

3021 East Whitton Avenue  
Phoenix 16, Arizona - AM 6-2780  
November 22nd, 1963

Mr. Leo L. Farrington,  
Phoenix, Arizona.

Dear Mr. Farrington:

This is a brief resume re the geology and ore potential of your GOLD DUST property, situated about five miles North of Carefree, Cave Creek mining district, Maricopa County, Arizona. The commercial metals indicated for near future production are Gold and Silver. I have no financial interest in your property - nor your "proposition" in any way.

The geology of Butte Peak, on the Western slope of which your Gold Dust claims are located, bears significant resemblance to the geology of Butte, Montana - where mines are producing thousands of tons of ore per day, with recorded production of billions of dollars worth of metals. Starting in a small way mine production has steadily been increased at Butte - which for half a century has been the mainstay of employment, tax revenues, and the well-being of the people and economy of Montana - and many other places.

At Butte, Montana, the geology is mainly a series of granitic intrusives, with numerous younger dikes, etc., all shattered, fissured, and mineralized. From miles-deep sources a series of ore bearing solutions ascended the fissured and shattered rock and formed ore deposits of various types, depositing their metallic contents in vertically ranged zones, according to temperatures and pressures, influenced by rock composition and earlier mineralizations. Present day mining is at depths of over 5,000 feet, no one knows how deep the ore will persist or what may be mined in the future. Surface mineralization was not prominent, veins were narrow, containing gold-silver ores; greater depth proved that entire rock masses over widths of hundreds of feet had been mineralized into profitable ore. In important respects this geology of Butte, Montana, is similar to the geology of Butte Peak, Arizona, where, with directly proportionate development, similar types of ore - and volume of ore - awaits.

Butte Peak - including your GOLD DUST property - has a large number of veins with complex strike, and ore showings "all over the place", the ores being low-temperature zone, gold-silver ores. A Main Ore Zone of Butte Peak was operated from 1884 to 1898 by men who lacked modern mining equipment and knowledge. Operating under great difficulties these early day operators sank four shafts (now caved) along this ore zone within a length of 500 feet, and mining men who know the labor and costs of shaft sinking realize that the old-timers must have mined very rich ore from which the gold was easily recovered, and profited greatly - to enable them to operate for years and perform this relatively great amount of work. Dumps are minimal - everything mined was sent to "recovery". As proved by stopes, this Main Ore Zone is wide, the old timers worked only the richer portions of this zone. With modern equipment and technology the entire width of this wide zone of ore can be worked underground at great profit per-ton of ore. What MAY be produced from this main ore zone is beyond conjecture -- but it certainly is wide and rich.

Your GOLD DUST tunnel is 300 feet long, it follows a branch vein that strikes at right angles to the Main ore zone of Butte Peak; it is started at a strategic low point that can enable the entire mountain with its very numerous veins and ores to be profitably exploited for years to come. At 100 feet from the portal there is a minor ore shoot, starting at a cross fracture which apparently influenced the flow of ascending ore bearing solutions; a winze was sunk on this ore, and beyond it a raise went in ore to the surface. Some of this ore was rich, showing native gold and high assays. Ore remains that can be produced -- but, as "backs" here are small, by comparison with what should be THE PRINCIPAL OBJECTIVE - this ore shoot is unimportant. The GOLD DUST tunnel should be continued another 500 to 700 feet to enter the Main Ore Zone, reaching same at depth of hundreds of feet under the collars of the four shafts above mentioned. While being driven your tunnel will cross intersecting veins, at each intersection enlargements and enrichments of ore are normally found. To enter this main ore zone is but a few months work, when entered, by ore proved overhead, all "speculation" can be removed and the property be in the million-dollar category. The potential worth of this objective makes the expense of reaching it trifling by comparison.

In brief, you have a good, worth while property. Properly handled it is destined to become one of the profitable mines of Arizona. In proportion as this is understood it is a challenge to men of vision and mining experience.

Very truly yours,

C. W. Gabrielson

## S U M M A R Y

### GEOLOGY and GENESIS OF ORES OF THE "BUTTE PEAK" AREA Maricopa County, Arizona

During the "Early" Pre Cambrian the region was covered by a several miles thickness of marine sedimentaries, the lower layers of which (at 40,000 feet or more) were metamorphosed into schistose strata. Isostatic flow is then indicated by a batholithic intrusion, the upper portion of which cooled off at great depth as coarsely crystalline pegmatitic granite. As we now know it, this "Early" Era probably covered 80% of earth history in connection with rock formation and Geologic TIME.

During succeeding Paleozoic and Mesozoic Eras there were repeated periods of submergence and deposition of sediments, with intervals of igneous intrusion, uplift, faulting, and erosion. Toward the close of the Cretaceous the region was invaded on a major scale by a batholith, with extensive uplift and faulting. The area now known as "Butte Peak" was a high point (centralizing convection currents) of this magma invasion, which cooled and crystallized at a depth of thousands of feet below the then surface. Crystallization involved contraction with great loss of volume, and this, coupled to sagging of the still uncooled magma at depth, induced crustal stresses which shattered the upper cooled-off portion of the granite and fractured the overlying schists. Emanating from the still uncooled magma at depth, mineralizing solutions ascended the fractured and shattered rocks, forming ore deposits in zones, vertically ranged according to changing temperatures and pressures.

For practically the entire Tertiary the region was exposed to erosion. This removed all rock formations subsequent to, and down to, the basal schistose strata, exposing the granite of Butte Peak with its series of low-temperature veins and gold-silver ores. During the Tertiary there was a resurgence of the underlying batholith on a major scale, with intrusions of rhyolitic, andesitic, and basaltic phases of this magma. In the vicinity of Butte Peak all extrusive flows of these rock formation have been eroded away, leaving intrusive phases exposed nearby as large dikes, etc. During the Tertiary repeated ascensions of mineralizing solutions are indicated in the complexly shattered rocks of Butte Peak. This ore-forming period was of long duration.

The mineralizing solutions ascended fissures and shattered areas in the rocks, and the ores formed by earlier deposition acted as precipitants, screening out (by deposition) a large percentage of the metallic contents of the later ascending solutions. Originally deposited as sulphides, the veins and ores as now exposed in Butte Peak are largely oxidation products, with depth primary sulphides will be the normal type, temperatures controlling the minerals. With each future attainment of depth into zones of higher temperatures there should normally be an increase in the volume of ore as well as a change of type - as at Butte, Montana, and other well known and richly productive mining areas.

\* The isostatic flow, above mentioned, from which originated by differentiation all the igneous rocks of the region, is understood to have uplifted rock formations which once were ten miles (or more) below sea level, to where they are today, a mile or more above sea level. Erosion has thus removed rock formations that totaled much more than ten miles in vertical thickness. The TIME required for THIS CYCLE of rock formation and erosion is measurable in terms of billions of years, compared with which the total duration of mankind on earth is but a fleeting moment of geologic time. There may have been previous such cycles, we do not know.

The writer has actively engaged in Mining throughout the Southwest since 1912, and during this time visited countless mines and mining areas. However, until this year he had never visited Butte Peak, never heard it spoken of, nor read anything about it in the voluminous literature on Arizona mines. Apparently this area is as unknown to Arizona mining men as though it were in remote parts of Siberia or Cape Horn. To the writer this area has a tremendous ore potential, indeed, another such camp as Butte, Montana seems a possibility.

The gold-silver ores of Butte Peak are valuable and important, but far more important are the evidence of vast ore bodies at greater depth. The operators of the years prior to 1900 definitely demonstrated, and investigation will prove, that the only requirement today is to use modern technology and management to bring a productive mining area into being. Vision is required - the vision due to specialized experience.