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REPORT ON THE PROPERTY

of the

RED BUTTES COPPER COMPANY

NEW RIVER DISTRICT

MARICOPA COUNTY

ARIZONA

by C. H. James, E.M.

The Property.

This comprises fifteen continguous mining claims and fractions, totalling 270.4 acres, situated in the outlying foothills of the Black Range and Bradshaw Mountains, 36 miles north of Phoenix.

The main Black Canyon highway from Phoenix to Prescott passes within 1 mile of the property which abutts on New River. The nearest railroad depot is Mariette, on the Phoenix-Parker-Ash Fork lines of the Santa Fe Railroad System, distant about 18 miles of level country, over which a railroad could be cheaply constructed when the mines of the district have been brought to a state of large production.

The property endlines to the north the holdings of the Maricopa Copper Mining, Milling and Smelting Company, now being developed by strong eastern operators and the copper-bearing schist is identical on both properties.

Other adjacent properties in course of initial development and on the same belt of mineralized schist, are the Ford, Crown, Copper, Sweat Group, lying to the north and northwest of the Maricopa; the Reliance, Warner group, lying to the north of the Red Buttes, and on the northerly continuation of the same schist belt are situated the Kay Mine, recently taken over by Chino interests, the Harris Copper Mining Company, adjoining the Kay to the west and the Bar copper Mining Co., adjoining to the south and endlining the Kay and Harris holdings.

The copper-bearing formations on all these properties is identical geologically, and, where opened up, in mineralization. Keen attention is being directed to these copper deposits following the recent remarkable development on the Kay property, and of the compre-

hensive development campaign on the Maricopa. Until the great potentialities of this copper-bearing belt were shown by comparatively recent developments, in the Kay Mine and elsewhere, the district remained dormant mainly owing to the great extend and even mineralization of the formation, and to the fact that copper has been more or less completely leached from the surface, which mainly shows an iron stained mica and quartz schists with contained quartz veins and wide outcrops of quartz and hematite. Here and there, some of the richer streaks which by reason of compactness showed copper at surface, had been opened to shallow depths by prospectors, but the intervening schist which forms the bulk of the ore bodies had not been exploited at sufficient depth to reach the unleached zone until recnelty, and following upon the results met with in the Kay, Maricopa and Bar Copper Company properties.

This copper-bearing belt is in the initial stages of development but promises to speedily become one of the large copper producing districts of Arizona.

The accompanying photographs, maps and sketches show the topographical and geological features of the Red Buttes and adjacent properties.

Out-line of Geology and Ore Occurrences.

The Red Buttes property occupies the central and more highly mineralized portion of a complex belt of schists and contained intrusives, quartz veins and ironstone "blows", ranging from ½ mile to 1-½ miles wide and traversing in a general north and south direction, the southern part of Yavapai County and the northern part of Maricopa County, for a distance of over 20 miles. Portions of this mineralized schist belt are copper-bearing in a highly profitable degree. The schists vary from fine-grained, sectile talcose and micaceous schist to coarse, semi-crystalline, feldspathic schists, and quartz schist and altered schistose granite and quartz porphyry.

The belt is ribbed with more or less parallel quartz veins of from 1 ft. to 20 ft. wide, and several of these, where opened to depths greater than 10 ft. to 20 ft., carry copper carbonates, glance, and still deeper, chalcopyrite and pyrite. Most of the work accomplished by individual prospectors to date has been confined to these quartz and hematite veins.

All indications point to the primary mineralization having come from deep-seated origin, and that the ore deposition will continue to great depth. Leaching has prodeeded faster than erosion and, as a general rule, copper carbonate and oxides do not appear until a depth usually ranging from 8 ft. to 18 ft. has been reached, below which depths there appears to be a general copper mineralization over large areas of the schist formation.

Over apparently large areas the intervening schists are heavily impregnated and seamed with copper and iron sulphide at depth, and by a general but varying mineralization of iron oxide at and near surface. Altho the natural inference is that the more heavily iron-stained schist croppings overlie the heavier sulphide mineralization.

At the Maricopa Mine in nearly every instance where the copper bearing formation has been sunk onto depths of over 25 ft., and over a width of 2,000 ft. by a length of 8,000 ft., copper ore of payable grade has been met with, although it would be unreasonable to expect that all that area will be found to be commercial ore. The cook's shaft of the Maricopa has followed down one of the many similarly iron-stained veins, though smaller than the average, to a depth of 110 ft. From a few feet below surface carbonate and oxides of copper occur in increasing amounts as depth is attained, the copper occurring both in the ferruginous quartz vein and also in the containing sericitic schist. Near the bottom, the vein material contains pyrite, chalcopyrite, and a little glance intermixed with carbonate and oxide of copper, and assays from 5% to 10% copper, and $1.50 and $4.00 gold per ton, and the encasing schist becomes more pyritic.

At the Kay Mine, situated 6 miles to the north of the Maricopa, and on the same series of schists, the rock structure is similar and the surface iron-oxide mineralization identical, tho usually of less degree. Several shafts and cuts distributed over an equally wide range, and mostly sunk at places showing little or no copper mineralization at surface, have opened big bodies of smelting and concentrating ore.

The principal shaft, 350 ft. deep, was sunk on highly iron-stained serictic schist, containing no vein structure and only minute stains and a few knife streaks of copper carbonate. From 80 ft. deep down to 150 ft. copper contents of the formation increased, the strongest mineralization usually being accompanied by a high degree of silification. At 250 ft., 300 ft., and 350 ft. levels, chalcopyrite and pyrite constitute the entire mineralization of the sericite schist, and occur both an impregnations and as streaks from 7 ft. to 14 ft. wide, of smelting ore. From about 5,000 tons of material broken and raised in the total development work in these workings, 800 tons of sulphide ore which have been shipped to smelters gave an average yield of over 9% copper, the remaining material on the dumpe, according to credible reports of two comprehensive samplings, average between 2% and 3% copper.

This shaft site was mainly chosen for convenience of transportation rather than for any particular surface indications. Other parts of the Kay property contain more highly mineralized (iron-oxide) areas showing small quantities of copper carbonate and closely resemble the highly ferruginous schist and quartz formation of the Maricopa and Red Buttes properties further to the south.

Most of the intervening length of the schist formation between the Kay and the Red Buttes holdings is covered with thick beds of lava and tufa, but where exposed promising surface indications are met with and are being exploited.

This series of schists is mainly the product of highly altered crystalline rocks and probably have close connection with the Jerome schist series.

The copper mineralization is occasionally but not invariably associated with distortion of the schists and secondary silification.

The Red Buttes Formation.

The foregoing general description of the Maricopa-Red Buttes-Kay Copper-bearing schist and quartz formation applies directly to the Red Buttes property, except that the mineralization and fracturing on the latter are more intense.

The strongest and apparently the most intense mineralization in the district is along and between two so-called "dikes" of quartz, hematite and schist, mostly replaced by hematite diagonally traversing the greater length of the Maricopa holdings and occuring as wide "blows" and ridges of red and black siliceous iron-stone and soft red schist croppings.

This iron-stone and quartz formation passes into and traverses the New York No. 2 claim of the Red Buttes where it outcrops prominently and has an average width of over 100 ft. (see photo), and then continues as a more or less prominent outcrop throughout the property for a distance of over 4,500 ft. The deep prospecting of this strong formation offers as attractive a project as any surface showing in the district, as it undoubtedly forms the outcropping of a large intensely mineralized with sulphide belt, probably containing large bodies of workable copper ore.

The main zone of mineralization within the Red Buttes property is about 100 ft. wide, and traverses the holdings for the full length of the latter of over 8,000 ft. Very little work has been done on it, but what has been accomplished has shown equally promising showings of copper ore to any similar amount of work on the adjacent properties.

In a prospecting shaft at 5,000 ft. E (see co-ordinate map), near theeastern end of the Red Buttes No. 4 claim, 14 ft. deep and sunk as location work on practically non-mineralized bluish schist, copper begins to occur as thin streaks of carbonate in joints and fissures, which increases in depth. The material across the bottom of the shaft assays over 5% copper.

On the Red Dike No. 4 claim, forming the southeastern extremity of the property, a dike of fine-grained quartz prophyry occurs between the schist and the prophyritic granite, and is heavily stained with iron-oxide. The prospecting by sinking or boring on this formation would form a promising but secondary consideration to the main objective of exploring and developing the known copper-bearing schist areas.

Cross-sections of the formation are clearly chosen in ravines crossing the property, and several prospecting cutts of these have exposed copper-stained quartz and schist similar to the copper showings above sulphide ore on the Maricopa and Kay properties.

The structure and deep mineralziation of this copper-bearing belt will be clearly and speedily shown by a series of diamond drills, such as is now being started on the endlinging Maricopa property.

All developments to date within the sulphide ore zone of the schist formation show a clean concentrating and smelting class of ore, free from zinc, arsenic or other refractory sulphides. The lower grade sulphide ores developed in the Kay and those exposed in the shallower Maricopa workings, comprise ideal material for straight or flotation concentration, while the heavier mineralized shoots and lenses form an ore amenable to direct pyritic smelting. The most satisfactory features of this group of mining properties is that indications point notonly to large but comparatively rich bodies of concentrating material with an unusual amount of direct smelting ore.

The shallow depth of leached material and also of oxidized and carbonate zone point to the feasibility of mining the pay-ore areas by a system of open cuts at very low cost, though the matter

of mining and treatment are, of course, subservient to development results.

Working Conditions.

Transportation is good - under two miles of easy road making will connect the property with the main highwy to Phoenix. Water supply is ample, the property abutting on New River, which flows in volume the greater part of the year, and for the rest affords good supply by sinking wells, in its sand and gravel beaches.

Springs on the adjacent property afford ample supply for all needs of the immediate future, and water can be placed by gravity to most working points on the property.

The schist formation is good boring, and breaking ground and requires comparatively little timbering in development work.

The writer, having had some extensive experience in the development and operation of somewhat similar copper-bearing schist formations in Tasmania, Queensland and elsewhere, and having made a lenghty reconnaissance of the Maricopa-Red Buttes-Kay mineral belt, has no hesitation in recommending the thorough exploitations of the Red Buttes Copper CompanY's property as a sound development project, promising quick and highly satisfactory returns from a comparatively moderate outlay.

(Signed) C. H. James
Mining Engineer
9 Central Bldg.
Phoenix, Arizona.

May 14th, 1917.

Note by G. M. Colvocoresses
Jan. 8, 1938

This report is probably of little or no value except as a general description.

G. M. C.

R.

Copied

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