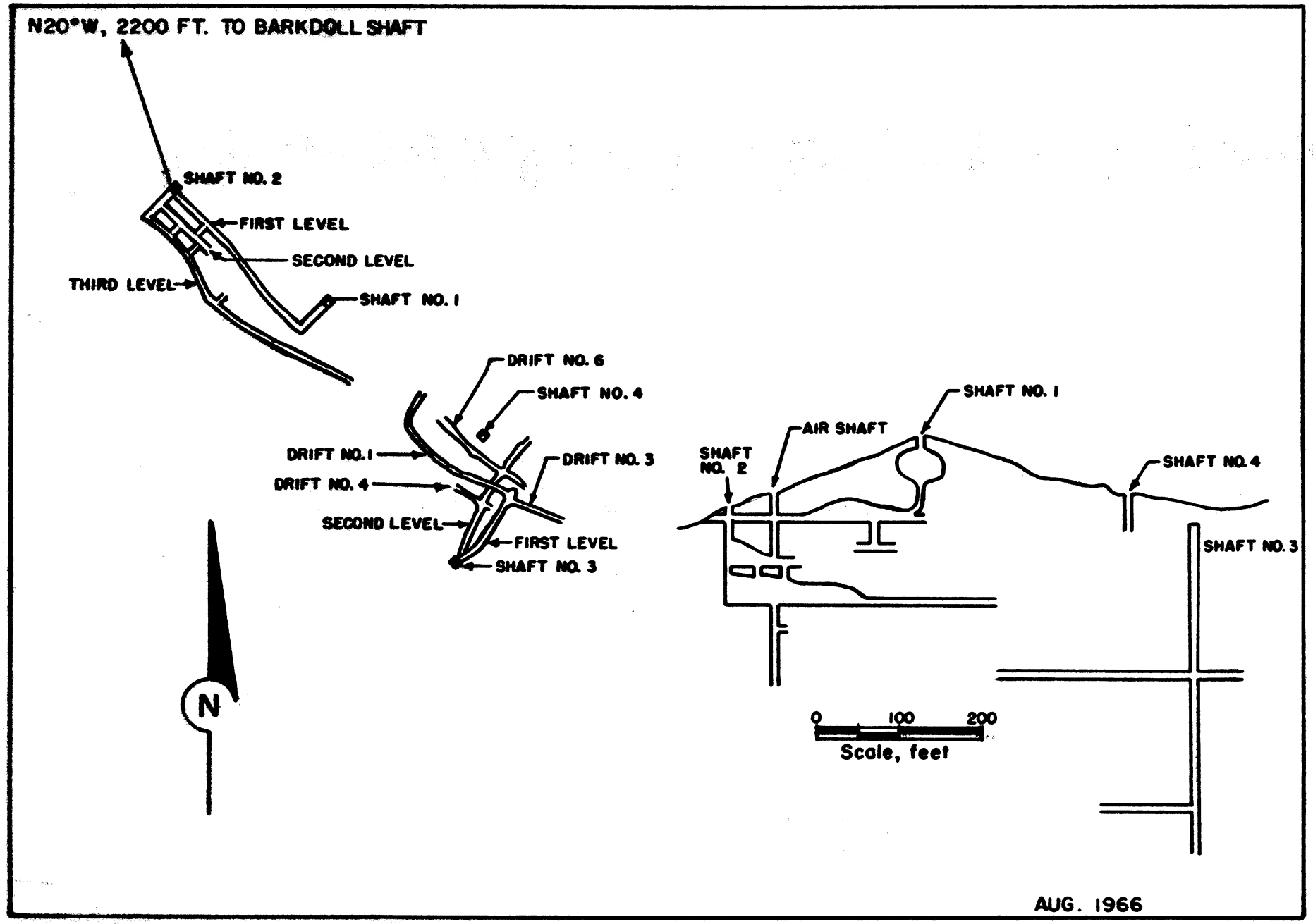


FIGURE 4.- Plan and Section of the 1909 Workings on the Critic Claim.

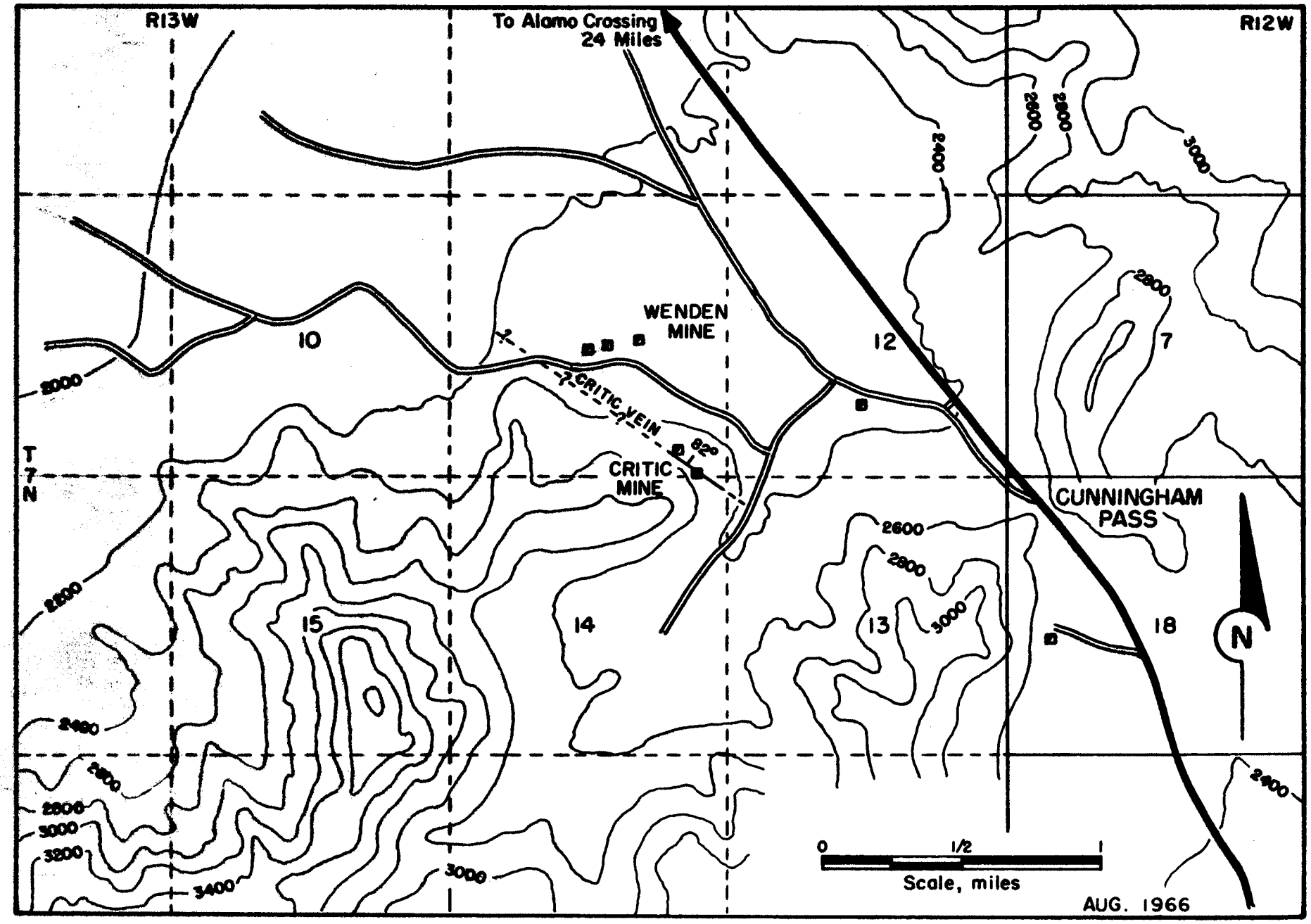


FIGURE 2.- Topographic and Access Map, Critic Mine

NRG RESOURCES LTD. (NGN-V)

ROCOCCO RESOURCES LTD.(RCO-V) Ellsworth Dist.

FIELD ENGINEERS REPORT

Mine Centroid Consolidated Mines. Date January 10, 1940.

District Ellsworth, Yuma Co. Engineer Elgin B. Holt

Subject:

SYNOPSIS REPORT

OWNER: Centroid Cons. Mines, W. B. Harris, Pres., Wenden, Arizona.

LOCATION: Property, consisting of 39 mining claims, is located in Yuma County, 9 miles north of Wenden, with which place it is connected by a good level graded road, kept in repair by the County.

METALS: Copper, gold and manganese.

VEINS: Seven major veins traverse property. These veins are from 1 to 50 feet in width and strike from N. W. to S. E.; dip 35 to 50 degrees N. E.

DEV. WORK: Consists of seven shafts from 50 to 300 feet deep; also 1500 feet of drifts and cross cuts. There is a cross cut on 300 ft. level of main shaft which intersects a mineralized fault 100 feet wide, showing chalcopyrite and gold ore which occurs in bunches, balance of mineralized fault material being thoroughly leached. Hence, it is believed if proper depth is attained a paying mine could be found at one or more points of junction of the major veins with the said mineralized fault.

Mr. Harris stated that for many years "chloriders" have mined and shipped high grade gold-copper ore from small surface veins; that the problem of the Cunningham Pass area, in which mines under discussion are located, is to get depth on the larger veins in order to determine once and for all whether commercial ore in quantity can be found in these larger veins.

BUILDINGS: There are 15 dwelling houses and other buildings on property.

WATER: Domestic water is now secured from a well at mine. Mill water would have to be pumped from Centenial Wash, near Wenden, a distance of 9 miles.

POWER: The newly constructed Parker-Phoenix power line crosses property. However, in order to make this power available, an expensive transformer station would have to be erected in this area, the cost of which could hardly be met by one company.

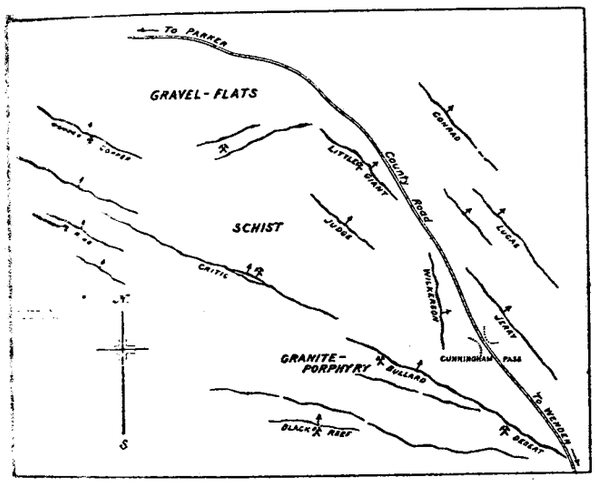
lots of other propaganda rept.
gold values ~≤ .10 opt.

Yuma Cty.

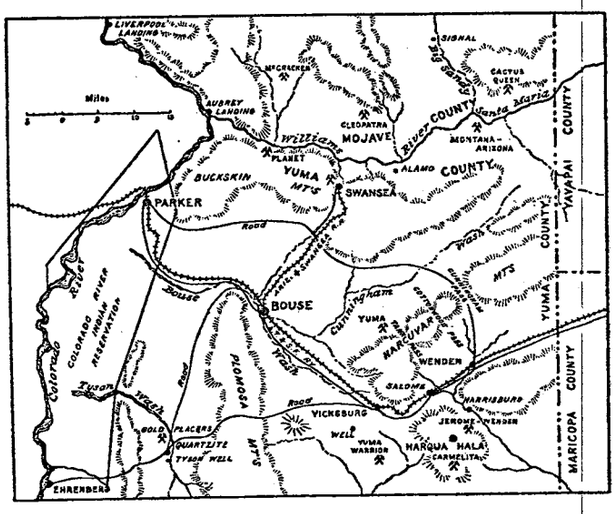
Cunningham Pass District, Arizona

By W. TOVOTE

The Cunningham pass country, in northern Yuma county, Arizona, recently has been attracting considerable attention. This is less because of the amount of ore being mined than for the fact that the ore is high-grade and of excellent character for smelting. Three mines are now producing steadily, others are in process of development, and small shipments are being made by lessees from undeveloped properties. The district is about 10 miles north of Wenden on the Arizona & California branch of the Santa Fe system. It is part of the Ellsworth mining district.



SKETCH SHOWING PART OF VEIN-SYSTEM NEAR CUNNINGHAM PASS



SKETCH OF THE PARKER CUT-OFF DISTRICT IN YUMA COUNTY

Mining near Cunningham pass dates back at least 20 years. The Critic and the Bullard mines were started on rich surface-ores, and both produced for awhile. The Critic is credited with an output of $500,000 and the Bullard with $150,000. The Bullard was opened by four short tunnels, the longest being 320 ft., with a maximum depth of about 225 ft. vertically. Ore was also developed in two shafts. The ore-shoot in the tunnels was partly stoped and the mine closed because the owner did not care to operate it, while prospective buyers were reluctant to meet his price and terms. The mine has been worked intermittently since by lessees. The Critic is a shaft-mine. It was opened to the 400-ft. level and partly stoped, some good orebodies being overlooked. Lessees have operated it since with indifferent success, until J. Nohlecheck, about two years ago, opened several good ore-shoots, increasing the reserves steadily, while making regular shipments.

Two years ago H. Barkdoll, superintendent of the Old Dominion Copper Mining & Smelting Co., at Globe, and his associates, acquired the Wenden Copper mine, sank a shaft 200 ft. deep, shipped ore and then closed. Adjoining the Wenden are the Conrad claims, which were purchased by El Paso people who organized the Wenden King Mining Co. Considerable money was expended without much to show for the expenditure, and the enterprise came to grief. Activity lagged again, until recently a rather remarkable showing was made in the Little Giant mine. Here two lessees had stoped out a small surface-shoot of high-grade copper ore, ranging from 2 to 15 in. wide. At 35 ft. this gave out, but the new owners acquired a lease and option and continued sinking. At 75 ft. the vein suddenly widened to about two feet, and was followed for about 70 ft., yielding ore assaying from 15 to 20% copper. Sinking was resumed and the ore improved in value. A new level at 125 ft., driven for over 100 ft., revealed excellent ore, in some places being 40 in. wide. About 200 tons of ore was shipped from development work alone, which returned more than $50 per ton net. This new development has

been widely advertised and a number of new companies and lessees are entering the district.

GEOLOGY. The Cunningham pass country is worn down to the old gneiss or schist basement of pre-Paleozoic age. The schist is apparently derived mostly, if not exclusively, from intrusive rocks. Acid and semi-acid rocks, like biotite-gneiss and granite, prevail. The schist strikes N.60°E. and dips 25 to 30° to the north-west. Contorted and folded areas interrupt the uniformity. Paleozoic strata do not appear within five miles of Cunningham pass. The schistose complex has been invaded by intrusives. Two of these are prominent in the mineralized area and have probably influenced the ore deposition. They are: A granitic intrusion of the quartz-monzonite type, sending out numerous pegmatitic and aplitic dikes; and a semi-basic to basic intrusive, ranging from coarse hornblende-diorite to dense porphyritic dikes, resembling diabase. The latter strike generally north-west, while the pegmatite dikes lie in all directions and are irregular in outline, forming a network of dikes, sills, and penetrations in the schist. Both systems of intrusives are cut by the veins and sometimes are distinctly displaced.

The most important veins strike about 60 to 70° north-west and dip to the north-east. Flat and steep dips alternate, varying from 30 to 90°. Even reversals of dip have been found at places. Cross-veins striking N. 30°W. are similar to the main-veins in character and mineralization. Others with a course from north to N. 10°W. seem to carry more gold and less copper. Bedded veins with a strike about N.60°E. are ore-bearing, but likely to prove irregular. The chief importance of all the smaller veins is their enriching influence upon the main veins at intersection-points. Enrichment occurs as well in strike-intersections as in dip-crossings.

Composite stringer-veins predominate, usually with one fissure that is likely to persist over considerable distances. From the evidence available the veins must have been re-opened several times, and the principal fissure appears frequently in several displaced sections, joined by a network of stringers, giving the impression that the main mineralization shifted from one branch of an intricate fracture-system to another abruptly. The dislocating fractures had a course about N.30°E.

The mineralization indicates two distinct periods. The principal gangue of one period of mineralization is quartz, while the other period is characterized by iron, principally as hematite. Both are associated with copper and gold. The strong influence exerted upon the veins by the pegmatite dikes leads me to consider the pegmatite as responsible for the acid mineralization. The iron mineralization I attribute to the semi-basic intrusives. Seams and veinlets of hematite are frequent in the pegmatite dikes, from which it appears that the pegmatite antedates the basic mineralization in the veins, and that considerable replacement of quartz by hematite must have taken place. The hematite has been altered to limonite superficially, but not to any large extent. It occurs massive and in its micaceous variety. The latter is considered a more favorable sign of ore. It is probably due to stress and pressure and is coincident with areas of folding and contortion along the veins. These frequently have produced a false secondary schistosity, and often make the veins appear to conform to the schistosity, where they actually do not. Other gangue-minerals found are siderite, dolomite, and ankerite. Of these siderite is the most important and is closely associated with chalcopyrite. Possibly the hematite has been derived from siderite by metamorphism. Apparently post-mineral barite is common; less frequent is calcite, which is probably secondary. The metallization introduced chalcopyrite and pyrite with accessory gold. Silver is found, but seldom exceeds two ounces per ton, while the gold ranges from $2 to over $50 per ton. The copper has undergone considerable secondary concentration. Chalcocite, cuprite, and malachite are the principal products, while native copper, azurite, and chrysocolla are rarer. The ore generally assays higher than would be judged by its appearance, owing to a penetration of the hematite gangue by cuprite. Exceptional cuprite is found in perfect transparent crystals, accompanied by velvety malachite. The primary chalcopyrite is very pure and usually greatly in excess of the accompanying pyrite.

The orebodies are roughly lenticular, and vary from stringers to about four feet in width. A series of lenses, joined by narrow stringers, has produced a maximum stoping-length of 450 ft., and about the same proven depth in the Critic mine, the most extensively explored property in the district. The Bullard has an ore-zone about 150 ft. long. Favorable places for ore are folded areas, pegmatite-contacts, and the vicinity of basic intrusives. Intersection-zones increase the grade as well as the quantity of the ore.

The average grade of ore shipped from the district in the past was about 18 to 20% copper with about $10 gold per ton. Chalcocite-stringers only a few inches wide are mined, and on being followed they will widen suddenly to several feet of solid ore and then contract again. While careful sorting is required where the vein is narrow, the ore breaks remarkably clean in the bigger shoots. The number of men employed is small. A mine employing 10 men and shipping 200 tons per month should make a good profit, as the net smelter returns are from $50 to $70 per ton. The haul to Wenden costs about $4.50 per ton by team, but is now being done for less by trucks. The roads are fairly good and the grades not heavy. The Jerome scale of wages prevails, but labor is not very satisfactory, because many people dislike the hardships of the desert. The Bullard has shipped over 100 tons per month, working only two to three men, and the same ratio would be possible in most mines, if they were properly opened and employed power drills. The ore commands a ready market on account of its self-fluxing quality. The Clarkdale, Humboldt, Hayden, Sasco, and Douglas smelters have been receiving ore from the district. Cunningham pass is one of the few 'poor man's' copper districts in Arizona.

CREOSOTE has advanced to $2.10 per pound. The demand is active.