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December 4, 1976

RACKENSACK AND DERRO DE ORO CLAIMS

Maricopa County, Arizona

Location and Property

The property consists of 4 claims, namely, the Rackensack #1 - 3 and the Cerro de Oro #1 claims. This group of claims is located along the north side of Butte Peak and the south side of Rackensack Gulch in SW¼ Sec. 33, T. 7 N., R. 5 E., and N½ Sec. 4, T. 6 N., R. 5 E., Maricopa County, Arizona.

The claims lie about 6 miles northeast of Cave Creek, or 50 miles northeast of Phoenix. Elevation is approximately 4500 feet and relief is over 700 feet and rugged.

A paved road becoming gravel in the last few miles passes within about 5 miles of the property. The rock road connecting the claims to the gravel road is a steep trail.

Springs are present in the area and a power line is located about 2½ miles to the east.

Basis for Report

This report is based on a number of visits by the writer to the property between 1972 and the present. No detailed mapping was undertaken at any time. However, the detailed report on the property by Halcapek, 1973, was checked in the field and found to be reliable and accurate. Field observations were supplemented by the writer's personal knowledge of the area, information in his files and by information derived from various people familiar with the property.

The scope of the writer's work on the property was to determine the general geology, the extent and type of mineralization, and the continuity and character of the vein systems. Costs of mining, milling and extraction, extraction processes, and tonnage of available ore were not included as part of the assignment.

Geology

The basic geology consists of a series of Precambrian Yavapai schists. These are steeply dipping to almost vertical. They are intruded by granitic rocks, rhyolites and basic volcanics. Quartz veins ranging from a few inches to 10 or more feet across are present and carry the mineralization. Dip of the more important veins is gently to the north and east; elsewhere, the dip may be almost vertical.

More specifically, the following salient geological points should be mentioned:

1. The rock in the mine area in which most of the veins occur is a coarse grained "granitic"

rock or "alaskite". There are some lateral variations in its composition and texture, but it keeps its general character. The intrusive is a stock or a roughly circular granitic mass several miles in diameter intruded into the surrounding rock. The rock into which it was intruded is the Pre-cambrian Yavapai schist which is found within a few hundred or few thousand feet of the mine area in all directions. The schist also caps the higher portions of the mountains in which the claims lie.

2. In the area of the mine is a well developed shear zone with a northwest-southeast strike and a steep north dip. There are probably more than one parallel shears in the area. In addition, there are cross-cutting shears and faults and numerous irregular fractures and joints.

3. Quartz veins are present on the property with widths ranging from over 4 feet to less than one foot; except for the fracture and joint-filling veins, the average width of vein is probably close to 2 feet.

4. The vein systems extend from the area of major development on the Rackensack #2 claim onto and across the adjacent claims, namely, Rack-

ensack #1 and #3 claims and the Cerro de Oro #1 claim. These claims form an integral and essential unit for the mining and development of the mineral bearing veins found on the property. More specifically:

(a) Rackensack #2 Claim. The main vein crosses the southern portion of the claim. Intersections of it with branch veins are well mineralized and contain high values of gold with some silver, lead and copper.

(b) Rackensack #1 Claim. This claim lies immediately south of the #2 claim. The main vein crosses from claim #2 onto claim #1 and is equally persistent, well developed and mineralized. Other parallel shears and veins are present together with the usual network of minor veins and cross fractures.

(c) Rackensack #3 Claim. This claim lies to the east of claims #1 and #2. The main vein and other parallel veins and shear zones pass across the end-lines of those claims and onto claim #3. In addition, independent veins are also present and in some cases well developed on this claim.

(d) Cerro de Oro #1 Claim. This claim lies south of the Rackensack #1 claim. The typical quartz gold bearing veins are present on its northern end, but of more importance is the copper bearing mineral development and vein found on the southern portion of the claim.

5. The veins are best developed in the alaskite rocks, although a number of thick, prominent vein structures are found cutting across the schistosity of the surrounding Yavapai schist.

6. The quartz veins follow two basic patterns:

   (a) Those trending roughly parallel to the general shearing pattern in the alaskite, namely, striking northwest-southeast and steeply dipping, and

   (b) Those cutting across the shear trend and which may or may not interconnect with the main veins which fill the fractures of the shear system.

7. There are at least two roughly parallel veins following the trend of the major shear zones as well as innumerable other irregular veins.

8. The main shear zones and their accompanying quartz veins are strong and can be traced over

hundreds of feet of length; their character suggests that they should persist to a considerable depth beyond the 150 feet approximately of vertical depth that can be determined from present exposures.

9. All the veins pinch and swell and change dip and strike directions; the variations are more restricted in the veins confined to the shear zones, that is, the limits of change in strike and dip are restricted by the walls that bound the shear zones in which the veins occur, and the width is more constant being on the average about 2 feet.

10. The shear zone veins often have a gouge or clay zone along their foot-wall; the hanging-wall is less definitely defined. Veins filling fractures and joints and those interconnecting the shear zone veins often are tight to the walls of the enclosing rock.

11. The quartz veins in the shear zones usually are badly fractured. Fractures usually run roughly parallel to the vein walls. Veins outside the snear zones often are massive and non-fractured.

12. The shear zone veins are very persistent and the main one can be followed in workings for some 300 feet and projected to other out crops for an additional 500 feet and possibly more.

A vertical distance of probably close to 150 feet is exposed by raises or workings at different elevations on what is considered the same vein.

13. Not all shear zones and fault zones are mineralized by quartz veins. Some of the quartz veins are cut off by these barren post-quartz-vein shears.

14. A diabase dike cuts off the main vein and is some 10 - 12 feet thick and dips gently to moderately steeply to the south. It cuts off the veins which overlie it in the alaskite, but the dike is underlain by the same type of alaskite containing similar quartz veins. In some places the quartz veins appear to be somewhat off-set and to have different dips and strikes on opposite sides of the dike. This may suggest that the dike was intruded along a shear zone on which there was some later movement.

15. Where the dike is exposed in the lower tunnel (Number 1 Addit) a quartz vein several inches thick occurs between the dike and the alaskite; the lower contact of the dike is not exposed.

16. The quartz in the veins is usually white to milky but in places, often associated with mineralization, it is gray to dark gray and greasy in appearance.

17. In the areas where mineralization is best developed and there has been ground water circulation, the quartz is usually stained bright yellows, oranges, reds and deep red-browns; if copper is present,there may be greenish tints also.

18. In the mineralized weathered zones, silica box-works, which may or may not be filled with limonite, hematite and related oxides, may be quite abundant along the edges of the veins.

19. The veins are of a fracture filling of the shears and fault zones through which the mineralizing solutions moved; the result is the the development of three principal features:

   (a) Massive vein-filling by quartz and associated minerals,

   (b) Massive or open-filling of space between the breccia fragments of alaskite derived from the enclosing wall-rock and which may partly or largely fill the fault or shear zone, and

   (c) Open spaces in the quartz vein into which cavities well developed hexagonal quartz crystals may have grown; sometimes crystals of the associated ore minerals may also be found in the cavities.

20. No crustiform, banded or related mineral depositional structures were noted.

21. No massive alteration of the alaskite has taken place. However, along the margins or contacts of the major quartz veins and the alaskite a thin zone of seritization and bleaching of the alaskite at times may be found; minor alteration is likewise found adjacent to the diabase dike.

22. The veins are a high temperature epithermal or low temperature mesothermal type.

Mineralization

Several fundamental factors relating to mineralization and which will apply to this deposit will be briefly summarized.

1. The presence of faults, shear zones and other fracturing of the host-rock is usually essential if a well developed mineralized locality is to be found. The fractures form the channel-ways through which the mineralizing solutions can move into the host-rock area. The more and better the channel-ways, usually the better is the mineralization.

2. The intersection of fractures usually produces the best areas of mineralization since the intersection of fractures usually results in the development of a large area of brecciation and breaking of the host-rock.

3. Temperature and pressure relationships in most cases are the controlling factors in the formation and deposition of the various minerals from the mineralizing solutions. Three zones characteristic of vein formation will be mentioned:

(a) Epithermal or low temperature and low pressure

(b) Mesothermal or moderate temperature and moderate pressure

(c) Hypothermal or high temperature and high pressure

Epithermal gold deposits are notoriously spotty as to their mineralization. A vein may have only small amounts or even traces of gold but a few inches away may assay tens or hundreds of ounces per ton. Epithermal deposits frequently have cavities ranging from fractions of an inch to tens of feet in size in which the gold may be deposited. These epithermal deposits are the "Bonanza" deposits which are frequently found in the southwestern United States. In these, if a mine working along a quartz vein does not intersect a gold pocket, it will usually fail; if it intersects a pocket of enough size or value or frequent enough pockets,they will carry the operation often very profitably.

In contrast, the hypothermal deposits of gold are usually very uniform in distribution of values along the vein,and the gold distribution in the quartz is usually very fine and often microscopic.

As temperature and pressure increase from the epithermal towards the hypothermal deposits, other factors controlling deposition become increasingly important such as changes in chemical composition of wall rock or solutions, changes in attitude (dip and strike) of the vein or vein walls, changes in widths and so forth.

Therefore, the highly irregular, randomly distributed, mainly cavity filling high-grade bonanza types of epithermal deposits give way to the more regular, somewhat more predictable, geologically, ore chutes. These carry in the mesothermal and hypothermal types of deposits the zones of greater mineralized values.

The prediction of the location of the spotty bonanza ore pockets of the epithermal deposits and the ore chutes and less spectacular ore pockets of the mesothermal and hypothermal deposits is almost impossible either by geological or geophysical means. If sufficient detailed geological information for a mine or district is available, the position of a possible ore chute may be predicted, but only drilling and mining will prove its actual presence.

Unless unlimited funds are available for drilling and other exploration, for the bonanza or epithermal types of deposits, about the only way to locate the high-grade pockets is to"get on the vein and mine the vein". Once a pocket is found, it must be mined to its limits. As has been stated earlier, in this type of vein deposit, the values in the pockets must usually largely carry the balance of the mining of the vein.

The mesothermal conditions are the environment for the deposition of silver, copper, lead, zinc, fluorite and related minerals.

Mineralization is associated with the quartz veins and consists primarily of native gold with lesser concentrations of silver bearing minerals and occasional pockets or zones of veins rich in copper, lead and iron sulfides and fluorite. Zinc may be present and a number of assays made for molybdenum have shown its presence. The oxidized products of all minerals except gold, which does not oxidize, are found in these near-surface exposures of the mineralization.

Further specific details are

1. The native gold occurs as wires, flakes and blebs which at times may be over a 1/4 inch

across and range downward in size to very fine and possibly microsopic. The matrix for the gold and associated sulfides is quartz. The gold is free-milling and can be readily separated from the quartz. Pyrite, the iron sulfide, is usually associated with the gold.

2. The iron sulfide, pyrite, may be scattered through the quartz vein or more often it occurs in concentrations up to an inch across. It carries some gold and probably some silver. It is relatively pale in color.

3. Areas where box-works are present or other cavities which may now be filled with the residual oxidized products of pyrite and possibly other iron bearing sulfides, may carry considerable residual gold in the red and yellow hematite, limonite and the other iron oxides. This gold is usually in the form of flakes but may be so heavily stained by the iron oxides that it needs to be cleaned to reveal its gold character.

4. The assays show that gold and silver are present, even if in small amounts in all samples taken in the gold bearing vein areas. In some samples the gold content is very high, reaching up to 23 ounces per ton in one assay. The highest silver assay noted was over 6 ounces

per ton, but is usually nearer one ounce.

5. Some of the best gold mineralization is associated with the diabase dike, especially under the dike both at its contact with the cut-off quartz vein and extending along the dike-alaskite contact.

6. The lead sulfide, galena, and some of its oxides are present on the property but would only be recovered as a by-product. The galena in all probability will carry silver since it is customary for galena to be argentiferous in the area.

7. Although most of the gold values appear to be confined to the vein systms, to a limited extent there is some mineralization, usually of the base-metal sulfides and their oxidized products, of the adjacent wall-rock.

8. The main copper sulfide noted was chalcopyrite. It is usually oxidized in these surficial exposures of the veins into malachite, a green copper carbonate. The malachite stain and chalcopyrite remnants are found on all the claims.

Other factors related to the mineralization are discussed under the headings on geology, development, production and assays.

In regard to specific mineralization on the individual claims, the following are the more important aspects. It should be born in mind that all of the claims carry mineralization. The variation is in intensity and concentration of the various types of minerals.

1. Rackensack #1 Claim. Abundant development of quartz veins occurs along one or more major shear zones together with a network of lesser veins. The main vein upon which most of the workings occur crosses from Rackensack #2 claim to the #1 claim. This vein carries strong gold mineralization with assays on it up to 11 ounces of gold per ton and over 3 ounces of silver per ton. Pyrite, with its possible gold and silver content, is common. Copper and other sulfides are minor.
2. Rackensack #2 Claim. The main quartz vein with its high gold values crosses from claim #1 onto claim #2. On this claim near the intersection of the vein and diabase dike some of the better gold values have been found with gold assaying up to 23 ounces per ton and silver over 6 ounces. Pyrite and copper and lead bearing minerals are also present in the quartz veins.
3. Rackensack #3 Claim. Gold and silver mineralization is definitely present in the quartz

veins on the claim as shown by assays of over 7 ounces per ton for gold and almost 4 ounces of silver. Copper oxides were also noted but details of copper and other mineralization were not studied since these claims should probably reflect much of the mineralization of Rackensack #1 and #2 claims adjacent to the west.

4. Cerro de Oro #1. The most important mineralization on this claim contains substantial amounts of copper both as sulfides and oxides. A shipment from this area of mineralization assayed at the smelter 1.5% copper together with 0.16 ounces of gold per ton and 1.28 ounces of silver. A quartz vein carrying considerable galena is also present in the area but may be slightly off the claim.

Past Exploration and Development

The claims lie in a general area in which there have been many old adits, tunnels, cuts and pits dug in search for gold and other mineralization. On the property is one large cut, 5 tunnels or adits and several shallow shafts with minor pits, cuts and trenches. These are located mainly along the gold bearing veins or cross-cutting them. Within the underground workings are cross-cuts, raises and stopes. Over 1000 feet of underground workings are present in the main mined area.

The present lessees have done some drilling on the property to determine mineralization. It is reported that gold and silver mineralization was found in one or more of the holes drilled, but the writer has seen none of the results other than the collars of two of the holes. At least one of them was over 100 feet deep.

It is reported that the present lessees had a pilot plant on the property to test the ore for its free-milling gold characteristics. The results of these tests are unknown to the writer.

No count was made of the specific number of workings on any particular claim but in general:

1. Rackensack #1 Claim: Numerous pits, shafts, cuts, tunnels, adits and other workings are present on the claim within its boundaries. The most significant working is the southeastward drift from the Number 1 Adit which was started on claim #2 and continues into claim #1.
2. Rackensack #2 Claim. This claim , like the #1 claim, has extensive workings on it. The more important ones are the Toothpick Adit, Number 1 Adit, and Rattlesnake Adit. The latter two have had extensive drifting, crosscutting, raises connecting them stopes, and other development work as well as actual

production mining. A large cut some 40 feet deep and approximately 100 feet across has been developed on the claim. The recent drilling by the present léssees has also been on this claim. The pilot plant probably used ore from this claim for testing.

3. Rackensack #3 Claim. Exploration and development work has been much less extensive on this claim than on the other Rackensack claims since the mining and development work on those claims would lead naturally onto the #3 claim. However, there has been a shaft sunk to a depth of some 40 feet and some cuts, pits and other testing.

4. Cerro de Oro #1 Claim. As with the Rackensack claims exploratory cuts, pits and other workings are present within the claim boundaries. The most significant work on the property is the cut and minor underground work in connection with the copper mineralization from which ore was taken and sent to the smelter.

Past Production

Old records indicate that substantial amounts of commercial ore were shipped from the "upper tunnel" from the quartz vein which ranges from a foot to 4 feet wide. At that time the price of gold ranged from $22 to $35 per ounce in contrast to the price of approximately $135 per ounce today. This production came from the Rackensack #1 and #2 claims.

The above is the only record of productive shipments that have been found, but the relative size of dumps and old workings strongly suggests that substantially more rock went through the mill but there is no known record of mineral values recovered.

The owners of the claims shipped one car load of ore which came from the large cut on Rackensack #2 claim and one car load from the copper vein on the Cerro de Oro Claim #1. These shipments are discussed later, but both were profitable.

Assays

Attached to this report are certificates of assays and tabulations of assays which have been made from samples taken from the veins and mineralized areas over a period of years.

In 1971, with the price of gold at $35 per ounce, the U. S. Forestry Service, in contesting the validity of the claims, found gold values ranging from 6.2 to 23 ounces per ton and silver from 0.65 to 3.9 ounces. On the Cerro de Oro claim copper is reported at 2.96% with 0.02 ounces of gold and 1.80 ounces of silver.

It has been reported that other sampling by the

Forestry Service at the same contest sampled across 10 feet of the main cut and assays ran $110 per ton gold at $35 per ounce, and their sampling of the vein in the "lower tunnel" yielded $90 per ton gold at the $35 per ounce price. These two assays have not been found in the records submitted to the writer.

Conclusions

1. The property consists of 4 unpatented lode mining claims.
2. The claims cover well developed gold, silver and copper bearing vein systems.
3. Each claim is mineralized and has had sufficient exploration and testing to indicate its value and its contribution to the total production from the property.
4. The veins are of high temperature epithermal or low temperature mesothermal types.
5. At various points along the gold and silver mineralized veins occur high-grade gold and silver bearing pockets which may be cavity fillings or ore chute types of mineral concentrations.
6. There are numerous fractures and shear zones which have been filled with quartz and other vein material; in many fracture-filling types of veins throughout the world such intersections are the loci of some of the best mineralization and metal values; this is a potential which must be

kept in mind as mining and development progress.

7. No mineral property regardless of the fact that it may be of high-grade, has had all the desirable exploration work done upon it; at some point exploration activities must give way to development and/or production mining. It is believed that the subject property now has had sufficient examination, exploration and development to warrant the undertaking of development mining of the high-grade gold and silver pockets and ore chutes as well as those portions of the veins which may contain lower values of mineralization but which assay work and costs may indicate are feasible to mine.

8. Development work and blocking out of the ore body should be continued in conjunction with mining operations.

9. It is understood that as a result of pilot plant testing and various evaluation studies, the lessees have sufficient ore of such a character in sight and of sufficient value to warrant the initiation of mining and that this can be done at such a determined cost for mining and milling that a profit can be realized from production from the property.

10. That this could be a profitable operation is indicated by the results of two car loads of ore that were shipped from the property to the smelter of

Inspiration Copper Company, the settlement sheets of which shipments are attached.

The shipper of the ore has stated to the writer that the ore car taken from the Rackensack #2 claim was bulk loaded from material knocked down by dozer from the pit area of claim #2. There was no selective mining or sorting. It carried vein material, alaskite and overburden all mixed together. The ore car taken from the Cerro de Oro #1 claim was likewise stripped off from the material that overlay the copper bearing vein with no selectivity of mining or sorting other than the position above the vein from which the material was taken. The results of these bulk "sample" shipments were:

	Rackensack	Cerro do Oro
Net Dry Weight	19,610 lbs.	73,641 lbs.
Gold	.641 oz/ton	.160 oz/ton
Silver	.94 " "	1.28 " "
Copper	.62 %	1.50 %
Silica	85.5 %	82.8 %

(Both shipments carried high enough silica content to receive credit for it at the smelter.)

Even with high shipping cost, a profit was returned to the shipper. A mill and concentration would greatly improve the profit picture.

Recommendations

It is recognized that financial strength, size of contemplated operation and character of the given mineral deposit play a substantial role in determining when operations must shift from exploration to development and production. In general, for a small mining operation without unlimited capital, a property must be put into production at the earliest moment so that development and production mining can be partly or totally covered by production income. Further, because of limited capital, acquisition of certain mining equipment, ultimate desired capacity of the mill on the property, and so forth may have to be postponed to a later date. Within this frame work of a small mine operation with limited capital it is recommended that

1. Development and production be initiated immediately using the high grade spots located by past exploration as a starting point, and
2. Within the limitations of the available budget a sound program of development and production be determined and engineered to fit available ore in sight, reasonable mining and milling capacities, and other factors including economic controls and situations.

A final caution rather than a recommendation is: Do not to be carried away by plans that are not realistic. Too many mines have had to close down because of the dissipation of capital resources such as may occur as the result of the construction of a mill of capacity far in excess of what could be efficiently operated to service mine production, or far too large for available water supplies and so forth. Such unrealistic actions may dissipate resources and/or capital needed to meet some economic change or unexpected mining contingencies. A mining operation can always grow; it is difficult to reduce and retrieve resources and capital once it has been expended in over capacities of mills and equipment.

Willard D. Pye

REGISTERED GEOLOGIST
CERTIFICATE NO.
4033
WILLARD D.
PYE
Date Signed 12/6/76
Arizona U. S. A.

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August 4, 1988

RECEIVED
AUG 11 1988

Walt Heinrichs
Heinrichs Geoexploration Co.
P.O. Box 5964
Tucson, Arizona 85703-0964

Reference: Rackensack Prospect

Gentlemen:

We are looking for joint venture partners on our Nueva Esperanza project. (AKA: Rackensack) We have hundreds of pages of certified documentation from some of the best geologists and mining engineers available. One of the mining engineers stated, "The big companies missed a real sleeper." Another states, "This is the best gold prospect I've seen in the fifty-three years of examining mining properties."

I have sent just one report by Dr. Willard Pye. The assay's are very good indeed, for this is a bonanza epithermal deposit. All reports indicate that the main vein averages over .25 ozs. AU per ton, and the bonanza pockets carry up to 60 ozs. AU per ton.

Now, speaking from first hand experience, anytime I've seen the ore crushed from the main vein system and panned, you see gold, either in blebs, flakes or wire (I have witnessed this several dozen times).

Another very interesting point is that the main vein has a very high silica content and a very low alumina and iron content. In fact, the silica runs over 90% . Every copper smelter would like to have this ore for furnace flux. They make a nifty five to ten percent on the gold and silver values. The high values in the precious metal content is a major improvement over the flux ores they now use.

This is a very, very good mining prospect and we are looking for strong joint venture partners who are decisive and can act quickly. We hope that after you reveiw this small part of our documentation that you will contact either myself or my partner Vic Renzoni.

Sincerely,

RC/mw

Robert Coblio, President

RESUME

WILLARD D. PYE

PERSONAL DATA

Willard Dickison Pye

Office Address:	3418 N. Forgeus Ave., Tucson, Arizona 85716
Home Address:	3418 N. Forgeus Ave., Tucson, Arizona 85716
Born:	February 20, 1915

TRAINING (College and University)

Oberlin College, Oberlin, Ohio
A.B., 1935

California Institute of Technology, Pasadena
M.S., 1937

University of Chicago, Ph.D., 1942

FIELDS OF SPECIALIZATION

Undergraduate:	Geology and Mathematics majors; Physics and Chemistry minors.
Graduate (M.S.):	Geophysics and Economic Geology (ore deposits)
Graduate (Ph.D.):	Petroleum, Ore Deposits, and Sedimentation

SCHOLASTIC HONORS

President, Geology Club, 1934-35
Phi Beta Kappa, 1935
Sigma Xi, 1937
Virgil Kirkham Fellowship in Geology (University of Chicago) 1940-42

PROFESSIONAL LICENSES

Arizona State Board of Technical Registration (Consulting Geologist) No. 4033

California State Board of Registration for Geologists No. 2654

REFERENCES

Who's Who in America

American Men of Science

Who's Who in American Education

Various oil, geological, and other directories

POSITIONS

Consulting Geologist: Full time 1970 – present; also, for short periods at various times from 1935 – 1970.

Professor of Geology, Department of Geology, University of Arizona, Tucson, Arizona, 1957 – 1970.

Chairman and Professor, Department of Geology and Geography, North Dakota State University, Fargo, North Dakota, 1947-57.

Executive Secretary, Yellowstone-Bighorn Research Association, 1954-55.

National Science Foundation Research Associate – Research Northern Great Plains, 1953-54.

Research Geologist, Princeton University, 1953-54.

Director, Elk Basin Geological Summer Field Camp, 1953-54.

The Texas Company, Rocky Mountain Division Research Geologist – special geological problems, 1946-47.

The Texas Company, in charge Idaho-Utah District, 1943-46.

National Defense Research Corporation (N.D.R.C.) - In charge classified research, for Chemical Warfare Service, 1942-43.

Illinois Geological Survey, Research Assistant, 1940-42.

University of Chicago, Instructor, 1940-42.

Carter Oil Company, Geologist, 1937-40 (Now part of EXXON corporation)

U.S. Soil Conservation Service, Sedimentation Research, 1936-37.

California Institute of Technology, Graduate Instructor, 1935-37.

Shell Oil Company, Geophysicist, 1936.

Oberlin College, Laboratory Assistant, 1933-35.

OTHER NON-COMMERCIAL ACTIVITIES (selected)

Arizona Oil and Gas Commission, Advisor, 1964-1970.

National Petroleum Council, Committee on Future Petroleum Resources of the United States, Southern Arizona and New Mexico district; also, reviewer of papers on Arizona, Utah, Western Colorado, Western New Mexico and Nevada – 1969-1970.

Director, Arizona Oil and Gas Association, 1961 – present; President 1965-66.

Director, International Geophysical Year (I.G.Y.) Aurora and Airglow studies, Northern Great Plains, 1956-57.

Director, North Dakota Institute of Regional Studies, 1956-57.

Secretary and Director, Red River Valley Investment Fund, 1957-58.

President, Northwest Investors Research, 1956-57.

Delegate and consultant to National Science Foundation conference on geology in colleges with small geology departments, 1953.

SOCIETY MEMBERSHIPS (Scientific and Professional — both current and former)

National and Regional

American Association of Petroleum Geologists

American Institute of Mining and Metallurgical Engineers

Geological Society of America

Seismological Society of America

Sigma Xi

Society of Economic Paleontologists and Mineralogists

Society of Exploration Geophysicists

SOCIETY OFFICES AND COMMITTEES

American Association of Petroleum Geologists

Committee on Stratigraphic Correlations, 1959-63

Carbonate Rock Sub-Committee, of Research Committee, 1959-61

Committee for Preservation of Samples and Cores, 1959-60

Research Committee on Subsurface Reservoir Conditions, 1948-51

American Geological Institute

Chairman, Glossary Committee on Sedimentation, 1951-56

Chairman, Glossary Committee on Paleogeography, 1951-56

Chairman, Educational Committee for North and South Dakota and Montana, 1950-54

Arizona Geological Society — Geological Society of America, Cordilleran Section

Chairman, Registration and Arrangements Committee, 1958 Joint Meeting

Editor, Stratigraphic Papers, 1959 Joint Meeting Guidebook

Field Trip Leader (Stratigraphic Trip), 1959 Joint Meeting

Arizona Oil and Gas Association

Director, 1961 — present

President, 1965-66

Chairman various committees (Speaking, Membership, Public Relations, etc.) 1961 — present

Chairman, Arizona Mineral Information Planning Committee, 1962-64

Society of Economic Paleontologists and Mineralogists

Research Committee, 1957-61

Co-chairman, Research Fund Committee, 1959-60

Steering Committee representing Society of Economic Paleontologists and Mineralogists to American Geological Institute Glossary Committee, 1953-56

Miscellaneous

Chairman, Research Committee, American Association of University Professors, 1951-52

Field Trip Leader, New Mexico Geological Society, Black Mesa Trip, 1958

Research Committee, North Dakota Geological Society, 1951-53

Chairman, Research Committee, Wyoming Geological Society, 1946-68

PUBLICATIONS

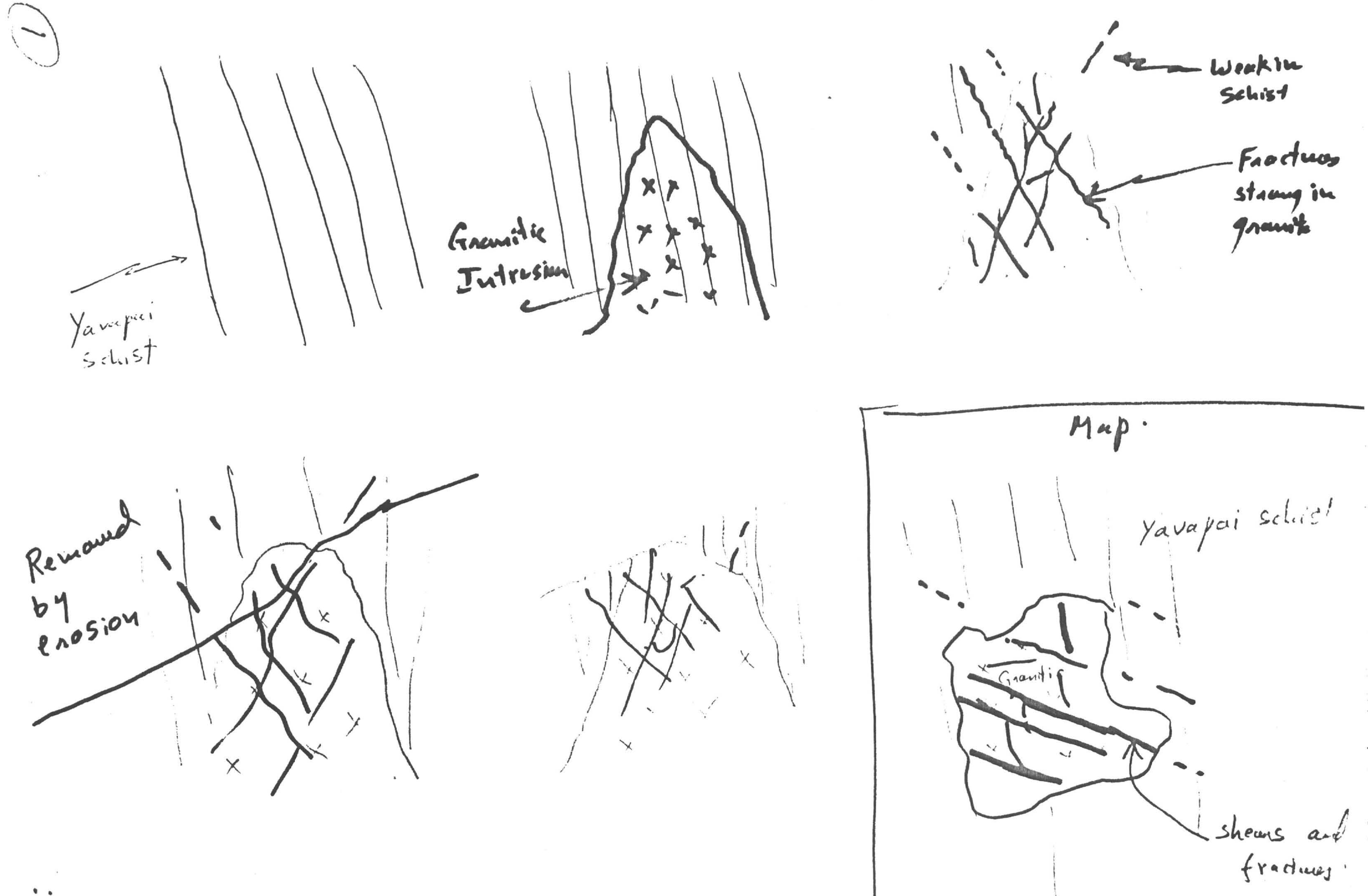
Author of approximately 50 publications on various topics including, oil and gas, coal, helium, oil shales, metallic and non-metallic mining, sedimentation, stratigraphy, paleogeological and tectonic studies, drilling and reservoir engineering, geophysics and related topics.

TRAVEL

Geological work and/or travel throughout the United States and most of the provinces of Canada. Geological work in Mexico, northwestern South America, and travel and geological work throughout Europe, Near and Middle East and North Africa.

Vertical Sections

1

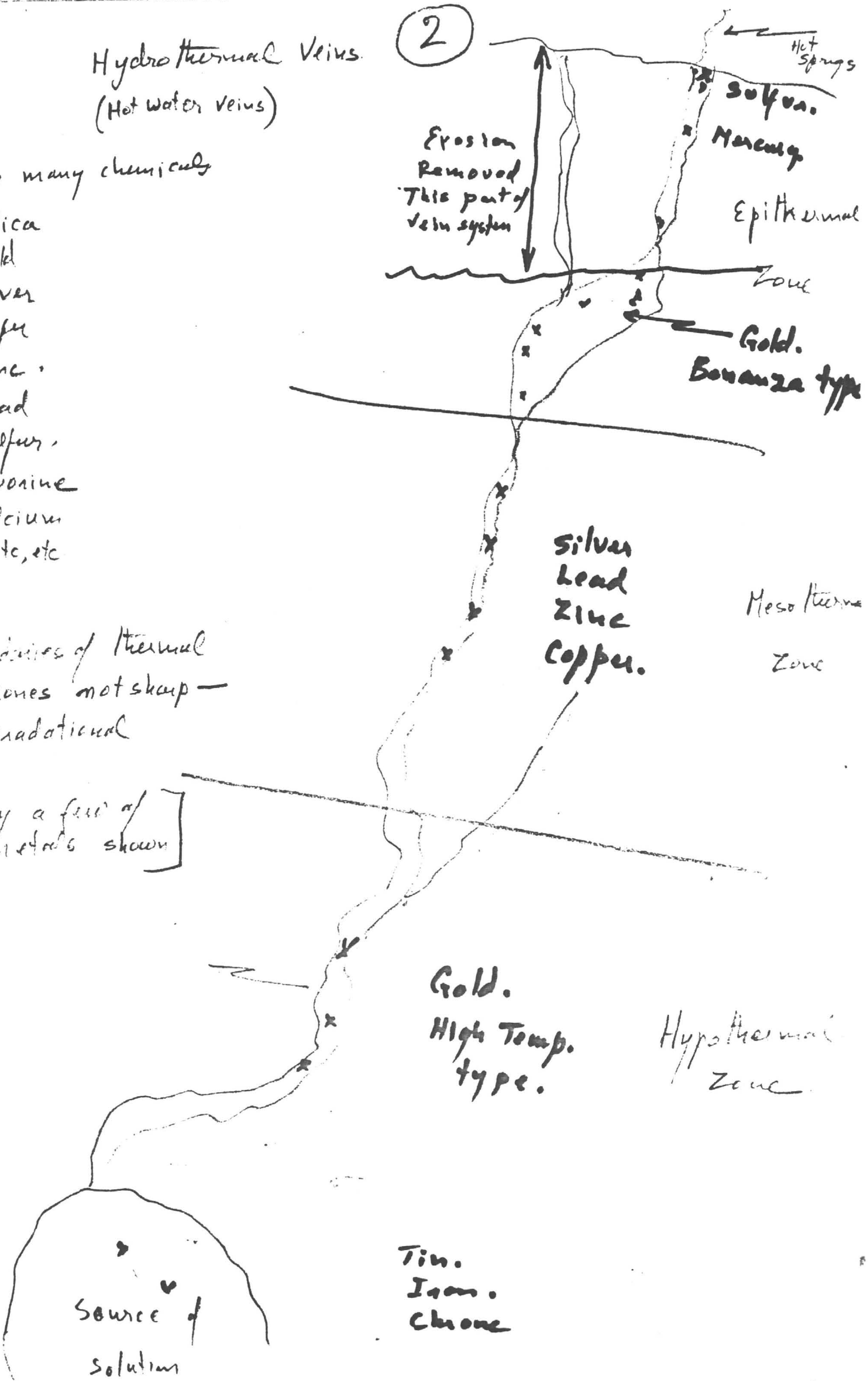


Hydrothermal Veins
(Hot water veins)

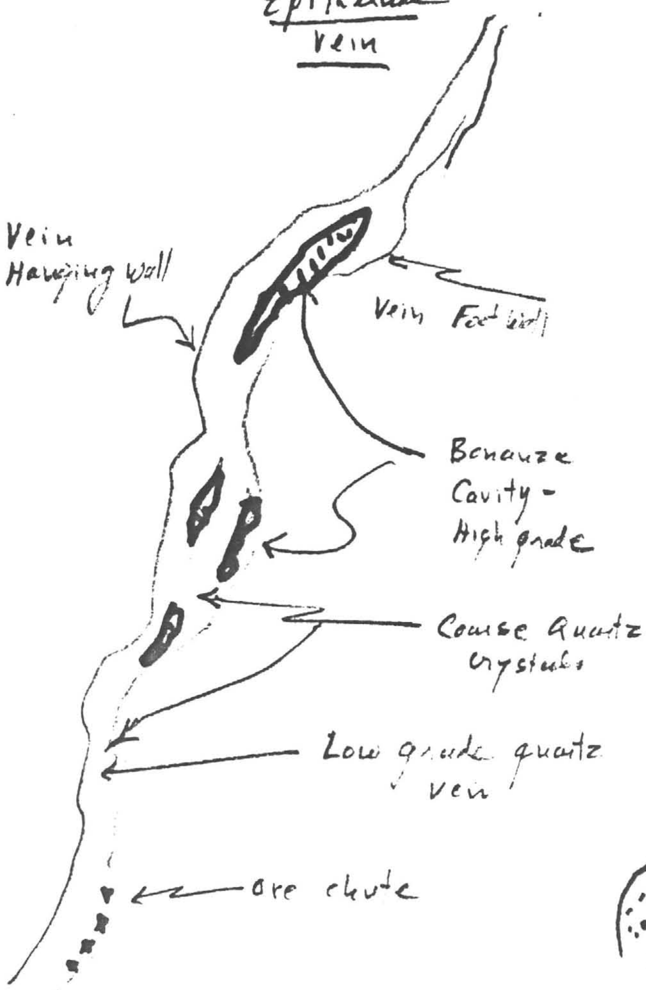
Carry many chemicals
- silica
- gold
- silver
- copper
- Zinc
- Lead
- sulfur
- Fluorine
- Calcium
- etc, etc

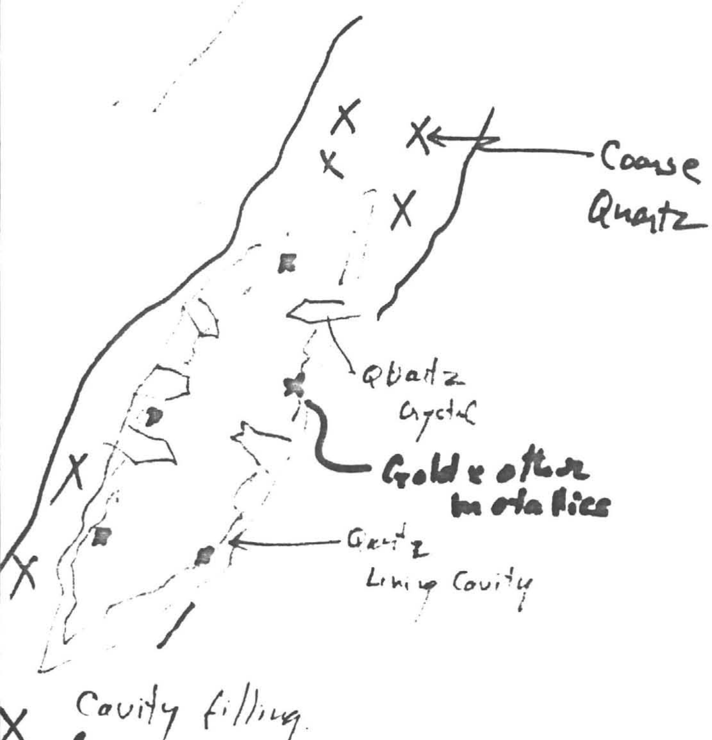
Boundaries of thermal zones not sharp — gradational

[only a few of metals shown]



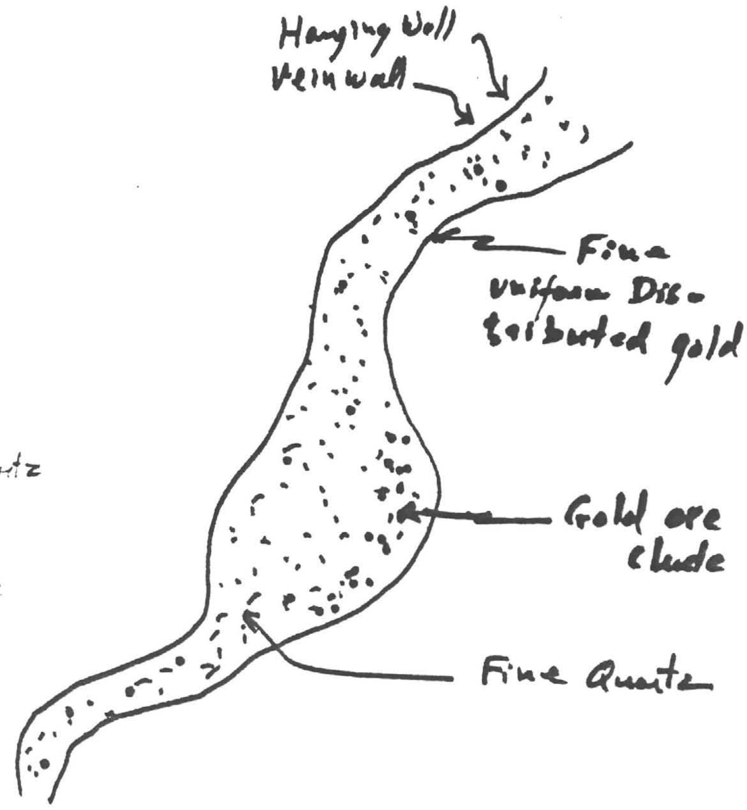
"Bonanza"
Epithermal
vein

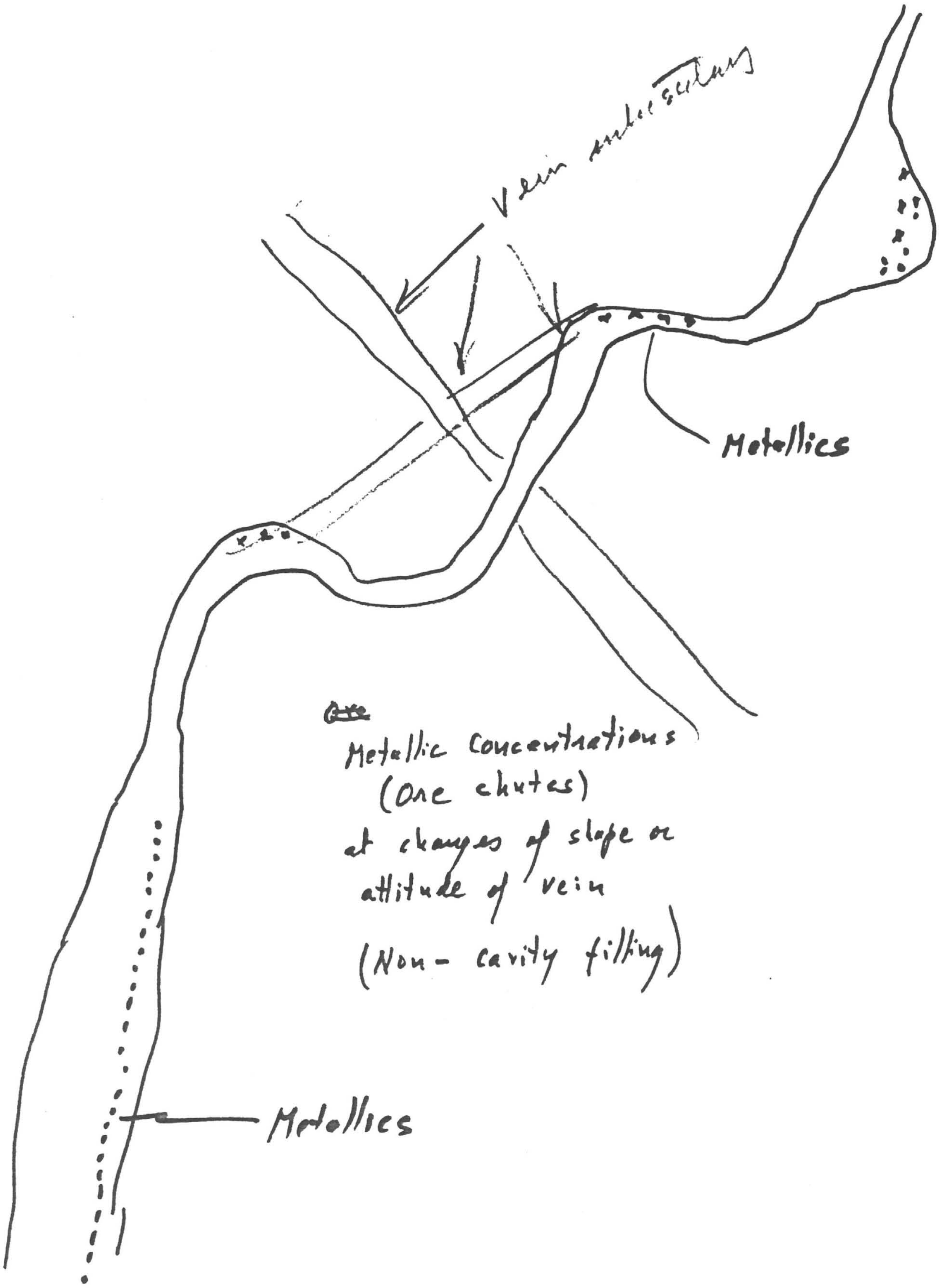




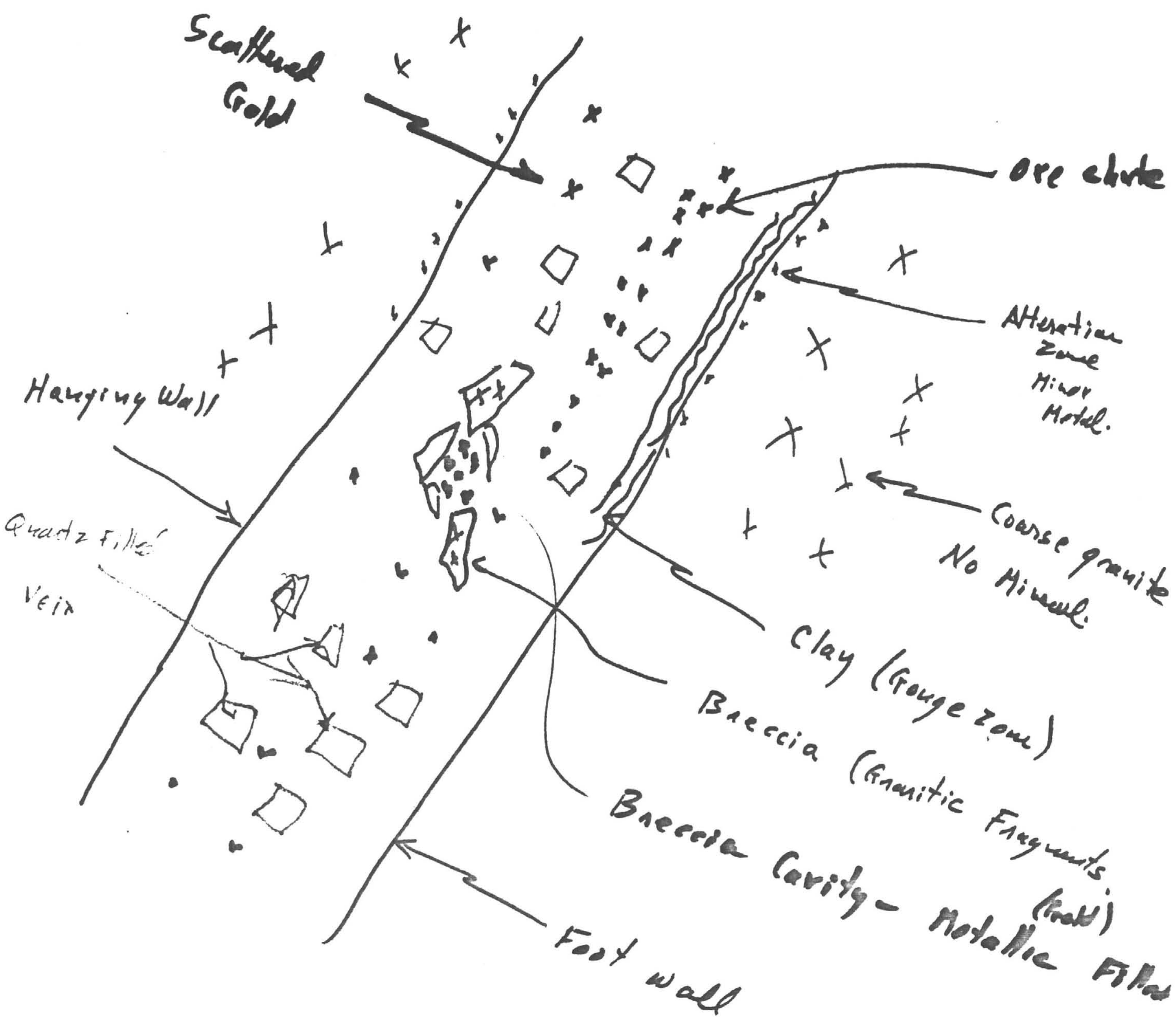
Cavity filling

Hypothermal Vein




Vein intersections
Metallics
Metallic concentrations
(Ore chutes)
at changes of slope or
attitude of vein
(Non-cavity filling)
Metallics

Sampling – Gold Distribution
Across Vein



WILLARD D. PYE
Consulting Geologist
3418 NORTH FORGEUS AVENUE
TUCSON, ARIZONA 85716

TELEPHONE 327-2956

December 4, 1976

Mr. Dave Lackey
1508 E. Colter
Apt. 214
Phoenix, Arizona 85014

Dear Mr. Lackey:

Enclosed is my report on the Rackensack and Cerro de Oro claims, Maricopa County, Arizona, which I recently examined at your request. Included with the report are various assays of samples taken from the property.

My conclusions in regard to the property are that the various claims are covered by a series of quartz veins bearing gold, silver, copper and minor amounts of other metals. Further, that sufficient assaying, mapping and exploration in the form of cuts, pits, trenches, shafts and underground mining has been done to warrant the undertaking of development mining of the high-grade gold and silver pockets and ore chutes as well as those portions of the veins which may contain lower values of mineralization but which assay work and costs may indicate are feasible to mine.

Further development and blocking out of the ore bodies should be continued in conjunction with the development and production mining operations.

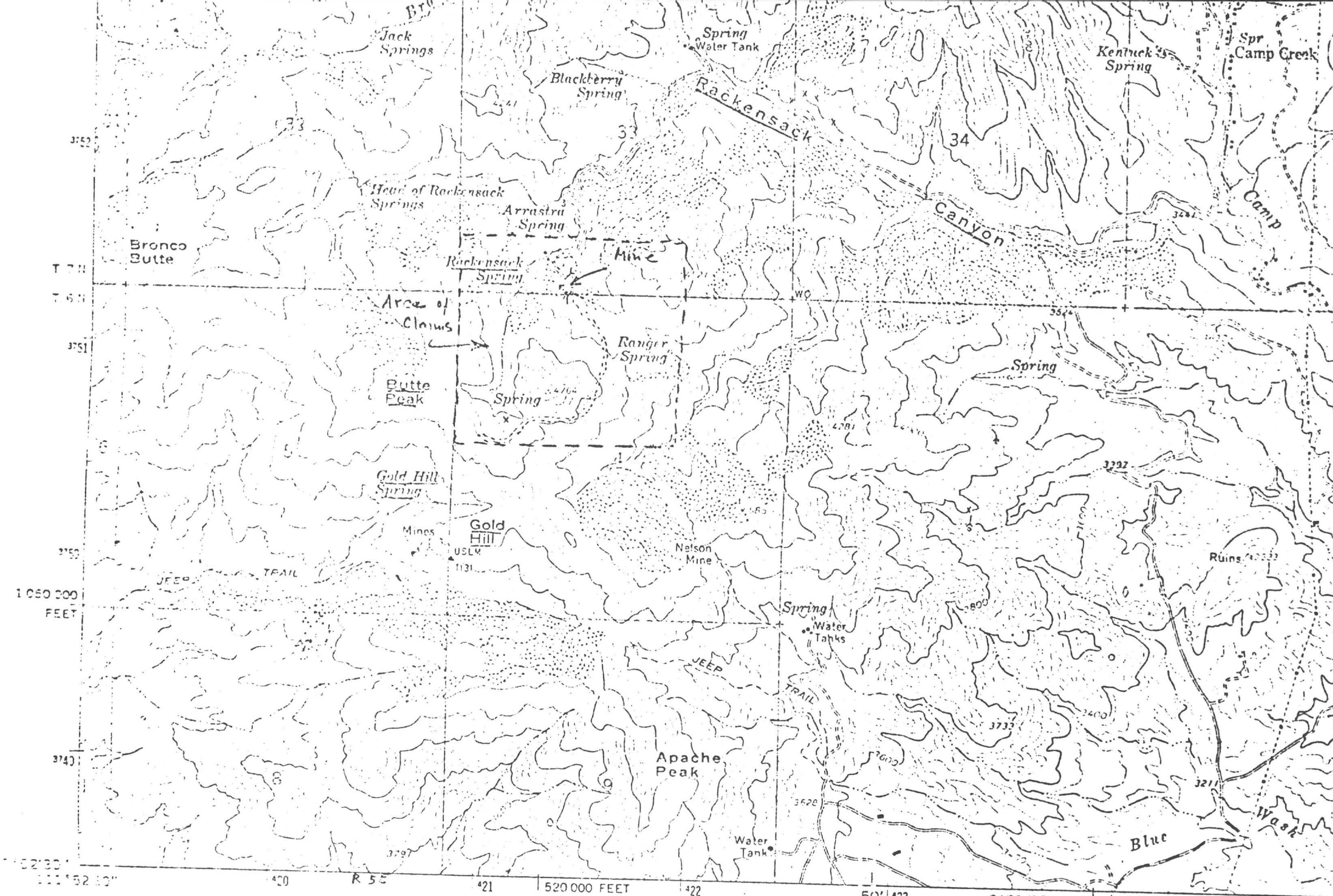
Included in the report are some general geological principles which may help you to understand the type of mineralization found in the veins and the distribution of values in them.

May I re-emphasize the final statement in the report, namely, development and production mining can off-set in whole or in part various mining costs, but undertake the operation and equipment of the mine as would a "prudent man". Too often this principle is not followed and usually the results are disasterous.

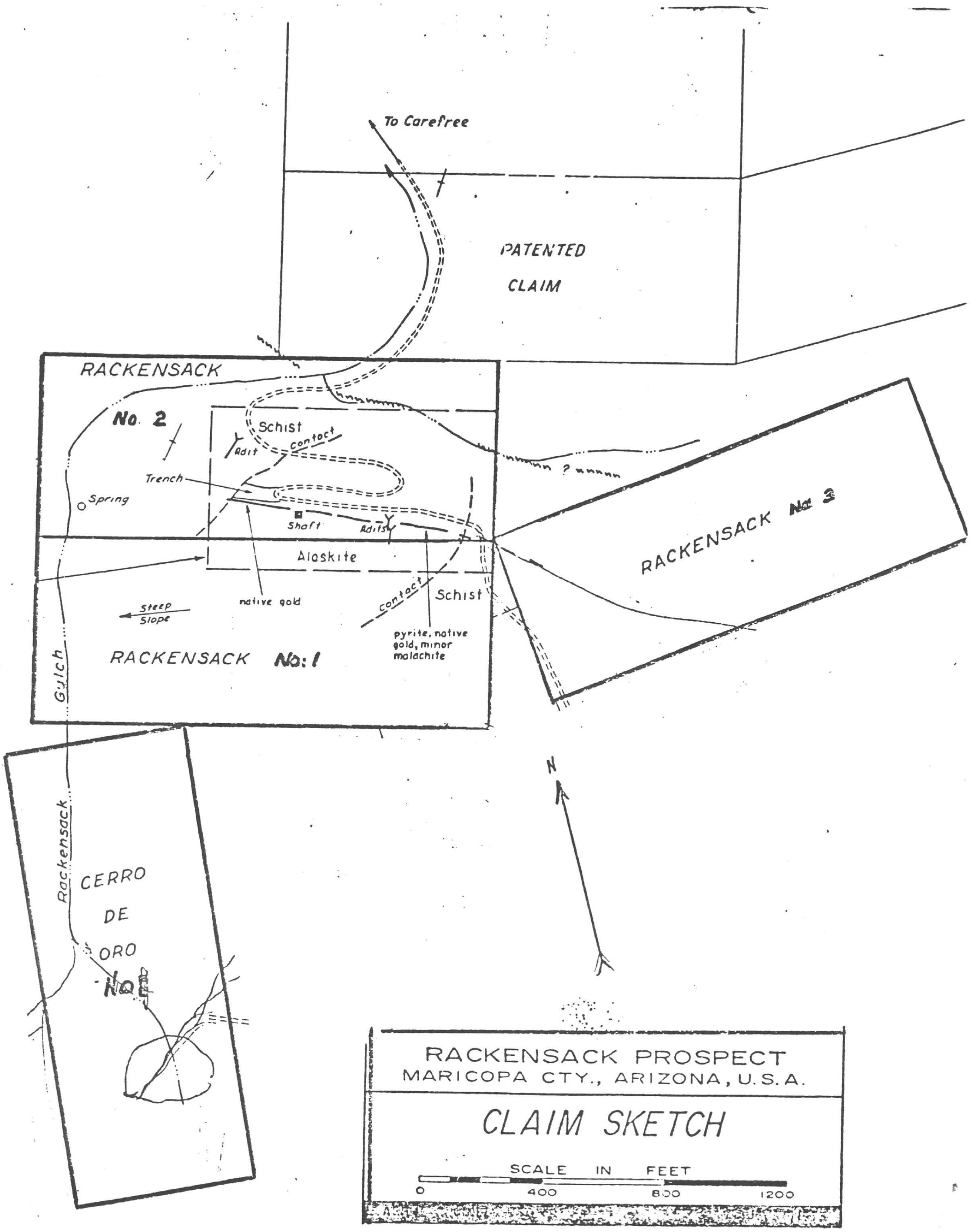
If there is any further information which you may need, please let me know.

Yours very truly,
Willard D. Pye
Willard D. Pye

C - FC *[illegible]* 1D



Humboldt Mountain Quadrangle
Scale: 1/24,000
1" equals 0.4- miles
Contour Interval: 40 feet



To Carefree
PATENTED CLAIM
RACKENSACK No. 2
Schist
Adit
contact
Trench
Spring
Shaft
Adits
Alaskite
native gold
Steep Slope
contact
Schist
pyrite, native gold, minor malachite
RACKENSACK No:1
Gulch
RACKENSACK No 3
Rackensack
CERRO DE ORO
N
RACKENSACK PROSPECT
MARICOPA CTY., ARIZONA, U.S.A.
CLAIM SKETCH
SCALE IN FEET
0 400 800 1200

Seligman
Ash Fork
Williams
Red Lake
Flagstaff
Angell
Canyon Diablo
Sunrise
Leupp
Red Lake
Twin Arrows
Two Guns
Leupp Corner
Winslow
Sedona
Happy Jack
Prescott
Camp Wood
Simmons
Chino Valley
Jerome
Clarkdale
Rimrock
Camp Verde
Strawberry
Pine
Skull Valley
Hillside
Kirkland
Kirkland Jct
Dewey
Humboldt
Cordes Jct.
Star Valley
Payson
Heber
Overgaard
Congress
Yarnell
Crown King
Young
Cibecue
Octave
Rock Springs
Claims
Jakes Corner
Punkin Center
Wickenburg
Morristown
Wittmann
Circle City
Cave Creek
Carefree
Fort McDowell
Roosevelt
Surprise
El Mirage
Youngtown
Sun City
Litchfield Park
Glendale
Scottsdale
Mesa
Tonopah
Goodyear
Avondale
Wintersburg
Arlington
Liberty
Laveen
Superior
Globe
San Carlos
Peridot
Coolidge Dam
Kelvin
Kearny
Hayden
Winkelman
Florence
Red Rock
Oracle
Oracle Jct.
Catalina
Marana
SITGREAVES
TONTO
SIERRA ANCHAS
NATIONAL
FOREST
SUPERSTITION MOUNTAINS
TORTILLA MOUNTAINS
WHITE TANK MTS.