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CERRO COLORADO PROPERTY

CERRO COLORADO MINE

1. Introduction and Outline of Partnership Agreement
2. Klugman Report
3. History Cerro Colorado
(Footnotes documenting quoted material
will be available shortly.)
4. Klugman Resume

CONFIDENTIAL DRAFT PROPOSAL

United States Magnetite Corporation is engaged in a number of business ventures in the Southwest United States. It has now begun a program of acquiring, evaluating and operating precious metal properties in that area. Its aim is to bring into full production only those properties which are proven to be exceptionally promising. The Corporation believes that there are a number of properties such as the Toltec Mines (see attached report), which bear investigation, that many of them can be readily acquired due to the relative inactivity of small scale mining in recent years, and that the rising value of precious metals may make them extremely profitable.

With the advent of new exploration techniques, stronger prices for certain metals, and the widening technology in metal applications throughout industry, it is felt that the present time is appropriate for aggressive moves in this area. The Corporation intends to form Partnerships in the initial stages of these ventures, acting as General or Operating Partner, and inviting investors to participate in the initial stages as Limited Partners, in return for a commensurate percentage of the Partnership.

Through the formation of a Partnership, the usual attractions of high-grade mining are further enhanced by the tax benefits available to the limited partners:

- 1) The costs of exploration for gold and silver are deductible against an investor's ordinary income to a maximum of \$100,000 per year and to an aggregate limit of \$400,000.

- 2) If the property is brought into production, the individual can apply a 15% depletion factor against income therefrom.

Since the Corporation intends to investigate only areas of previously recorded production, or known mineralization, and since it believes that it has available advanced assessment techniques, careful and economical exploration should yield definite indications at an early stage. Should they be unfavorable, exploration will cease, and the partnership dissolved. Should the indications appear promising, another stage will commence with funds previously committed, but not spent. If at the completion of the latter stage, evidence is promising, the Corporation will commit funds as outlined in the Partnership Agreement and will undertake to bring the property into production. At this time, steps to incorporate the Partnership will be considered. Costs of acquisition of the property, overhead and other expenses not deductible as exploration costs under the relevant provisions of the Internal Revenue Code, will be borne by the General Partner. All funds not spent on exploration will be returned to the investor in the event the property is brought into production with less than the estimated amount.

TECHNICAL SUPERVISION

The Partnership will engage the services of Dr. Michael Klugman, a highly experienced geologist, who teaches the advanced course in minerals exploration in the graduate department of the Colorado School of Mines. (Resume attached). Dr. Klugman will be assisted by graduate students working under his supervision. Dr. Klugman's achievements

in advanced methods of surface sampling and geochemistry provide the project with a unique asset. Initially, Dr. Klugman's techniques have proven very successful on the U. S. Minerals Corporation's Kittimac Lode Mine, and have proven to be extremely economical in the early exploratory stages. For the Limited Partner, Dr. Klugman's techniques and skill permit earlier estimates of potential reserves and, eventually, less exposure in terms of capital. The alternative is sample drilling from the outset which is extremely costly. This, of course, will be done, but only in the advanced stage, where preliminary sampling has indicated definite ore potential.

TOLTEC MINES

Included in this material is an extract of historical references to the Toltec Mines. Of these mines, our interest centers on the Cerro Colorado mine. The ore values mentioned should not be taken as indicative of the area's potential. However, the conclusions can be drawn that ore of unusually high grade was being removed, albeit by primitive methods, and that an indeterminate amount of ore remains. Other geological and topographical features show evidence of mineralization, aside from the old workings, but exploration and sampling are definitely needed.

While Cerro Colorado is being treated as a raw prospect, there is a great advantage in that records show extensive underground tunnelling has been done to depth. It is expected that a number of these workings can be sampled right at the ore face, without the expense of protracted surface drilling. The mine is currently flooded,

as it has been for some years. Successive levels will be pumped out and investigated as they become exposed, in addition the extremely promising areas adjacent to the present workings will be examined by geochemical techniques and by reconnaissance drilling. The unusual promise of the old workings plus the quality of the surface indications, enhance the speculative attraction of the early exploratory stages. Since the Corporation's option from the owner extends for fifteen months, adequate time is available for a detailed evaluation of the total property.

PROJECTED EXPLORATION SCHEDULE

1. February 28 - April 15

Surface mapping, including a gridded geochemical regional survey; pumping of the first level of the old workings and sampling thereof, 3000 feet of drilling to 100 foot depths, with a few deep probe holes, and preparation of a report by Dr. Klugman.

BUDGET

Geologist salary	\$975.
Workman/Ass't.	335.
Transport	200.
Laboratory Costs	180.
Drafting, Repro.	40.
Assay	250.
Pump @ \$120/mo.	120.
Contract Drilling @ \$3 per foot	9,000.
Reserve	<u>3,700.</u>
	\$ 15,000.

At this point, the initial report would be prepared, and is expected to be ready by April 15. Should the results be unfavorable the Limited Partner will make a decision whether or not to continue the exploration program of the Second Stage. If he does not continue, the General Partner will make a full accounting of the funds expended, and will reimburse those funds which have not been spent for exploration. The Limited Partners will then relinquish all but 20% of the interest previously held. Should indications continue favorably, the Second Stage of the program will commence.

2. May 1 - August 1 (estimated end of exploration)

Complete pumping of workings; detailed survey of all exposed areas in the mine, preliminary blocking of potential ore bodies by extensive surface and underground drilling.

BUDGET

Geologist's salary	\$2,600.
Workman/Ass't.	1,700.
Per Diem @ \$8.	950.
Transport	800.
Laboratory Costs	300.
Drafting, reproduction	100.
Assay	1,000.
Pump	480.
Contract Drilling	18,000.
Reserve	<u>4,000.</u>
	\$ 30,000.

OUTLINE OF PARTNERSHIP ARRANGEMENT

1. In return for a \$15,000 First Stage investment (or proportionate part thereof) the investor will be a Limited Partner entitled to hold down a 30% working interest in the net profits or capital gains attributable to the operation. He will have no other obligations or commitments. All operations will be the responsibility of the Corporation as General Partner.
2. At the conclusion of the First Stage, the investor will be presented with the following:
 - A. A certified geological report and detailed geochemical survey.
 - B. An accounting of all funds expended for exploration, with opinion of counsel as to their deductibility against ordinary income as defined by the Internal Revenue.
 - C. An outline of the General Partner's future operating program and recommendations.
3. Within one month of receipt of the above report, the Limited Partner will have the option either to:
 - A. Not continue with the program, in which case his "Working Interest" will be reduced from 30% to 6%, and all funds not expended for deductible exploration purposes will be refunded.
 - B. Continue with the program, in which case his interest will be fixed at 30% and he will be obligated to furnish an additional \$30,000 of exploration funds.
4. If the Limited Partner (or any of them, if more than one) chooses to continue the program, the General Partner will be obliged to

continue exploration based on the funds made available. At the conclusion of the Second Stage, an additional report and accounting will be furnished. If the property is then in condition for production, with no further exploration funds (under applicable IRS definitions) required, such funds as have not been spent for such purpose will be returned.

5. At the conclusion of the Second Stage, the General Partner will have the option either to:
 - A. Continue the program, in which case he will be required to expend up to a total of \$70,000 on exploration, development, or other costs directly attributable to the property, in order to bring it into production; or
 - B. Not continue, in which case any Limited Partner who has contributed his Second Stage funds will have his "Working Interest" increased by a factor of three. The General Partner will be obliged to use his reasonable efforts to sell the property, if he does not continue the program beyond the Second Stage.
6. After the conclusion of the Second Stage, any Partner who has contributed to said stage shall have the option to require the General Partner to convert the Partnership into a corporation, and issue shares according to the working interests then held by the partners, with provisions against dilution.
7. All Limited partnership interests relinquished shall revert to the General Partner, who shall also be entitled to sell or assign any/all portions of his own interests to further Limited or General Partners.

CONCLUSION

It is believed that the expenditure of up to \$115,000 of exploration and development costs should make possible one of the following:

- A. The operation of the property profitably on a contract mining basis.
- B. The borrowing of funds or raising of equity capital for the new corporation on favorable terms, sufficient to continue exploration and development to the point where production will be possible.
- C. The sale of the property at a profit. By "capitalizing" a portion of their exploration costs, rather than deducting them, the Limited Partners will be able to take this profit as a capital gain.

It is to be emphasized that unforeseen problems can arise in a mining program of this kind. These will be the full responsibility of the General Partner, who will be free to develop the property according to his sole judgment as to the best way to produce the largest eventual profit. He shall in no circumstance be required to "high grade" the mine or begin production on an unsound or premature basis.

This is a preliminary proposal and should be treated as confidential. We can make no representations as to the potential of the property described. However, we do represent that we have the right to mine the said property. The proposed Limited Partnership Agreement will be made available on request.

February 13, 1963.

January 28, 1963

MEMORANDUM

TO: W. D. BURDEN, JR.
FROM: M. A. KLUGHAN, Ph. D.
Consulting Geologist
SUBJECT: CERRO COLORADO PROPERTY

In considering this property I think it advisable to consider ore values of \$60 to \$80 a ton rather than \$600 to \$6,000. This is not to say that the value of the ore shipped did not run at these values, but in considering an economic property we should incline toward the conservative.

According to the earliest reports, the major vein was approximately a north-south vein. Later reports speak of an east-west vein as well. Very little information is available from old documents and location of the various shafts and the actual depth of the mine are vague. However, on the surface a number of things are fairly obvious:

1. That the major vein was a north-south vein: and
2. That the three shafts mentioned in later reports are on the east-west vein.

The amount of mining done from these shafts cannot easily be determined, but a number of surface indications show that during the whole period of mining on this property very little much was hoisted, and this probably from the shaft which, according to all reports, was sunk adjacent to the north-south vein.

3. We know that ore was made on both the north-south and the east-west veins, and therefore also at the intersection. From this we can consider two main possibilities:
 - a. That there may be ore along the extension of the old workings and in the old workings: and
 - b. That parallel veins of the same structure may produce the same values.

From brief inspection, three other east-west veins were found. These and possible parallel north-south veins represent the most probable locales for further mineralization.

4. All of the parallel east-west veins were mineralized (copper).

From these observations a number of preliminary steps should be taken to further assess the property:

1. A surface geochemical survey should be undertaken to get the overall picture of the prospect.
2. Geochemical survey should be carried on in conjunction to help trace observed veins, and also to pick out any veins beneath the soil.
3. As a great deal of information can be obtained from underground examination, the main shaft should be de-watered at least as far down as the highest level. This inspection should tell a great deal about the type of ore mined - whether all values were continuous and the possible control of the ore.

After this is completed, a second phase should be undertaken to probe the tenor of any veins. This will involve diamond drilling.

From surface indications, the property has excellent potential.

M. A. Klugman, Ph. D.
Consulting Geologist
615 Garland Avenue
Lakewood 15, Colorado

MAX:el

HISTORY OF THE TOLTEC MINES

The first authentic history of these mines and district is derived from the writings of the Jesuit Padres who spoke of them as the "mines of Tuboc". These properties were considered to be the richest and most valuable of all the holdings of the Mission of "San Jose del Tumacacori". This mission church still exists situated some twenty-five miles southeast of the mines.

A mission church named Santa Eulalia was established at the extensive settlement near the mines. (See Jesuit map of 1698). Nothing remains of this building except part of the original stone foundations because at a later date the American owners and operators built over these formations and tore up others for further construction.

Even though in the year 1767 the Jesuits were expelled and all of their property was confiscated by the Spanish Government, they still operated out of Tumacacori until 1775. At that time their records show that they had fifty-two silver mines in operation.

There were two main reasons to explain the delay of the Jesuits' expulsion from their land. First of all, it required over a year for the Spanish decree to reach the government at

Guadalajara, and to further complicate the matter the Misson was situated over 1200 miles away in the heart of Apache country. Secondly, since the Jesuits claimed over 40,000 converts it would be obviously difficult to dispossess these people of their vast holdings. Finally in 1775 their territory was handed over to the Franciscans. These monks thrived on the plunder of the Jesuits and soon became opulent and obnoxious. They proved to be such oppressive task-masters that in the year 1802 a war broke out, - On one side a coalition of all the Indian Tribes of "Primero Alta" and on the other the powerful and wealthy Franciscans. One source states that before this conflict had ended every mine was closed, every mission in Primero Alta had been destroyed, and every Padre killed. With the return of peace new priests and monks came to rebuild and to re-christianize the natives, however the mines remained shut. Many were absolutely lost, filled in or obliterated, and it was certain death at the hands of his followers to the native who dared show the location of one.

Shortly thereafter came the war for independence against Spain which lasted for nine years, 1812-1821. Then as a result of the unsettled state of the unsettled state of the country together with the exodus of the Spanish with their capital and energy, the mining industry in Mexico remained

in a state of "Innocuous Dissuetude" for the next half century. Following this inactivity there was The Texas Revolt and the Mexican War whereby Mexico lost nearly half of her territory to this country. The Gila River was established as our southern boundary in 1847.

In 1853 our government purchased a "small strip" known as the Gadsden Purchase from Mexico for ten million dollars. This strip, some 150 miles wide by 400 miles long, was in the heart of the Apache country and included a number of the Ancient Jesuit Missions, among them the Mission of San Jose del Tumacacori and the long forgotten mines of Tuboc. However, no noticeable signs remained of the extensive settlement and workings except the foundations which were buried under piles of adobe. Shortly after the purchase and before the boundary survey had been completed this wild and dangerous area was visited by a number of adventurous citizens. According to the publications of that day these individuals were credited with making this perilous journey 1200 miles beyond the railroad into the worst Indian country in the world for the purpose of "spying out the new purchase".

Among these early visitors were:

Col. Samuel Colt, of Colt Revolver fame.

Prof. Rafael Pumpelly, later Professor of Geology at Harvard University.

Major Charles D. Poston, later delegate to Congress, from the new Territory of Arizona.

Also a considerable number of other prominent individuals.

Note: The Gadsden Strip, since its purchase by the United States, has produced from its metal mines alone over ONE BILLION DOLLARS IN WEALTH, for its citizens at a huge profit.

In 1858, a Major Heintzelman, then stationed at Fort Crittendon New Mexico (on the Gadsden Purchase, now Arizona) bought from a Mexican discoverer a filled in ancient mine which he immediately started to work. During the ~~preceeding~~ year he extracted 75,000 dollars from a fifty foot shaft. (U.S. Government Report of 1868). Near the end of 1859 Heintzelman was ordered off the property by the Ortez heirs who claimed the property was on the Spanish Grant of Arabac of Arivaca. When Heintzelman was satisfied that this was the case he attempted to purchase a portion of this Grant which covered many square miles of country. The owners refused to consider this because the land would become taxable once subdivided, otherwise it was "free from taxation forever."

The owners' price for the entire grant was a half million dollars in gold. Since Heintzelman was unable to pay this amount he went to his friend Major C. D. Poston, who in turn traveled East to see his friend Col. Colt. This combination resulted in the formation of the "Sonora Mining & Exploring Company" with Poston as manager. Therefore with access to

ample capital the sum of 500,000 in gold (a huge sum for that day) was paid for the Arivaca Grant. This transaction occurred in Donna Anna County, New Mexico. Even though the Arizona Territory was not cut off of New Mexico until three years later in 1862, the copy of the deed appears as the first real estate transaction in the records of Pima County, Arizona since the purchase of the territory from Mexico.

During the four succeeding years Poston operated the property employing some twelve Americans and over two hundred Mexicans at the mines. There was also an extensive reduction plant built on Arivaca Creek twelve miles from the mines employing twenty men.

The ore was assorted at the mines, the high grade sacked for shipment and the lesser grade teamed to the milling plant where it was crushed, reduced to concentrates and also sacked. Together the high and low grade ores were shipped 320 miles by "bull teams" to Guaymas, Mexico for re-shipment to Swansea, Wales, England. The reason for this time-consuming voyage was because at that time there were neither smelters nor refineries in this country. Under these conditions, it required well over a year to obtain returns on a shipment from the mines.

All supplies and machinery for the property came from the East. These materials were hauled 1230 miles in wagons from

the railroad at Texarcana, Texas through hostile Indian country, to their eventual destination.

Cavalry maintained at the property by the U.S. Government for a number of years protected it both from Apaches and prowling Mexican bands. Even so it prospered and was able to much more than pay for the heavy operating expenses incurred. This property became the largest producing lode mine in the U.S. until forced to close down late in 1863 because of the withdrawal of troops and the Apache depredations that followed. Mexican looters from across the border also played their part. The last act was the murder of John Poston, brother of Major Poston and six others by sixty Sonorans bent on plunder. This happened while the former were guarding the mines and stores after the property had closed down. After the killing of John Poston and his men an armed force from Tucson proceeded to the property, buried the bodies and heaped stones over the graves which still exist on the hill above the mine openings. A little later, two of the employees of the company, Lord and Williams, former doctor and storekeeper, transported to Tucson the vast remaining stores and supplies and established the mercantile firm of Lord and Williams with the largest stock of goods in the territory.

For the following twenty years this area was surrendered to Apache Indians and Mexican Raiders and left abandoned by

Americans. Meanwhile, the natives of the towns of Sarico and Sonora, Mexicans, and others from as far away as Magdalena intermittently worked in the mines, robbing the rich ores in sight, cutting the protecting pillars, and generally wrecking the property. Sometimes this activity was extremely costly to the participants, for on two occasions mine robbing parties were killed in the cave-ins because of their greed and carelessness. Their Descendants acknowledged eleven deaths from such mishaps.

Major Posten's books were destroyed by fire when the mercantile firm of Lord & Williams burned in 1881, but the exact figures of production and expenditures had been taken from the aforementioned and published in a work on Arizona (1878) and these appear below:

**EXTRACTS FROM REPORTS BY ENGINEERS AND
SCIENTISTS OF HIGH STANDING ON THE HEINTZELMAN
OR CERRO COLORADO MINE:**

J. ROSS BROWN states in his report to the U. S. Government:-

"The Lode runs nearly North and South, and may average 22" in thickness. It is about 2000 feet long and is distinct and separate from the country rock on both sides."

✓
N.B.

"General Heintzelman states in a letter from the mine, dated 1859, that all of the ore smelted to date yielded \$920.00 per ton."

"Herman Ehrenberg, Civil and Mining Engineer, wrote from Tubac in 1859 that 75 tons smelted or reduced in various ways yielded \$41,180.00 in silver, or \$549.00 per ton."

"Guido Kustel reported, "The main shaft, 6 x 12 ft., well timbered and furnished with substantial ladders, is placed on the west side of the Lode, which pitching west changes its inclination in the depth, so that the shaft, which was calculated to strike the Lode at 160 ft. below the surface, may not reach it before 400 or 500 feet depth."

"There are shafts and some tunnelling and drifts. The actual depth of working is 120 feet."

"The characteristic feature of the mines is the rich ore which shows everywhere."

"The principal in depth is Silver Copper Glance, containing from 2 to 10 per cent silver, accompanied by Argentiferous gray copper ore, with from 1 to 3 per cent silver." ✓

PROFESSOR RAPHAEL POMPELLI (late), Professor of Geology at Harvard University, Graduate of Freiberg University, Saxony, Geologist of the Japanese Government, Chinese Government, etc., states in a Mineral Sketch of the Silver Mines in Arizona (1860):-

"The most important of the mines already known and worked is the Heintzelman; the vein runs nearly North and South, has a vertical dip, and is enclosed in a brown porphyry rock, very hard, and free from quartz. The gangue is principally quartz, ✓ ✓

with some barytes and brown spar. The ore is separated by hand into two classes, rendered necessary by the difference in their chemical character and in their richness in silver.

"The first consists of the more massive and richer ore, composed of strimeyerite, tetrahedrite, blende and sulphurete. The per cent of silver in this class is too great to allow of its being treated profitably in barrels. It represents about ten per cent of the entire amount of ore and the average of its yield of silver, calculated on the entire amount smelted, is nearly one thousand dollars to the ton of two thousand pounds, while the amount contained is about fifteen per cent more.

"The second class contains the same minerals as the first, but they are more intimately associated with the gangue, which in this class forms the bulk of the ore. The blende has a moderate per cent of silver, while the tetrahedrite (fahlrenz or gray copper ore) varies from one to one and a half per cent. Chloro-bromide of silver, and native copper have occurred, and native silver in small flakes is frequent.

"Two varieties of quartz are found, one in the ordinary glassy form, often comb-y, and an opaque, white variety, very brittle and associated with the rich minerals. Native silver occurs in the common filigree form in cavities in the argentiferous copper glance, and is often observable in minute specks on

the tarnished surface of blende and tetrahedrite."

"The first class ore from the Heintzelman was formerly smelted at the mines in Castillian furnaces, with the addition of an ore of sulphide and carbonate of lead, litharge and iron. The yield, as before stated, was nearly one thousand dollars to the ton. Seventy-five tons, reduced by smelting yielded forty-one thousand and one hundred and eighty dollars in silver."

"The production of silver at the Heintzelman Mine during this time (the year 1859) was over one hundred thousand dollars (not including large amounts of rich ore stolen and worked in Sonora), but had it been well and regularly worked, it might have produced over \$1,000,000.00 in the same time." NOTE - Correctness of this estimate is proven by the following data: COLONEL HINTON, in his work on Arizona, says:

"It is well known that the town of Saric, in Sonora, Mexico, was built upon the proceeds of ore stolen from the Heintzelman Mine."

"Up to 1864, when the works were left idle, there had been taken from these shafts, in silver, \$3,990,456.40, or less than \$82.00 per ton."

"The cost for the 48,743 tons was \$2,222,203.00".

"Shafts, 140, 45 and 40 ft. deep."

HERMAN EHRENBERG, Mineralogist and Topographical Engineer, educated in the best school in Germany, having extensively traveled and great experience, said officially in his reports - "We own in the Heintzelman vein one of the richest in the world."

FREDERICK BRINCKOW, graduate of the Royal Mining Academy of Berlin, and a talented Geologist, Mineralogist and Mining Engineer, states:-

"The ores from the 60 ft. level were carefully assayed by me and their yield ascertained to be from one thousand to four thousand ounces of silver to the ton; some of the ores gave enormous results, twenty thousand dollars per ton."

JOHN HITCHENS, an English Mining Engineer, who visited the property, reported as follows:-

"According to instructions which have been given to me, I have visited the property and found at the Heintzelman Mine houses constructed after the ordinary method of the country; I also took samplespecimens to make assays, and I only chose them in the end to make my judgment clear and to express sincerely my opinion in this report."

"If these assays had not been made by this respectable house (Johnson, Mathey & Co., of London, assayers to the Bank of England), they passed my expectations to such a point, I should have doubted the genuineness of the assays."

LIST OF ASSAYS.

PER TON

JOHNSON, Mathey & Co.	\$ 875.00
U. S. Mint of Philadelphia,	1342.00
U. S. Mint Branch San Francisco	8642.00

COLONEL ANDREW TALCOTT, of the Ordnance Department, U.S.A. reported as follows:-

"The yield to a square foot of the vein has been about 136 pounds of ore, and of the value of \$7.87 - At this rate, one thousand linear feet of the vein worked at the depth of only 600 feet would produce ore to the value of four million seven hundred and twenty-two thousand dollars."

A report made and published in the Mining Magazine and Journal of Geology, Vol. 12, No. 65, by Prof. W. P. Balke, late U.S. Geologist in California, gives the following assays of silver ores from the Heintzelman Mines:8-

<u>Made by</u>	<u>SILVER grains per lb.</u>	<u>VALUE PER Pound</u>	<u>VALUE PER ton of 2000 lbs.</u>
Prof. Booth	247.80	0.67	\$8842.00
Prof. Booth	87.64	0.2375	475.00
Prof. Torrey	51.99	0.16	322.94
Prof. Locke	79.10	0.2150	428.46
Prof. E. Kirfey	286.40	0.6483	1296.60
Prof. E. Kirfey	525.00	1.4218	2843.60
Mining Engr', Tubac	345.33	0.935	1870.40
Mining Engr', Tubac	520.00	1.4075	2816.60

Average-----262.03 grains silver per lb. - value per lb.

\$0.7114 - value per ton \$1424. - value per ton of 2000 lbs. \$1,424.45.

The first made by any competent authority was done by Louis A. Garnett, of the U. S. Mint Branch at San Francisco, California, with the following results to the ton of 2,000 pounds:-

Silver 7,040 ozs.

Copper 278 lbs.

SAMUEL WOODWORTH COUSINS states in his book on Arizona, published in 1876:-

"We started on a visit to the Heintzelman Mine, which is situated in the Cerro Colorado Mountains, one of the richest and most barren ranges in the whole Territory, which at the time of our visit was in successful operation, employing about 200 men and paying a very handsome profit."

"Mr. Poston very kindly placed at our command, all the facilities in his power to enable us to explore the mine, besides giving us much valuable information concerning it."

"At the time, the main shaft had reached a depth of 120 feet, and the ore seemed to yield far better than it had done. The ore at a depth of 30 feet had yielded 80 dollars to the ton. At a depth of 60 ft. it had yielded nearly \$2,000.00 to the ton, and an assay had just been made in San Francisco of the ore at a depth of 100 ft. and found to yield the enormous amount of \$9,000.00.

"Mr. Poston was satisfied that the ore would average as high as \$600.00 to the ton. The Heintzelman Silver Mine is without doubt the richest silver mine in the world."

DR. FRANCIS C. NICHOLAS, PH. D., reported after a visit to the mines:-

"The properties have been celebrated as producers for a long time."

"The surface indications are so large that, of late, persons of mature judgment in mining decided that it would be worth the effort to work down into the zone of permanent sulphide, where the indications were that a mine of enormous proportions would be developed, one which would be permanent for many generations."

"As it stands, however, it seems only a question of penetrating deep enough to reach the present water level, and very great and valuable ore deposits are indicated."

THE CHRISTIAN SCIENCE MONITOR, on October 17, 1929, printed as follows:-

"Mining a Library".

An order came from Colonel West to Company E to detail Corporal Ayers with fourteen men for duty at Cerro Colorado Mine; and now the young commander experienced the adventure that would give direction to his whole life.

Colonel Samuel Colt, at this time chief owner of the Cerro Colorado or Heintzelman Mine had sent a few books out to the mine for the use of the employees during their hours of loneliness and leisure.

Rummaging through this little library, Edward Ayer came upon the Conquest of Mexico, in three volumes by W. H. Prescott.

"And I want to reiterate that the finding of Prescott's Conquest of Mexico in that mine in Arizona in 1862 has been

responsible and is to be credited as the principal force that has given me a vast amount of enjoyment in this world, and is absolutely responsible for the great "Ayer Library" in the Newberry Library, Chicago."

"The Ayer collection in the Newberry Library, Chicago, is the most complete body of source material on the early life of America in existence."

Mr. Ayer's gifts to the Newberry Library aggregate more than two million dollars in value. --Frank C. Lockwood, in "Arizona Characters". Mr. Samuel W. Traylor, of the Traylor-Engineering Works, Allentown, Pa., while on a visit to the mine in 1908, wrote:

"The formation is all that can be desired, being far better in my opinion than any of the mines in Nevada. The ore opened in the North drift of the 350 ft. level, some 100 ft. north of the cross cut from the main shaft, showed about 4 in. of quartz, occurring on each wall of the 4 ft. vein, well spotted with tetrahedrite. A sample which I took assayed for 275 ounces in silver. I am satisfied that this ore body, only penetrated for a few feet at the present time, will shortly fill up with high grade ore, making a continuation of the rich ore shoots encountered above."

Mr. Edward E. Rose, E. M. of Denver, Colorado, stated in his report in 1908:

"The main vein is more than 30 ft. in width where opened by the cross-cut from the main shaft on the 350 ft. level, at or near the point of intersection of the east and west vein. The south drift is entering what appears to be an extensive ore shoot, about 250 ft. south of cross-cut. This ore body is low grade as far as penetrated, which is only a few feet, but carries 12 to 15 inches of quartz, spotted with black oxides, in a vein fully five feet wide. The management is driving into same and intends to upraise as soon as well into this ore shoot, which I believe will extend to or near the surface, being at an entirely different angle of inclination than that mined above and from the 150 ft. level upward.

"The west drift on crossfracture should also make ore, and I consider it advisable to drive several cross-cuts from both levels, as present work has not been sufficient to prove ground already opened by drifts in a large leached vein, from which ore bodies appear to make in side or stress fractures rather than within the Magma of the large leached vein, which probably will not fill up with ore until 800 or 1000 ft. in depth.

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R E S U M E

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	St. Andrews College, Grahamstown, S.A.,		1942-46
	Rhodes University, Grahamstown, S.A., B.Sc.(Geology),		1947-50
	McGill Univ., Montreal, Canada, M.Sc. (Geology),		1950-53
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<u>Experience:</u>	New Consolidated Goldfields Ltd.	Geology Office	1948
	East Rand		
	Dr. E. D. Mountain	Ass't. Geology	1950
	Ceskel C. P. S.A.		
	W. Hancock	Ass't. & Snr. Geol.	1951
	North & South Rhodesia		
	Iron Ore Co. of Canada	Sr. Ass't. Geology	1952
	Labrador		
	Quebec Dept. of Mines	Party Chief	1953-1955
	Quebec, Canada		
Consulting Geology & Geo-chemistry & Ore Deposits Research			
Eastern & Western Canada, Western U.S.		1957-Present	
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