FILE COPY
SURNAME: 200

Adams

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

April 2, 1952

Memorandum

To: Howard I. Young
Deputy Administrator, DMPA

From: Acting Administrator
Defense Minerals Exploration
Administration

Subject: Loan Application from Moose Mining Properties

There is attached hereto 3 copies of Forms MF-100 and MF-102, application for loan filed by the Moose Mining Properties with our field team in Region IV.

A copy of our letter to Mr. J. H. East, Jr., Executive Officer, Region IV, is also attached.

J.N. 4-3-52

Attachments

READAMS/meb
cc to: Adm.Reading File
Mails & Files Br.

FILE COPY
SURNAME:

200

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

APR 3 1952

Mr. J. H. East, Jr.
Executive Officer
Region IV
224 New Customhouse Building
Denver 2, Colorado

Dear Mr. East:

This will acknowledge your memorandum dated March 26, 1952 regarding a change of application from an exploration to a loan on the Moose Mining Properties, Park County, Colorado - DMA-2146.

In this instance we will consider that the application has been withdrawn by the applicant as an exploration project, and transfer the entire docket to the Defense Materials Procurement Agency. If you have retained copies of the forms MF-100 and MF-102, it is requested that you forward them to the Defense Materials Procurement Agency, so that they will have the full complement of copies.

Sincerely yours,

(signed) FRANK E. JOHNSON

Frank E. Johnson
Chairman, Operating Committee
Defense Minerals Exploration
Administration

APPROVED:

J. H. Hedges

J. H. Hedges
For Bureau of Mines

T. P. Thayer
For Geological Survey

READAMS/meb
4-2-52
cc to: Adm. Reading File
Mails & Files Br.
Mr. Howard Young
Mr. Johnson
Mr. Hedges Rm. 4604
Mr. Thayer Rm. 5214 - GSA Bldg.

OFFICE OF THE ADMINISTRATOR

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

224 New Customhouse
Denver 2, Colorado

March 26, 1952

Memorandum

To: Acting Administrator, Defense Minerals Exploration Administration
Attention: Code 210

From: Executive Officer, Field Team, Region IV

Subject: Change of application from DMEA to DMPA - Moose Mining Properties, Park County, Colorado - DMA-2146

We are requesting a change from DMEA to DMPA on the application of the Moose Mining Properties.

The original application, DMA-2146, received by you October 12, 1951, was a request for $5,000 Exploration Aid. The applicant has now revised his estimate of the situation, and requests $24,232, which if approved as applicant has outlined, could only be administered as a DMPA loan.

Two Forms 3b and three copies of the Forms MF-100 and 102 are enclosed.

J. H. East, Jr.

J. H. East, Jr.

Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 31 1952

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

224 New Customhouse
Denver 2, Colorado

March 26, 1952

Memorandum

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Attention: Code 210

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J. H. East, Jr.

J. H. East, Jr.

Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
MAR 31 1952

DMA Form 3b.

DEFENSE MINERALS ADMINISTRATION

CONTROLLED DOCUMENT
Revised Abstract

DMA Docket No. 2146

Change:	From		To		
	I 1	☐	I 1	☐	
	I 2	☐	I 2	☐	
	I 3	☒	I 3	☐	
	I 4	☐	I 4	☒	3-26-52
	I 5	☐	I 5	☐	
	I 6	☐	I 6	☐	
	III 1	☐	III 1	☐	
	III 2	☐	III 2	☐	
	III 3	☐	III 3	☐	
	III 4	☒	III 4	☒	

Add:

II 7 $ 24,232

II 8 $

II 8a %

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 31 1952

Initials of person preparing sheet H.M.C.

Date sheet prepared 3-26-52

DMA Form 3b.

DEFENSE MINERALS ADMINISTRATION

CONTROLLED DOCUMENT
Revised Abstract

DMA Docket No. 2246

Change: From		To	
I 1	☐	I 1	☐
I 2	☐	I 2	☐
I 3	☒	I 3	☐
I 4	☐	I 4	☒ 3-26-52
I 5	☐	I 5	☐
I 6	☐	I 6	☐
III 1	☐	III 1	☐
III 2	☐	III 2	☐
III 3	☐	III 3	☐
III 4	☒	III 4	☒

Add:

II 7 $ 24,232

II 8 $

II 8a %

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 31 1952

Initials of person preparing sheet H.M.C.

Date sheet prepared 3-26-52

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

DEFENSE MINERALS ADMINISTRATION
WASHINGTON, D. C.
OCT 12 3 34 PM '51

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. DMA-2146

Date received 10-12-51

Participation

Moose Mining Properties
c/o Wilson L. Scott
2017 S St. NW.,
Washington, D. C.

Name and address of applicant

Date Oct. 12, 1951

FILL IN THIS BLOCK

Date of application October 12, 1951

Estimated cost $5,000.

Mineral or metal Metal

Percentage of Government participation 50 to 90%

Location of mine Alma, Colorado

Date of filing MF-100

DMA Docket Number, if available 2146

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

(See detailed answers to applicable questions on attached sheets and photostats.)

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.

*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.

*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.

*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.

15. State in detail how the ore could be shipped and how and where milled.

*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.

19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?

21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.

24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

Moose Mining Properties
(Name of company)

By Wilson L. Scott
(Signature of authorized official)

October 12, 1951
(Date)

President
(Title)

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

THE APPLICANT

1. The applicant is an individual.

2. - - -

3. - - -

4. (a) The applicant is a senior member of the American Chemical Society and has made a careful study of the geology of the area in which the Moose Mine is located. He spent a whole year in the vicinity of the mine during 1935-36, in addition to having made another trip there in the summer of 1951. Moreover, he was personally instructed about the mine by his late father, U. S. Judge Henry W. Scott, who was president of a mining corporation organized for exploring the mine in 1912, and by an outstanding mining engineer and eminent authority on the Moose, A. E. Moynahan, Denver, Colorado.

   The applicant has had other business experience including the founding and operating of a large tutoring school attended by 3,000 to 4,000 students of the University of California, Berkeley every year. Organized in 1938, the school is still operating under the aegis of a former partner. Another successful business operation of the applicant is called DATA Unlimited, a research organization of Washington, D. C., with which he is presently connected as director.

   (b) The manager of the Moose Mining Properties is Frank E. Burgess, who was for eight years in the 1930's manager of the famous London mine, also of Alma. During this period, Mr. Burgess extracted ore valued at $8,000,000. He presently resides in Fairplay - 6 miles from Alma. Still energetic and in the prime of life, he is confident that the Alma-Fairplay mining district has a great future.

5. The applicant is owner of a part interest in the Moose Mining Properties as a beneficiary of the Estate of Marion Haffner, Newark, New Jersey. Marion Haffner was my mother. The estate has leased a one-half interest to the applicant; and the other half-interest, which is owned by the estate of John H. Lauber, Philadelphia, will be leased to the applicant as well.

6. There are no encumbrances on the property.

7. The lease is currently being prepared and will be submitted for inclusion with this application shortly.

8. At the present time the Moose Mining Properties are not operating, and have not operated regularly since 1893 when the silver market declined. However, the value of the mine has been estimated as at least $200,000.

9. The applicant is prepared to invest $2500 in the proposed exploration project. It is more than sufficient to pay the company's share of the proposed installations.

THE PROPERTY

10. (a) The following is a legal description of the Moose Mining Properties, in Book 91, page 401 of the Park County courthouse, State of Colorado:

"It is therefore ordered, Adjudged and Decreed that the Plaintiff, Marion P. S. Haffner, is the owner in fee simple and in the possession and entitled to the possession of the following described property, lands and premises in the County of Park and State of Colorado, to-wit:

"The McNab Lode Mining Claim, Section twenty-two (22) U.S.SURVEY No. 189
Highland Lode Mining Claim, Section twenty-two (22) U.S.SURVEY No. 190
Dwight Lode Mining Claim, Section twenty-two (22) U.S. SURVEY No. 51
Dudley Lode Mining Claim, Section twenty-two (22) U.S.SURVEY No. 52
Gill Lode Mining Claim, Section twenty-two (22) U.S.SURVEY No. 53
Bross Lode Mining Claim, Section twenty-two (22) U.S.SURVEY No. 54
Moose Lode Mining Claim, Section twenty-two (22) U.S.SURVEY No. 93
Alps Lode Mining Claim, Section twenty-two (22) U.S.SURVEY No. 96
Hoosier Lode Mining Claim, Section twenty-two (22) U.S.SURVEY No. 97
Silver Star Lode Mining Claim, Section twenty-two (22) U.S.SURVEY No. 98
Belle-Gille Lode Mining Claim, Sections twenty-one and twenty-two (21 and 22) U.S.SURVEY 199
Baker Lode Mining Claim, Section twenty-two (22) U.S.SURVEY 201
Emma Lode Mining Claim, Sections twenty-one and twenty-two (21 and 22) U.S.SURVEY No. 225
Tunnel Lode Mining Claim, Section twenty-two (22) U.S.SURVEY No. 321
Capt. Plummer Lode Mining Claim, Section twenty-one (21) U.S.SURVEY No. 322
All in the Consolidated Montgomery Mining District
Julia Lode Mining Claim, Sections twenty-one and twenty-two (21 and 22) U.S.SURVEY No. 323
in Consolidated, Montgomery and Buckskin Mining District
Addie, Mary and Dora Lodes Mining Claims, Sections twenty-one and twenty-two (21 and 22), less 2.1 acres, Book 67, P. 190 U.S.SURVEY No.4607,

in Consolidated Montgomery and Buckskin Mining Districts, all in Township eight (8), South of Range seventy-eight (78) West of the Sixth Principal Meridian.

East half of the East half ($E\frac{1}{2}$ $E\frac{1}{2}$) Section 2, West half of the West half ($W\frac{1}{2}$ $W\frac{1}{2}$) Section (1) all in Consolidated Montgomery Mining District, Township nine (9) South of Range seventy-eight (78) West of the 6th Principal Meridian, containing 320 acres."

(b) The exploration proposed at the present time will be confined to the dumps existing outside the actual mine workings in the 19 lode mining claims. The 320 acres mentioned in the last part of the legal description is placer property in the valley below and will not be explored under the project herein contemplated.

11. The present name of the property is the MOOSE MINING PROPERTIES. The former name of the company which owned the above claims and placer property was the MOOSE MINING AND SMELTING COMPANY. However, this company also had under lease some 6,000 acres of mining property in the area. This company operated from 1911 to 1915. Previously, the name Moose had always been associated with the various owners back to 1871, the year of the discovery of the original Moose claim. The Dwight claim had been discovered in 1869 but was purchased in 1871 by Dudley & Co., owner of the Moose. Other claims were subsequently added.

12. A very good description of the country around the area is given in Bulletin 3, (1912) Colorado State Geological Survey, (written by Horace B. Patton, Arthur J. Hoskin and G. Montague Butler, all eminent mining engineers) from which the applicant quotes:

"The town of Alma, from which the name of the district under consideration is taken is located near the source of the South Platte River in Park County, Colorado, at the eastern base of the Mosquito Range, in longitude 106° 4' and latitude 39° 17'. The mining territory tributary to this town embraces the region drained by the South Platte and its tributaries north and west of the town...

"Alma is situated southwest of and about sixty-seven miles from Denver, if measured in a straight line.... It lies a little north of a line running directly east from Leadville and distant from that noted mining camp some twelve and one-half miles in a straight line. Considering the extremely mountainous character of the country, the Alma district is traversed by several unusually good roads that are owned and kept in repair by the county. One road leads northward up the Platte valley and over the comparatively low Hoosier Pass to Breckenridge, distant some fourteen miles in a straight

line, and perhaps two or three miles longer by road. Another road leads up the valley of Mosquito Gulch, follows the north branch of that gulch, and passes over the Mosquito Range at Mosquito Pass at an elevation of nearly 13,200 feet, and down on the west side to Leadville. A third well-kept road follows up Buckskin Gulch some four miles. To the east a good road leads down the Platte valley into South Park, passing the county seat, Fairplay, at about six miles.

"In addition to the county roads, there are numerous secondary roads and trails that lead to the more important mines, and even close to the summits of the highest peaks. These mining roads have in part been long abandoned and are not available for wagons. In other cases they are still kept open and are more or less in constant use. In spite of the great ruggedness of the district as a whole, almost every part is accessible on horseback on account of the numerous trails."

The Moose Mining Properties are $4\frac{1}{4}$ miles due northeast of Alma (10,225 ft.). The road leading up Buckskin Gulch and curving right has recently been oil-topped by the U.S. Government as far as Mineral Park (at an elevation of 11,200 ft.) on Mount Bross. Mineral Park is the site of several small mines in current operation. The Moose Mining Properties are located two miles beyond Mineral Park and can be reached by jeep or a 4-wheel drive truck over a road which is an extension of the above-mentioned oil-top. It is practical to truck ore down this road from the MOOSE MINING PROPERTIES (located at an elevation of 12,500 to 14,000) to Mineral Park from May to October.

It is proposed to truck ore down to a mill being rehabilitated by the London Extension Mining Company operated by Harry C. Bishop and A. E. Moynahan of Denver and Alma. This mill is located a couple of miles from Alma. There the ore will be concentrated and trucked around either end of the Mosquito range to the smelter of the American and Smelting Refining Company located at Leadville. At the present time it is not practical to truck concentrates over Mosquito Pass. The distance around the range is 68 miles by way of Breckenridge and Dillon to the North and about 80 miles by way of Buena Vista to the South. There are rail facilities at Leadville. The South Park Branch of the Colorado and Southern Railway which formerly followed a circuitous 120 mile route from Denver to Alma has been discontinued. However, a good oil-top road from Denver to Fairplay shortens the route to 85 miles, most of which can be traveled at high speeds.

13. Bulletin 3 states that "Water is plentiful throughout the district, as the heavy winter snows lie in drifts during most of the summer." Several creeks run down the side of Mt. Bross

from high elevations. They are Moose Creek, Quartzville Creek, Dolly Varden Creek, Sawmill Creek, Buckskin Creek. There are two lakes called Kite Shaped Lake and Emma Lake located at 12,000 ft. and 12,700 elevation respectively, to the west of Mt. Bross Peak. There is also a small lake on adjacent Mt. Cameron, about a half-mile walk from the Moose Mine; this lake is 13,000 ft. high.

It is not practical to operate the mine during the winter season because of the inclement weather. There used to be a town of 1,000 population called Quartzville located at an elevation of 12,000 ft., in the Mt. Bross and Mt. Lincoln amphitheater. This was directly below the Moose Mining Properties. As Bulletin 3, page 150 states:

"Dudley was built as the headquarters of a single mining company -- the Moose. Quartzville sprang into being chiefly through the activity of this same company, which owned and located the famous Moose mine well up on the top of Mount Bross".

Thus there was ample water very close to the Moose to keep a large town of 1,000 souls alive.

On Page 234 of Bulletin 3, it is stated with reference to the South side of the Mt. Bross: "The water power now going to waste could be utilized, at no great expense, to concentrate and transport ore".

A power line still runs up summit of Mt. Lincoln, and could easily be repaired and extended around the amphitheater Mr. Bross.

14. Existing facilities at the Moose Mining Properties are negligible and can be ignored. Neither are they necessary according to the plan of exploration to be herein outlined.

15. Since the rejeuvenation of the Alma mining district is a monumental task, it is proposed at the present time to concentrate on the definitely possible. A full exploitation of the highly mineralized area comprised by the Moose Mining Properties must be preceded by shipping the dump ore, which in former times could not be profitably handled.

It is our intention to eliminate former excesses in operation and capitalize on this dump ore. There are indications that ore valued at less than $60 per ton was dumped and not shipped, and that there are 200,000 tons of this ore in the dumps of the Moose Mining Properties.

The plan is to send crews up to the Moose daily by truck for the purpose of hand-picking the dump ore. The dump reserves are of such a nature that the ore can easily be separated

from the gangue by hand so that only the more valuable ore will be trucked down Moose road to Mineral Park and then to the mill outside of Alma. Here, the ore will be concentrated and trucked around by Buena Vista to the Leadville Smelter. Zinc ore will have to be shipped to El Paso, Texas.

Since it is feasible to run trucks on Moose road only in the summer, a stock pile of the Moose dump ore will be built up near Mineral Park. From the latter place, it is easy to keep trucking ore to the Alma mill most of the winter as well as in the summer. Thus the stockpile will grow in the summer and diminish in the winter.

There is no problem in trucking ore from Alma to Leadville at any time of year.

HISTORY

16. (a) We will see below that considerable zinc, copper, lead and antimony accompany the silver ore found in the Moose. However, in early days no one paid any attention to the baser metals; in fact, they were a nuisance.

On page 151, Bulletin 3, we read:

"The discovery of silver in this district was in this Moose Mine, which was quickly developed after its discovery in 1871. The Dolly Varden was located very soon after the Moose mine and not far from it. The district seemed immediately to turn its principal attention to silver mining and there was thus inaugurated a third era in the mining history of the district. So remarkable were the finds in these first two silver mines that numerous other good silver discoveries were soon made."

On page 175:

"The point of discovery of ore was immediately covered by a narrow, crooked claim called the Moose. Here the ore outcropped, and excavation proved that it existed as a great, irregular-shaped mass in blue limestone. The regulation form of lode claim could not be fitted to such a formation. The claim was accordingly surveyed to include the outcrop of the particular limestone bed as it swerved about the bleak contours of Mount Bross. This location of the original Moose claim was quickly followed by the location of more claims, comprising a solid group belonging to the one Moose company. From time to time additional ground has been obtained by the location and patenting of later claims, until, at the present time, the area included in the so-called Moose Group amounts to hundreds of acres.

"There was a very notable production by open or surface mining from such of these ore-bodies as outcropped. This ore was very rich as well as abundant. As the superficial bodies were exhausted, work was pushed underground, and numerous adits and shafts were bored in a rather blind search for ore-shoots. Lack of comprehension of the geological conditions and the proper mining methods to be pursued was responsible for a great amount of ineffectual deadwork.... To further aggravate such troubles, it happens that these sedimentary rocks are penetrated with flows of porphyries having fine-grained textures as well as colors that closely resemble the outward properties of the stratified formations. Naturally, such a state of affairs was perplexing to the pioneer prospectors and miners, and we must therefore be lenient in our criticisms about their earnest efforts. The climax of their troubles was presented in the complete termination of the ore-bodies and the ore-bearing horizon by a strong steep fault, beyond whose plane nothing of value has yet been discovered.

"The openings driven in the search for new ore-shoots were often very crooked, and, to the modern engineer, it does not seem that there could have been any system followed in this development..... Sometimes passages were driven close to and upon two or more sides of a splendid mass of ore, but the actual disclosure of this ore-shoot would remain for subsequent operators or lessees. In such a fashion there were excavated miles of underground passages - horizontal, inclined and vertical - exclusive of stopes. All of this work was performed by hand methods, and since the rocks are of exceedingly fine texture and unusual hardness, the cost of such work was unavoidably great.

"It does not appear that there ever was inaugurated a systematic development or blocking-out of ore in advance of actual stoping operations. As a consequence, the production of the mine was always erratic and not conducive to mining economy.

"The true production of this property cannot be ascertained, as records were not seriously considered nor preserved by the early operators. Men who have had intimate knowledge of this mine's operations variously estimate the gross production between $5,000,000 and $15,000,000.

.....

"It is reported that the management by early operators was exceedingly reckless. Excessive 'overhead' charges at the New York offices proved considerably greater than the legitimate payrolls at the mine. Besides, poor judgment was exercised in various directions, as, for example, in the unwarranted installation of inadequate metallurgical apparatus and machinery in the smeltery at Dudley.... The single reverberatory furnace at this "smelter" was run but a short time, as is evidenced by the small size of the slag-dump... Nearly all of

the Moose ore was treated in the custom smelteries at Black Hawk, Omaha and Denver.

"As is true of all mines that have produced more than ordinary grades of ore, so with the Moose --- marvelous tales are told regarding the richness of its product during early days. It is easily believed that all of the ore shipped from this mine must have been reasonably high grade to have stood the heavy costs of mining, hauling, freight and treatment... The testimony of a former superintendent is to the effect that his shipping ore varied in silver content between 100 and 700 ounces per ton. He also tells of a single breat of ore averaging close to 700 ounces per ton in silver, at which fifteen pairs of miner worked 'double-jacks' simultaneously.

"A visitor to this mine is impressed with the almost perfect preservation of the old workings. Great cavities of very irregular shapes, frequently with scarcely a stick of timber in them, may now be found with as sound walls as they had years ago, when first excavated.... Some of these chambers are twenty or more feet high, and spanned by sound roofs of limestone.... The chief use for timbers in this mine was for the support of walls and roof in penetrating the slide-rock when starting adits and shafts. Thereafter wood was useful in constructing tracks, chutes and bins in the mines..... Owing to the very cold weather that prevails here most of the time, much of the screening, sorting and sacking of ore was done underground, some of the bins and screens still remaining where they were last used.

"The mine is a dry one. Although there is a large precipitation of snow and rain on this mountain, the water is disposed of chiefly by surface run-off during the short summer season. Some snow banks are perpetual. The mine does not collect water, for the reason that the continually low temperature at this elevation keeps the moisture already in the ground permanently congealed. The rocks are thus rendered impervious to seepage water. The only collection of water to be found in the mine at the present time is along the inclines, which have allowed water to follow in from their mouths, and this has frozen solid. Even this ice is in limited amounts....

"The mine has splendid natural ventilation by reason of many openings from the surface. Some of these openings proved superfluous and have been shut off. Another interesting natural phenonenom to be observed here is the wonderful preservation of wood. Timbers that were placed in chutes, bins, or as occasional props, years ago, appear now as though but set a day or two ago, the surface presenting a perfectly fresh appearance. Upon inspection, it is found that the timber is absolutely sound all through."

Page 151:

"The miners built their cabins at an altitude 2,000 feet lower, in a pretty gulch where there was plenty of water and firewood. This was Quartzville. It also was the home of miners and prospectors who were working other properties, some of which were right in the camp. We may still find remains of primitive milling and mining plants for handling oxidized ores that were readily obtained and that yielded their gold contents. The miners who worked in the Moose, it is said, were unable to reach the scene of their labors earlier than ten o'clock for the day shift, and, when they did reach the mine, they were so fatigued by their hard climb that they were able to do very little effective manual labor. Despite such adverse natural conditions, the plan was in force for a number of years. However, with the exhaustion of the known, rich bodies of ore, the operation of the mine became intermittent. Its activity fluctuated for years, until the year 1893, when the demonetization of silver effectually closed the productiveness of the property."

Page 181:

"The Moose property has lain inactive for years, practically the only dead work that has been done recently being limited amounts of deadwork during the summer and fall of 1911. Careful geological investigation and the exploratory work done recently, as mentioned above, have located the ore-bearing blue limestone horizon beyond the fault that has always formed a natural obstruction to mining. The ownership is now vested in the Moose Smelting and Refining Company, whose principal office is in New York."

Since 1911, additional exploratory work has been done as is shown by the mining records but insufficient capital and inaccessibility have proved stumbling blocks to the exploitation of the geological discovery mentioned above.

(b) The first gold mining in the Alma district dates from 1861. According to Bulletin 3, page 149:

"While "gulch mining" was carried on in all of the stream-beds of this region, the operations in Buckskin Gulch are significant in the fact that they were responsible for the first lode mining in this part of Colorado. At the point of the best finds of gold in this gulch by Buckskin Joe, it happened that the bed-rock itself was found to be unusually rich in gold, and was presumably responsible for much of the enrichment of the stream-bed below that point. Investigation proved the existence of large masses of ore within this rock, and lode-mining claims were immediately laid off and "quartz mining" was instituted. A rush followed these discoveries, and in 1861 the townsite of Buckskin Joe was laid out. A post-office

was established here, under the name of Laurette, to receive the occasional, belated lots of missives from the outside world."

Buckskin Gulch is on the south slope of Mt. Bross and the same formations go through to the northern slope on which the Moose is located, as gold -- among other minerals - has also been discovered in the Moose. The difficulty is that the geological horizon slopes upwards, making exploitation much more difficult because of the altitude and the bleak exposure of Bross' northern face.

Bulletin 3 continues:

"The first lode claim -- that covering the ore-body mentioned above -- was named the Phillips. The rapid success of this mine was such, it has been reliably reported, that about $300,000 was recovered from it within the first two years of its discovery. The excelsior and Orphan Boy mines were discovered soon after the Phillips. Arastras were the first devices used in the treatment of the ores, which were thoroughly oxidized and carried the gold in a free or easily recoverable state. Some primitive stamp mills were next introduced, but their use was of short duration, for the bodies or shoots of ore, although very rich and of easy treatment in the oxidized portions, proved to be of limited extent, and materials that could be handled profitably with the crude facilities at hand were soon exhausted. The town of Buckskin Joe had grown to something over a thousand inhabitants within a year, and had been made the county seat of this one of the original nine counties of the Territory of Colorado, which was created in 1861. But it is said that the exodus was much quicker than the settlement; for, within the year 1863, the town became quite deserted, and the county seat was transferred to Fairplay, where it still remains."

During the five or six years following 1873, Bulletin 3 says (page 151) that "the Dolly Varden mine (on Mt. Bross) produced approximately $300,000 in silver. The Russia mine, on Mount Lincoln, was producing ore that was reported as averaging $500 per ton.."

On page 152:

"...Many fissures in the schist of Mount Lincoln and North Star Mountain were developed, and several very pretentious mills were erected along the river, where there is always an abundance of good water for milling purposes. Among the mines that formerly contributed to the business and population of Montgomery were the Present Help, Occidental, Orion, D. H. Hill, Wilson, Taylor, Nova Zembia, Kansas and Tippecanoe. Some of these were silver mines in the sedimentaries of upper Mount Lincoln, but others were of the gold-bearing, fissures type in

the schists on both sides of the Platte River above Montgomery. While it does not appear that any of these gold mines in the schist proved of much permanence, it is a fact that most of them did produce very rich ores close to the surface. One such mine, the Sovereign, is credited with having made a profit of $7,000 in thirty days, treating its output in a little, inefficient, primitive mill at Montgomery."

On page 234:

"An enormous quantity of low-grade pyrite is exposed in the old Phillips workings, which would furnish a decided asset to a properly constructed pyritic smelter. Large quantities of the low-grade quartz-pyrite Archean vein material could also be used as flux at such figures as would greatly aid the miner in his search for shoots of higher-grade ore."

(c) The above comments were written by Arthur J. Hoskin, of the Colorado School of Mines. A private more detailed report was written by him for the Moose Smelting and Refining Company in 1912, but it has been lost. There is an enthusiastic (1917) report by a William J.H. Miller on the Moose Mining Estate, on file at the Public Library in Denver, and it confirms the opinion of Hoskin. This Miller report also confirms the opinion of A. E. Moynahan that dump ore in the Moose averages $15.00 per ton, and gives an estimate of 200,000 tons of ore. This report also states that the Dudley placer (320 acres) owned by the Moose Mining Properties should yield 30 cents a yard and that from 4% to 20% of the yield is copper. It further states that in the breast of the lower tunnel there is ore (not blocked out) containing 30% zinc and 25 to 40 oz. of silver to the ton and that this ore was abandoned because of the high penalty at the smelter on zinc. This also confirms the recent statement of A. E. Moynahan and assays made by the U.S. Bureau of Mines, Denver. On page 234 of Bulletin 3, Hoskin continues:

"In the opinion of the writer, the Alma district is sleeping; it is not dead. First-class ore in large quantities has been found there, and there is no reason to believe that all such deposits have been discovered and exhausted. The area is not far from Leadville, and the geological conditions in the two districts are very similar -- in many respects identical. Evidences of mineralization in the form of veins in the Archean rocks are much more numerous near Alma than near Leadville; why, then should replacement deposits be so much rarer and less important in the former area than in the latter?

"The surface of the ground is often free from soil and vegetation as to make prospecting a comparatively easy matter. Good roads exist. A base of supplies and the railroad are close at hand. Although altitudes run above 14,000 feet, this

need entail no discomfort in the summer. Why, if this be true, should prospectors and mining men rush to desert regions and new camps of unknown possibilities? What Colorado needs is not so much a great, new camp as it is a great renewal of interest and activity in her old camps of proven promise, of which the Alma district is one."

On page 157, he wrote:

"If the reader gains the impression from the preceding narration that this region is worked out and is not worthy of further mining investigations, the writer desires to reassure him by stating some arguments for just the reverse opinion:

"First - It must be remembered that the most easily mined ore-bodies only have been extracted. The ores undoubtedly continue to depth and can still be mined.

"Second - The country, though fairly well taken up by locations, yet offers much vacant area to prospectors. Further, most of this available ground is quite virgin.

"Third - The natural geological and mineralogical conditions are favorable to profuse creation of ores. The conditions have been propitious for the deposition of a wide range of ores and minerals.

"Fourth - The present-day prospector may be guided by the science that has been deduced from past experiences of prospectors everywhere, instead of by the haphazard practices and notions that prevailed formerly.

"Fifth - There have been important changes and improvements in metallurgy since the last noteworthy operations in this district, and these have been along lines that will directly benefit the miner of these ores.

"Sixth - The district has made a splendid production, and this goes far toward the assurance that the ground can yield more of its hidden wealth."

17. The mine is not operating at the present time.

18. (a) and (b) The classic book entitled, "MINING IN COLORADO" by Charles W. Henderson gives a description of the kind of ore and mineral deposits in the Moose claims. On page 190, he quotes from the Raymond report of 1874 as follows:

"The ores furnished by Lincoln and Mount Bross mines are generally sulphides. Copper, lead, iron and antimony in a sulphureted or oxidized condition, form the mass of the material, and in these the silver is distributed as glance, native

metal, and perhaps a little chloride, though the occurrence of the latter is very doubtful. Galena exists in very small quantities, copper to a higher percentage, while probably the largest proportion of base metals is in the various minerals of iron. All these deposits are accompanied with the gangue of heavy spar (barite), which often furnishes a clue by which to trace out hidden bodies of mineral."

On page 186, Henderson also quotes the Raymond report on the Moose:

"The principal silver bearing minerals are galena and various decompositions of copper pyrites; much carbonate of lead is also found. The ore requires no sorting and is easily smelted."

Again on page 188, Henderson further quotes Raymond:

"As the rich silver ores from Lincoln and Bross contain a great deal of lime, heavy spar, and also considerable galena, Mr. Peters thought that, taking all the circumstances together, it would be best to erect a blast furnace, as ores of the above description, together with ores rich in lead, can be most advantageously treated in such works....

"Three distinct varieties of ores were at Mr. Peters' disposal at the time: (1) The largest quantity came from the limestone formation of Lincoln and Bross Mountains, containing the following elements in about the following proportions: Sulphate of baryta, 55 per cent; carbonate of lime, 20 per cent; silica, 20 percent; sulphide of lead, 5 percent, and assaying about 140 ounces per ton in silver. (2) Copper ores from the porphyrite belt in Mosquito district, containing, approximately sulphuret of iron, 20 per cent; copper pyrites, 20 per cent; zinc blende, 25 per cent, silica, 20 per cent; and sulphate of baryta, 15 per cent, and assaying 30 ounces in silver and 2 ounces in gold per ton. (3) Ores from the quartzite formation underlying the limestone of Buckskin district, containing silica, 70 per cent; sulphide of lead, 10 per cent; sulphide of antimony, 10 per cent; zinc blende, 10 per cent, and assaying 18 ounces in silver per ton."

On page 192, Henderson quotes the Burchard report of 1882:

"...BUCKSKIN DISTRICT ...<u>THE Moose mine</u> .....The ore in the Moose has run from the first to last between 60 and 900 ounces silver per ton, the average for the past two years being about 200..."

According to Mr. East, of the Bureau of Mines, in Denver, recent assays on the Moose Mining Properties (1942) revealed a <u>fairly high percentage of zinc -- up to 27.5 per cent</u>. This is in line with the information from Henderson. The amount of

lead in these same assays referred to by Mr. East was, however, lower than the quantity mentioned by Henderson.

It should also be observed that ore containing less than 60 ounces of silver showed no record of being shipped. Thus, it is reasonable to suppose that all ore containing less than the 60 ounces of silver was dumped outside the mine adits, a deduction which agrees with a statement by A. E. Moynahan, of Denver, graduate engineer of the Colorado School of Mines who worked in the Moose mine off and on all his life. Moreover his father before him worked in the Moose as superintendent. A. E. Moynahan says that the dump ore outside the Moose should average at least $15 per ton in value. Moreover, since there was a penalty for zinc at the smelter, all ore high in zinc was either dumped or left unmined even though it had been blocked out. There also appears to be some zinc ore in the dumps.

(c) The only ore reserves in sight are those abandoned in the lower tunnel, which have been assayed to run 7 to 30 percent in zinc and around 20 ounces of silver to the ton. As this ore has not been blocked out, it is impossible at the present time to estimate the tonnage. The tonnage of ore in the dumps has been estimated at 200,000, but in this case the relative proportion of each metal - copper, zinc, lead, silver and gold - can only be guessed at from information such as that provided by Henderson. We should also remember the vast reserves of minerals in the 320 acres of the Dudley Placer, which straddle the Platte River.

19. - - - THE EXPLORATION

20. The exploration will be made primarily for minerals occuring in the vast Moose dumps. These are copper, lead, zinc, iron, antimony, silver and gold. Quartz exists in wide areas of Mt. Bross and would be an additional mineral to search for. Moreover, as uranium, chromium and manganese have been found in the district, these metals will also be objectives of the exploration. From information secured by observing the percentage of each mineral in the ore at the various dumps, it should be possible to determine which tunnels have yielded the highest percentage of critical metals.

21. The proposed work will consist of daily trips by truck to the dumps for the purpose of sorting and hauling down ore to Mineral Park. One or more 4-wheel drive trucks will be rented for the purpose until the success of the operation is established. After that the purchase of a vehicle could be amortized on the basis of profitable use.

The selected dump ore will be bagged and loaded on the truck by means of a winch and simple crane run by the truck motor. As Moose road runs right up to the various dumps, there

is no great problem in loading the trucks. The ore can then be emptied in a crib near Mineral Park or transported directly to the Alma mill.

By a careful plan of loading from the various dumps, it should be possible during the 1952 summer months (May to October) to establish an average tonnage value of the ore in each dump, in addition to the relative quantity of each of the minerals present. Thus it is fully expected that the exploration work will more than pay for itself and in addition yield valuable clues regarding the location of unmined critical metals. In fact, the salvaging of 200,000 tons of low-grade ore is no small enterprise in itself, and should be readily accomplished at a profit.

GEOLOGICAL BASIS

Frank E. Burgess, who has accepted the position as manager of the Moose, is a pioneer in the use of motorized equipment in the Alma district. He has demonstrated that a 4-wheel drive truck is the weapon that can awaken the district from its slumber and that it is as nimble at climbing to all mines in the area as a mountain goat.

22. Bulletin 3 likewise gives an admirable description of the geology of Mounts Lincoln, Cameron and Bross. On page 133:

"The highest part of the territory embraced in this survey is that covered by these three summits. They really form one massif that stand out separated from the main range by the deeply eroded valleys of the Platte River and Buckskin Gulch, and is partially connected by the saddle between Mounts Lincoln and Democrat. The three peaks that form the highest part of this high mountain massive lie close together, the most distant, Lincoln and Bross, being not over a mile and a half apart; Cameron forming virtually a second summit on Mount Lincoln. Lincoln and Cameron are over 14,200 feet and Bross only a hundred feet lower. A great, deeply cut valley, with steep, mountainous sides, called Cameron Amphitheater, deeply dissects this massive on the east side and nearly cuts it in two. This valley lies between Bross and Lincoln, and has cut back so far that only a very narrow ridge is left connecting Bross with the two other summits. Nearly the whole of this mountain mass - except the eastern foothills, covered mostly with glacial drift - lie above timber line.....

"The Archean formation everywhere encircles this mountain massif on the west and north, and is to be seen forming the bottoms and sides of several amphitheaters or valleys that cut into the massif on the east side. The principal indentation by the Archean on the east side is found in the deep-cut Cameron Amphitheater. The Archean occupying the floor of this

valley is over a mile and a half long, and about half a mile wide. Around the sides of the valley the Paleozoic sedimentaries form a cap...

"The Cambrian quartzites almost completely encircle in an irregular, indented line the entire mountain massif.... The ring of Cambrian beds on the east side of the mountain is seen to be at a much lower level than it is on the west side, thus indicating an easterly dip. This dip, however, fluctuates considerably. On the highest parts of the mountain massif the dip is nearly horizontal, as is the case with the overlying sedimentary beds. Toward the east the dip becomes steeper, until it reaches 15° to 20 ...

"The white limestone of the Ordovician encircles the mountain massif somewhat similarly to the Cambrian. It is, however, somewhat more inclined to spread out and form wider areas on the flatter parts of the mountain. For instance, below Cameron Amphitheater, to the east of the Cambrian strip, is a wide exposure of this rock. The 'parting quartzite' that forms the top of the Ordovician fluctuates considerably over the area covered by this mountain massif... It is entirely missing along the cliff section below the summit of Mount Lincoln. Also, it is missing on the cliff on the south side of the Archean area in the small amphitheater east of the summit of Mount Bross...

"The blue or Leadville limestone of the Carboniferous covers considerably more area than does any other formation. It appears on the surface over large parts of the higher as well as lower parts of Lincoln and Bross. It appears to be more closely associated with the large intrusive massess and sheets of igneous rocks than is the case with the other sedimentary formations. This limestone is very difficult to distinguish from the white limestone beneath it... It becomes very coarse-grained and changes to a white color in many places, especially in the vicinity of mineral veins, and probably in the vicinity of large porphyry intrusions. These peculiarities are very pronounced in many places of the Alma district. It seems peculiarly liable to brecciation. This is well seen on the ridge between Cameron and Lincoln. Not infrequently dike-like or vein-like masses of quartz are to be seen in this limestone, and serve to distinguish it from the white limestone. One particularly pronounced case is to be found in Dolly Varden Gulch, at about 11,600 feet elevation. In the southern and southeastern parts of Mount Bross appears the largest continuous area of the blue limestone. Over the greater portion of this area, however, the limestone formation could not be detected without the assistance of prospect shafts..

"The Weber grits are extensively developed along the lower parts of this mountain mass, but here they are mostly buried

in glacial drift and appear only in small, isolated spots. On the lower southeastern slopes of Mount Bross, however, this formation sends two spurs some distance up over the blue limestone. These grits also form, in connection with intruded masses of Lincoln porphyries, the highest parts of Lincoln and Bross. As already stated, the dip of the sedimentaries on the summit of these two mountains is nearly horizontal; consequently these grits appear both on the east and on the west sides of Lincoln and Bross. Ordinarily the Weber grits appear to lie conformably on the underlying blue limestone. One exception to this appears in the gulch that slopes east from the summit of Mount Bross. Here... the Weber grits lie directly on the Archean... The relationships of the sedimentary formations at this point are somewhat uncertain....

"...The Lincoln porphyry plays a very large role in the geological structure of Mount Bross. Although the name was given because of its occurrence on the summit of Mount Lincoln, the area of this rock on that mountain is very small. On the other hand, it covers a large extent of territory on the summit and along the south ridge of Mount Bross, and on the lower southeast flank of that mountain. In Dolly Varden Gulch it is seen cutting through the Cambrian and Ordovician as a dike. It appears to occur as irregular laccolithic sheets that do not keep to any one horizon, but are found most commonly at the contact between the blue limestone and the Weber grits. The large, isolated massess seen on the lower slopes of Mount Bross, and continuing down to the Platte River valley, are very likely more or less directly connected, and may be parts of one, or perhaps two, intrusions. On the west slope of Mount Bross, to the west of the tongue of Lincoln porphyry that extends along the ridge to the south of the summit, there are several sheets of porphyry, much finer-grained than the Lincoln porphyry,.... These are confined largely or entirely to the Weber grits.

"Porphyries of different type from the Lincoln porphyry are not abundant on Mount Bross. On the other hand, Mount Lincoln, and especially the eastern ridge of that mountain, is cut with numerous porphyries of greatly varying type, including quartz monzonite porphyry, white porphyry and porphyrite. Of these, the white porphyry seems to be the youngest, as two dikes are seen cutting the quartz monzonite porphyry.

"Glacial Drift. -- The great mountain massif of these mountain summits was one of the greatest centers of glacial activity in the Alma district. The Platte glacier was partly fed by ice from the northern and western slope of Mount Lincoln. A large stream of ice occupied the whole of the Cameron Amphitheater, but it apparently did not join the main stream of ice coming down the Platte valley... A small glacier seems to have formed in the gulch to the east of Mount Bross and to have joined the Platte valley stream. There was

no glacier, however, in Dolly Varden Gulch.... Where the glacier passed the mouth of Dolly Varden Gulch, it blocked up the gulch and left a very sharply developed lateral moraine athwart the course of the stream. This damming up of the valley by a lateral moraine later caused the partial silting up of the valley immediately behind the dam, and the formation of a roundish mountain meadow that goes under the name of Mineral Park. Later the stream of Dolly Varden Gulch succeeded in cutting its way through the morainal dam.

"Landslides and Rock Streams. -- There are no landslides of consequence on the east or north sides of these mountains. On the west side, well down toward the Buckskin valley floor, three such slides have been mapped. In Lincoln Amphitheater there is a very interesting example of a rock stream... The glaciated valley doubtless had a marked U-shape before the floor was covered by the rock stream..."

The above geologic description of the Lincoln-Cameron-Bross area was written by Horace B. Patton, of the Colorado School of Mines.

Page 225:

"Any visitor to the district must be impressed with the wide variety of minerals found therein. Almost every mass of ore differs somewhat, mineralogically, from every other one, yet it is possible to make some statements that are generally applicable...

"In the Archean Rocks, pyrite - or its alteration product, limonite - is often the only visible mineral of possible value. Not infrequently, chalcopyrite is also present, while sphalerite is comparatively rare, but is probably more plentiful here than in other horizons... Veins in Upper Buckskin Gulch are seeming violations of the rule just laid down. They contain argentiferous galena, rhodochrosite, and often, sphalerite. One or more of the following minerals may also be present: cuprite, energite, bornite, azurite, malachite, fluorite. Quartz is a common gangue. Most of these veins are small, but some of them carry gold.

"In the lower quartzite, pyrite and chalcopyrite are still prominent and are apt to carry considerable gold. In fact, this is the principal gold horizon. Occasionally a little argentiferous galena or sphalerite is found, especially near the upper part. The gangue may consist of barite or calcite as well as quartz, although none of the replacement deposits in any horizon contain much gangue when they are of high grade. When oxidized, the deposits carry limonite, malchite, and azurite, and, rarely, lead carbonate or other lead minerals.

"In the white lime, argentiferous galena and its alteration products - cerussite, anglesite, halogen salts of silver, etc. - predominate, but pyrite and chalcopyrite (especially the latter), or their oxidation products, are still plentiful. Sphalerite is scarce. The ore sometimes carries gold, which may be in the freed condition. Free silver is not uncommon. Barite, calcite, and quartz are the usual gangue minerals.

"The Parting quartzite is very rarely mineralized. The Star mine, on the northeastern slope of Mount Bross, is in this horizon, however, and there the ore is mostly quartzite, carrying gold in the free condition. A little galena, chalcopyrite, pyrite, malachite, and azurite are also found, and limonite stains the quartz yellow or brown near the surface.

"The blue lime is the great silver-lead horizon, and all the minerals of these elements named in the accompanying list are found therein.

"Argentiferous galena is the principal mineral mined where the ore is unoxidized, and chalcopyrite is present in subordinate amounts. Sphalerite and pyrite are relatively uncommon. Barite, quartz, and calcite are the gangue minerals most frequently encountered, while a little gypsum or pyrolusite is occasionally found.

"From the above brief statements it will be evident that siliceous formations are gold-bearing, while limestone is apt to carry lead and silver.

"The following ore and gangue minerals are known to occur in the Alma district: alabandite, anglesite, anhydrite, argentite, azurite, barite, bornite, calcite, dolomite, cerargyrite and other halogen salts of silver, cerussite, chalcanthite, chalcopyrite, chromite, copper, cuprite, enargite, fluorite, gadolinite, galenite, gold, gypsum, hematite, jamesonite, kaolin, limonite, magnetite, malachite, melanterite, mimetite, orthoclase, proustite, psilomelane, pyrargyrite, pyrite, pyrilusite, pyromorphite, quartz, rhodochrosite, serpentine, siderite, silver, stephanite, stibnite, tennantite, Tetrhedrite, Zinkenite."

Page 230:

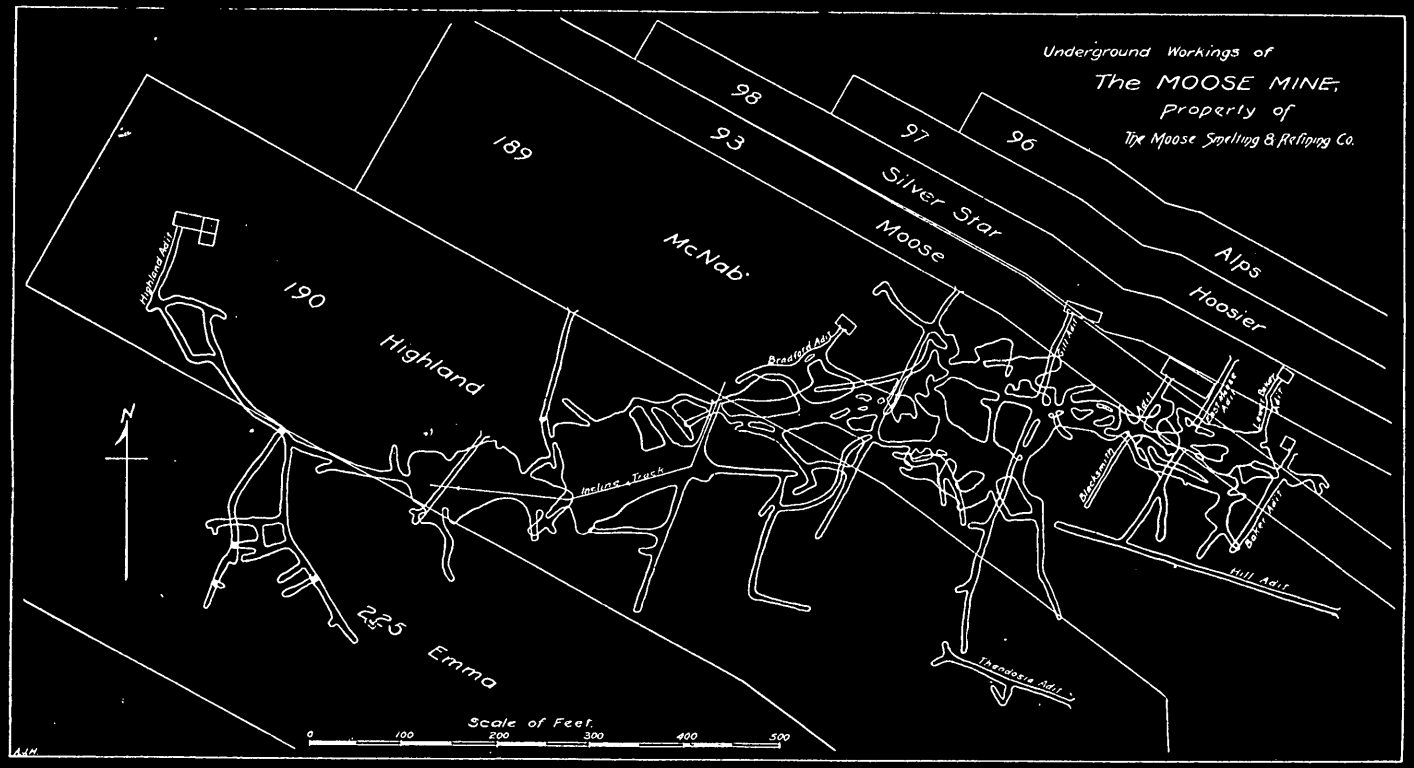
"Although there appears to be no direct genetic relationship between intrusions and ore-bodies in the sense that the latter were derived from the former, it is, however, a fact that the sills have often been the main factor in determining the position of the replacement deposits. Thus, in the Moose mine on Mount Bross, the principal ore-body is a limestone replacement directly below a sill of porphyry... It has not been determined however, whether the fault (through part of

the Moose mine) is of normal or reverse type. (The dip of the strata here is abnormal, being to the west instead of to the east.) Similar conditions exist in a number of other mines. In each case the location of the ore is doubtless due to the fact that contacts of igneous rocks and other earth materials are natural lines of weakness. Ore-bearing solutions working up from below through fissures tend, then, to follow the lower contacts of intrusions, and, if conditions are favorable, considerable replacement of the underlying rocks may occur. This is particularly apt to be the case if the intrusions occur after the formation of the fissures, thus forcing any solutions rising subsequently through the fissures to spread along the lower surfaces of the sills."

Although the Moose Mining Properties have been primarily silver producers, quantities of copper, and lead have been consistently present in the ore, and zinc-bearing lodes have been left unmined. The U.S. Bureau of Mines, Denver, reports one 50 ton shipment of Moose ore containing 167 ounces of gold and 524 ounces of silver, made by James Moynahan, father of A.E. Moynahan. Thus the Moose appears to be mineralized in the underlying quartzite as well as in the limestone formations. However, to date, only the ore in the limestone has been exploited and the latter only up to the natural dike. Thus more precise information that will be available through exploitation of the comparatively low-grade dump ore together with what is already known should make possible the location of new rich ore bodies that give evidence of existing.

Due to pending wage negotiations in the mining industry, the information on questions 23 and 24 will be submitted later.

Colorado State Geological Survey—Bulletin No. 3, Plate XXI



Form 6-953
(May 1943)

U. S. GOVERNMENT PRINTING OFFICE 16—25903-2

Gross metal production of
Moose mines, Consolidated
Montgomery district, Park County, Colorado 1901-47, incl.

Name of Mine and Name and Address of Shipper	Date	Kind of Material	Ore produced Weight	Gold	Silver	Copper (Wet Assay)	Lead (Wet Assay)	Zinc
			Dry tons	Ounces	Ounces	Pounds	Pounds	Pounds
1901-03 No production reported.								
James Moynahan, Alma	1904		50	167	524	-	-	-
do.	1905		20	-	2,000	-	-	-
	1906	Idle						
do.	1907		26	-	1,212	-	-	-
1908-11 No production reported.								
Moose S. & R. Co.	1912		24	-	318	21	346	-
1913-1917 No production reported.								
F. Philip Hoffner	1918		75	-	520	-	-	-
Orange, N. J.								
1919-47 No production reported								
Total			195	167	4,574	21	346	-

FAIRPLAY, COLO.
SEPT. 29, 1951

Mr. Wilson L. Scott
Washington, D. C.

Dear Mr. Scott;

It was with great pleasure that I recieved your letter of Sept. 22, 1951. Your news of accomplishments since returning to Washington was most suprising.

In regard to the progress you have made with the Moose Mining Properties, I shall be very pleased to accept the position as Manager of the properties for you.

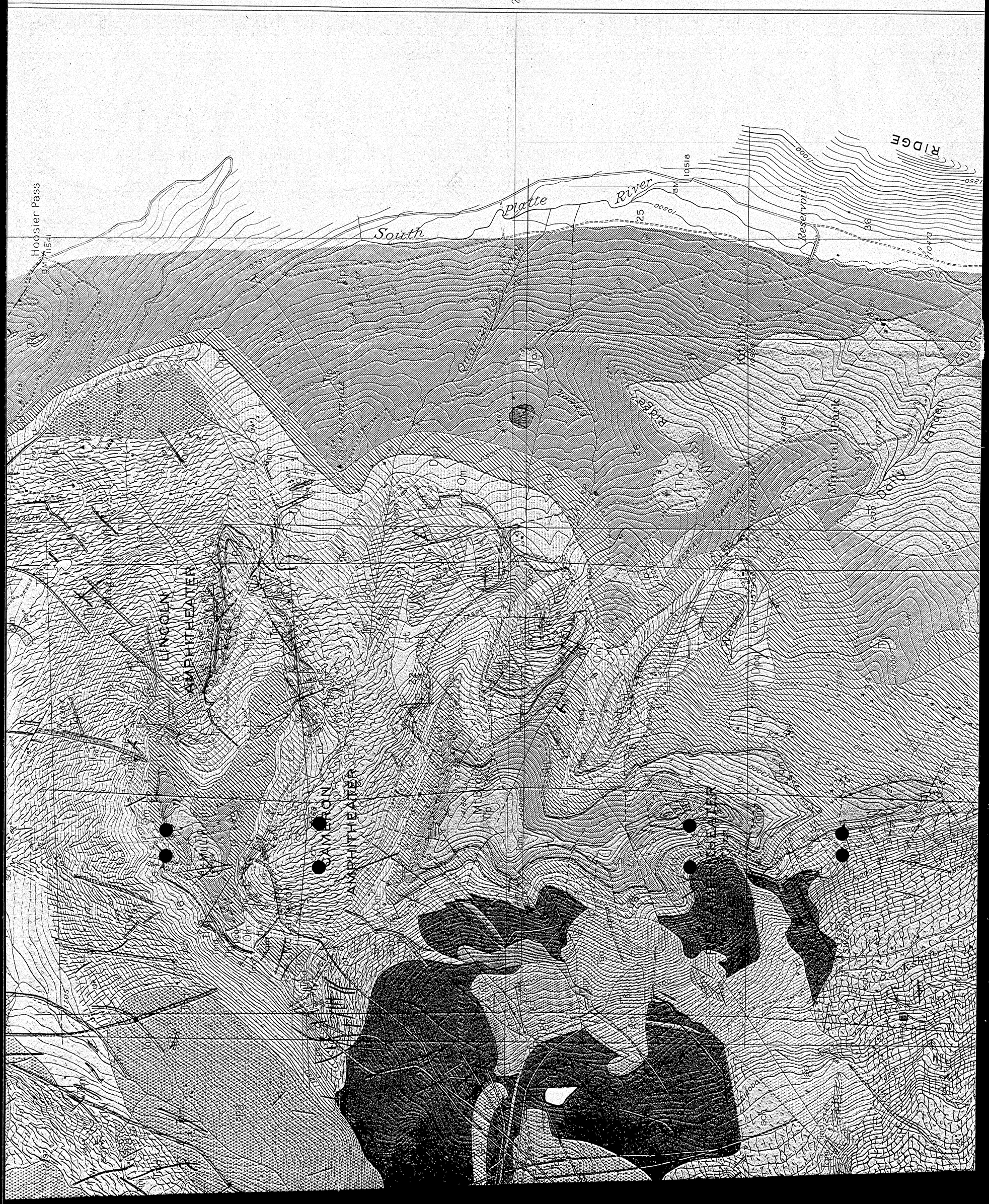
I will await word of your progress with the Moose Mining Properties.

Yours very truly,

Frank E. Burgess

Frank E. Burgess

FEBc


T. 8 S.
20
Hoosier Pass
BM 11541
South
Platte
River
BM 10518
Reservoir
RIDGE
Quartzville
Creek
Ridge
Kittimanitou
Mineral Park
Dolly
Varden
Gulch
LINCOLN
AMPHITHEATER
CAMERON
AMPHITHEATER
McBRIDE
AMPHITHEATER
Buckhorn
Gulch