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Huntington

ESMERALDA CO.

ITEM 30

REPORT ON THE MOLY GROUP OF MOLYBDENUM CLAIMS ESMERALDA COUNTY, NEVADA

By George Roper

PROPERTY

The property consists of five lode mining claims of highly mineralized ground with ample timber for mining and camp purposes.

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These claims are situated in Esmeralda County, Nevada in Township 7 South, Range 39 East, Mount Diablo Meridian of the United States Public Land Survey, as shown on United States Topographical Map of the Lida Quadrangle which appears on the following page.

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ROUTE TO PROPERTY

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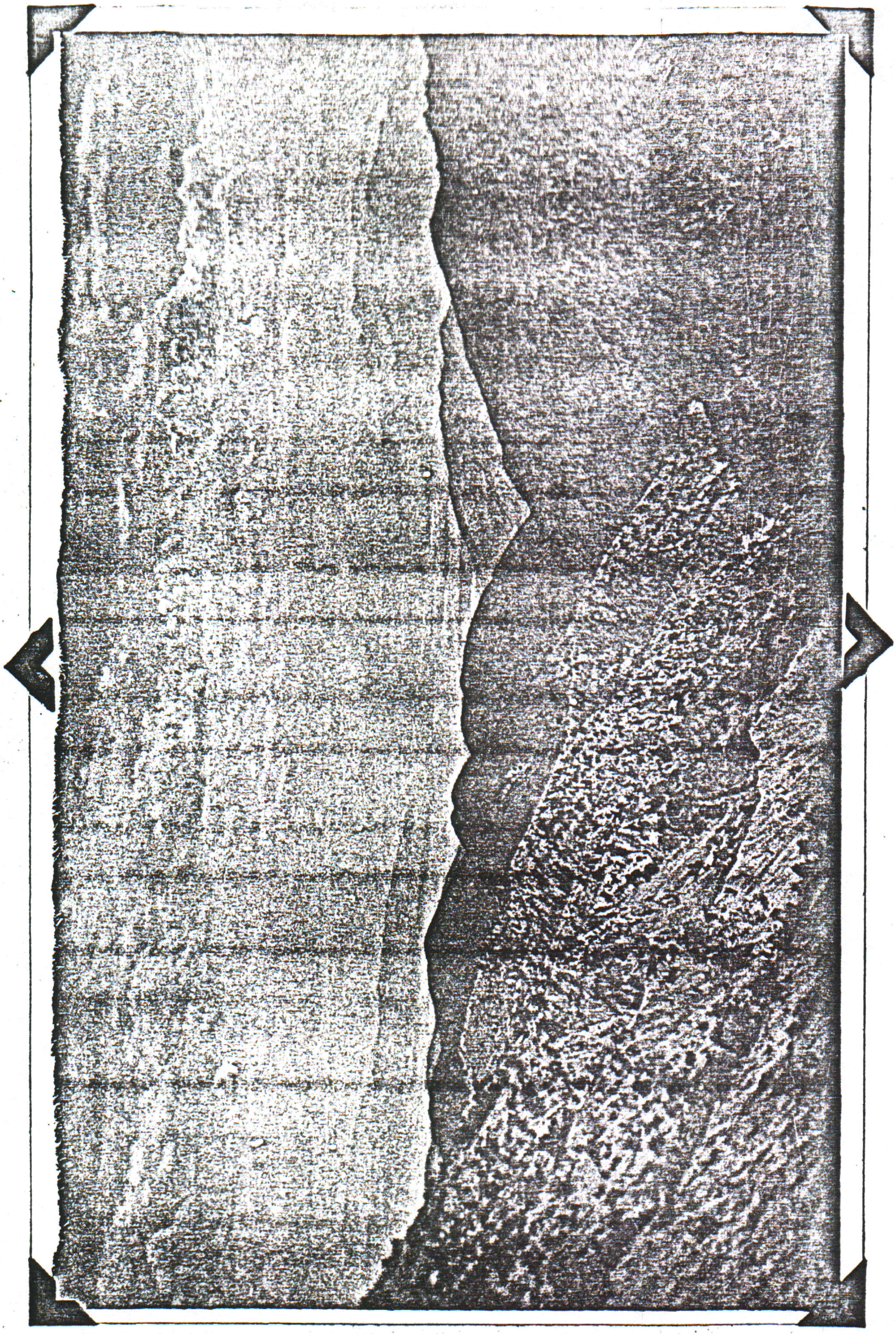

Valley Junction, Beatty, and Gold Point, with the mine about twenty (20 mi.) miles distant in a southwesterly direction.

Near by settlements are Lida, Nevada, sixteen (16 mi.) miles, and the famous camp of Goldfield, forty-five (45 mi.) miles northeasterly.

ELEVATION

The elevation of the property varies from sixty-four hundred (6400 ft.) feet at the floor of the canyon, where the proposed camp site is to be, to seventy-three hundred feet (7300 ft.). From the upper elevation a wonderful view of Death Valley may be seen.

WATER

There is running water on the property and more can be developed from three or four different sources sufficient in quantity to carry on major mining operations.

CLIMATE

Climatic conditions are almost ideal except during the winter months when snow sometimes impedes travel on the upper road. However, this can be overcome by using the lower road through the northern end of Death Valley and up Cottonwood and Alum Canyons.

Summer heat is not excessive and all year operation is both feasible and practical.

BRIEF HISTORY OF MOLYBDENUM

Molybdenite, a mineral consisting of molybdenum disulphide (MoS_2) closely resembles graphite in appearance, but may be readily distinguished from this by its greater density

(H.7), and by its behavior before the blowpipe.

Crystals have the form of six-sided plates or scales, but they are never sharply defined, and their reference to the hexagonal system is doubtful. They have a perfect cleavage parallel to the large surface of the plates, and the flakes are readily bent, but are not elastic.

The mineral is very soft (H-1 to 1.5) and unctuous and makes a bluish-grey mark on paper; it is opaque and has a bright metallic lustre. The color is lead-grey, differing slightly from that of graphite in having a bluish tinge.

The name is from the Greek word which means lead or lead ore, with which graphite (black lead) and molybdenite are confused; the latter was distinguished by P. J. Hjelm, who in 1762 discovered the element molybdenum in this mineral.

Molybdenite occurs as disseminated scales in crystalline rocks such as granite, gneiss, schist, and marble (calcite) and also in quartz veins. It is fairly common in small quantities as one of the first minerals formed in high temperature veins, along with Tinstone, Wolframite, and Bismuth compounds. The commercially workable deposits, however, belong to several different types, as follows:

In pegmatites and quartz-veins associated with granite, e.g. Canada, Saxony, Telemarken, Norway.

In segregations in granite, e.g. Moss Mine, Quyon, Quebec.

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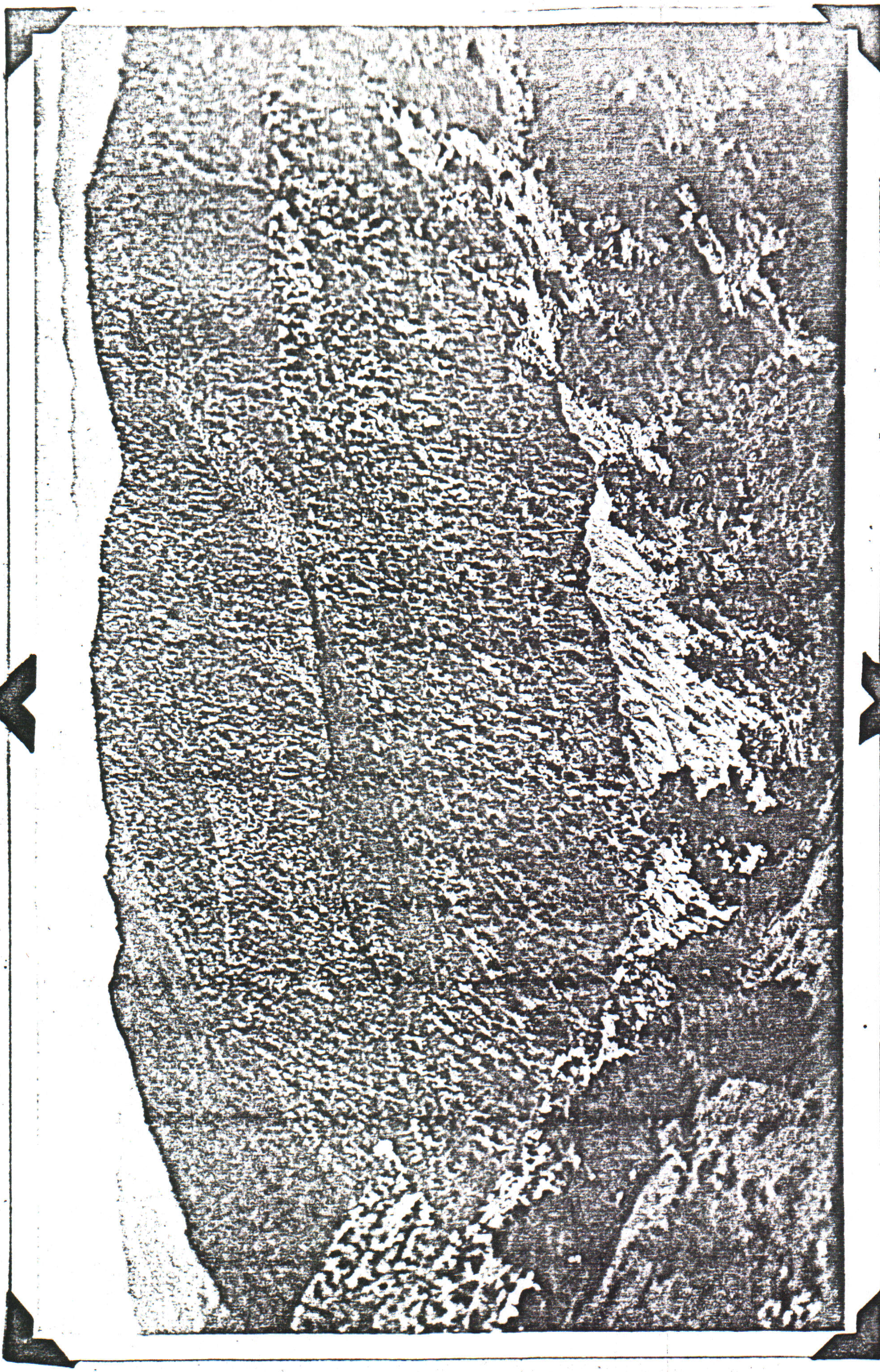

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In pipes of granite, with Wolfram and Bismuth, Queensland and the New England area of New South Wales.

Molybdenite has been used daily for the preparation of molybdates for use as chemical reagents, and also in the manufacture of molybdenum steel (ferro-molybdenum), which by reason of its hardness and toughness is especially suitable for tools.

MOLYBDENUM

Molybdenum (symbol, Mo. atomic number 42, atomic weight 96). is in its pure compact state a silvery white metal, softer than steel and quite malleable. Its melting point is very high, probably 2,500° C., while its tensile strength when drawn into wire is about half that of tungsten and steel wire of the same diameter.

Crude grey molybdenum, an electric furnace product made direct from molybdenite, is impure, owing to absorption of carbon. It is very brittle, with a hardness greater than that of quartz. Varying figures, e.g. 9.01; 8.95 and 10.26 are given for the density of the pure metal. The electrical resistance of ductile molybdenum is 5.6 microhms per c.c. for hard drawn wire and 4.8 for annealed wire.

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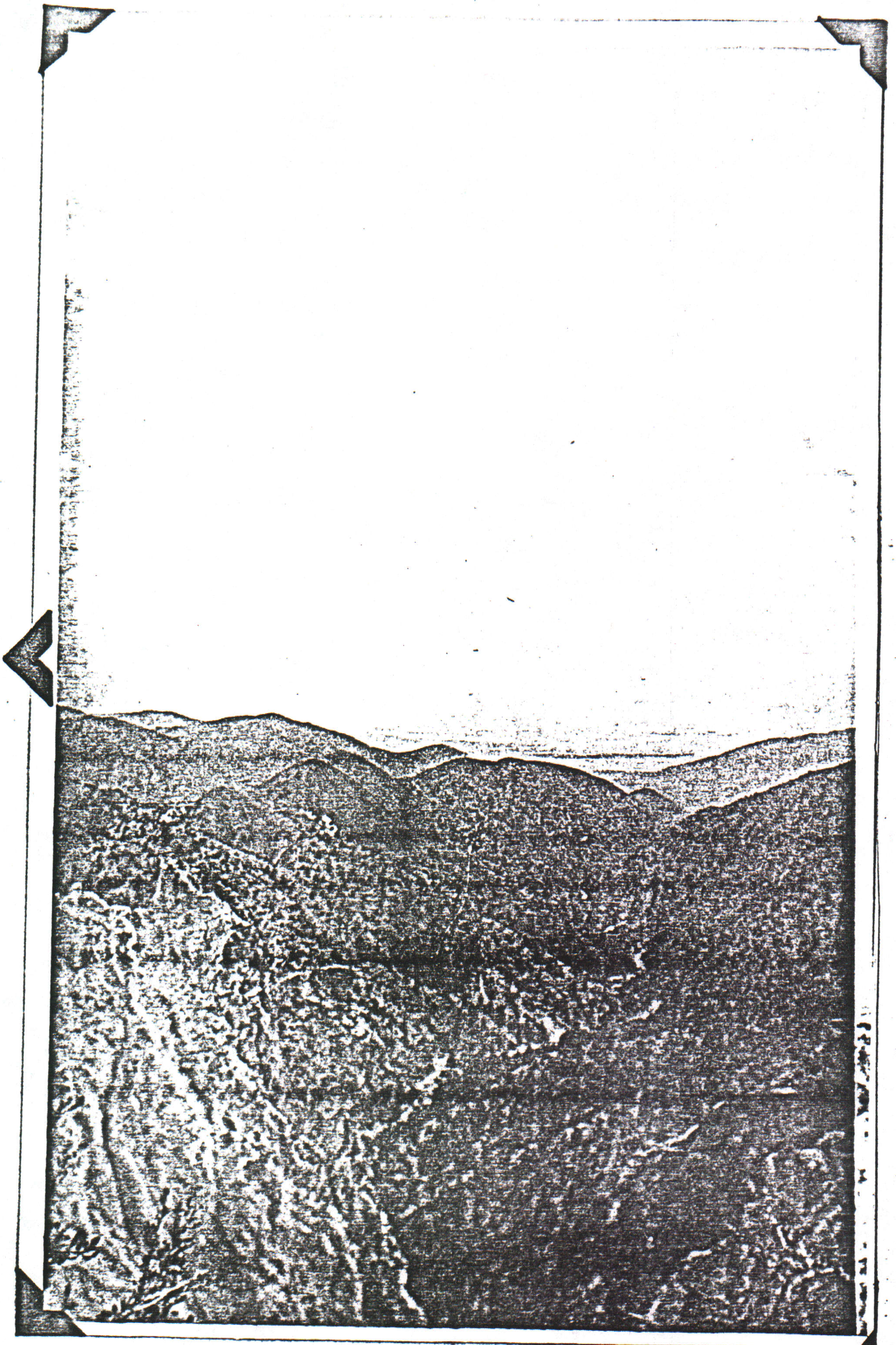
Concentrated nitric acid induces passivity. Molybdenum is attacked by fused but not by acqueous caustic alkalis.

The mostimportant alloy of molybdenum is ferro-molybdenum which is made in the electric furnace by fusing molybdenite concentrates with varying proportions of coke, lime, scrap iron, pyrites, etc. This is the usual form in which molybdenum is added to steels. There are also many types of non-ferrous molybdenum alloys.

The non-ferrous steel alloys, which are silver-white, insoluble in nitric acid, and only slowly attacked by hydrochloric acid, are said to possess exceptional qualities when used for high speed cutting tools.

Other alloys are: Chrome-molybdenum, nickel-molybdenum, ferro-molybdenum-tungsten, copper-nickel-molybdenum. Metallic molybdenum has come into use for a variety of electrical purposes, such as: Support for lamp filaments, windings for electrical resistance furnaces, X-ray apparatus, radios, plates used in wireless telegraphy, etc. High molybdenum steels containing over 1% of the metal are used for permanent magnets, rustless steels, and high speed tools; while low molybdenum steels, containing less than 1% of the metal find use for automobile parts, agricultural implements, railway forgings and trace bolts.

The name "molbdena" occurs in the writings of Pliny and was employed by him to denote various substances containing



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K. W. Scheele first pointed out in his "Treatise on Molybdena" (1778) the essential difference between them. He showed that unlike graphite this other mineral on treatment with nitric acid produced a "peculiar white earth" with acidic properties to which he assigned the name "molybdic acid". Further, since this same mineral on heating gave rise to sulphurous fumes, he concluded correctly that molybdenite was sulphide of molybdenum. Finally, in 1790 appeared an account by P. J. Hjelm of the isolation of the new element molybdenum as a metallic powder, by the heating of the oxide with carbon.

GEOLOGY AND BRIEF DESCRIPTION

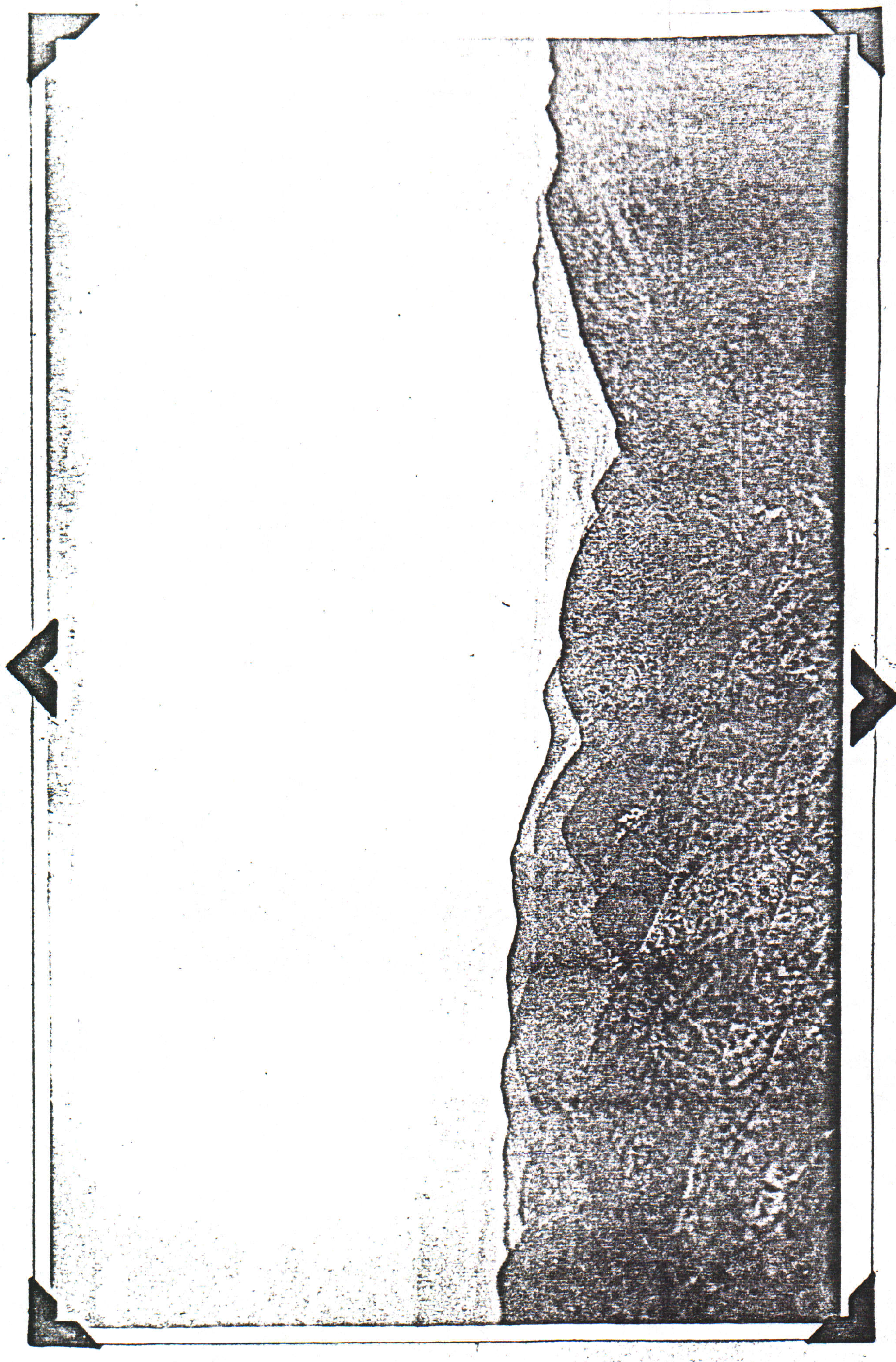
This deposit is a pegmatite dike easily traced without a break for over two miles in length. At one point, where Cottonwood Canyon traverses the vein, it is at least 1800 ft. in width. The exact width of the entire deposit is more or less indefinite as it pitches into the hillside and a great portion of the hanging wall is covered by overburden. However, some idea of its vastness might be understood on examining and carefully checking the exposed portions which show from 700 ft. to over 1000 ft. in width. Cloudbursts and erosion have eaten away the footwall side of the vein, showing approximately 600 ft. in height on the Moly claims. Other points on the dike vary; the extreme elevation being over 850 feet.

The formation on both sides of such a large dike would naturally differ. As near as can be determined the hanging-wall is a mixture of granite, together with several intrusions of tufa and malpais, while the footwall consists of lime, granite, tufa, malpais and porphyritic granite.

The gangue minerals are: Quartz, altered feldspar, muscovite mica, pyrites and small amounts of calcite and other minerals of grano-diorite rock.

It is easily apparent that the whole dike has been subject to prolonged leaching, for the surface is almost completely oxidized, as proved by its yellowish cast. A careful sampling of this outer surface, over 800 ft. in width, gave returns of .18% molybdenum trioxide (MOO3). However, this is characteristic of molybdenite deposits and intensive study and examination, together with development work, have shown that this shell of oxidation is only superficial.

A cross-cut tunnel, several open cuts, and numerous slides in various places along the dike indicate that the molybdenite is disseminated throughout the mass and is intimately associated with quartz and pyrites. Naturally it



is much richer when it occurs in the vugs or crevices and this fact will tend to bring up the entire grade of ore when mined.

SAMPLING

A 15 ft. cross-cut tunnel was driven on the Moly claim and grab samples taken from each barrow fullgave an average value of .74% MoS_2.

Assays from open cuts across 12 ft. and 20 ft. faces at different places on the dike gave returns of 1.54%, .96%, 1.68% and 2.00% molybdenum sulphide.

Other picked samples have gone over 6.00% MoS_2.

METHOD OF MINING

A cross-cut tunnel driven about 300 ft. lower than the 15 ft. cross-cut on the Moly claim would give from 500 to 600 ft. of backs and will undoubtedly open up a tremendous tonnage of commercially profitable ore. This would provide an ideal setup for a mill, with running water only a few feet away. After a careful checkup, and basing facts of present development work, with a study of the assays, it is my opinion that this lower tunnel will produce ore in excess of 1% MoS_2 without selective mining methods. Ore of far richer grade is highly probable, although a very substantial profit can be made on ore averaging 1%.

The ore breaks easily, requiring a minimum of powder and stands well with little or no timbering necessary, especially in drifting. Numerous mill tests prove that the ore is readily crushed and treated. Flotation is the proper method of separating the concentrates and any standard flotation unit will suffice. I recommend the Kraut or Groch flotation machines.

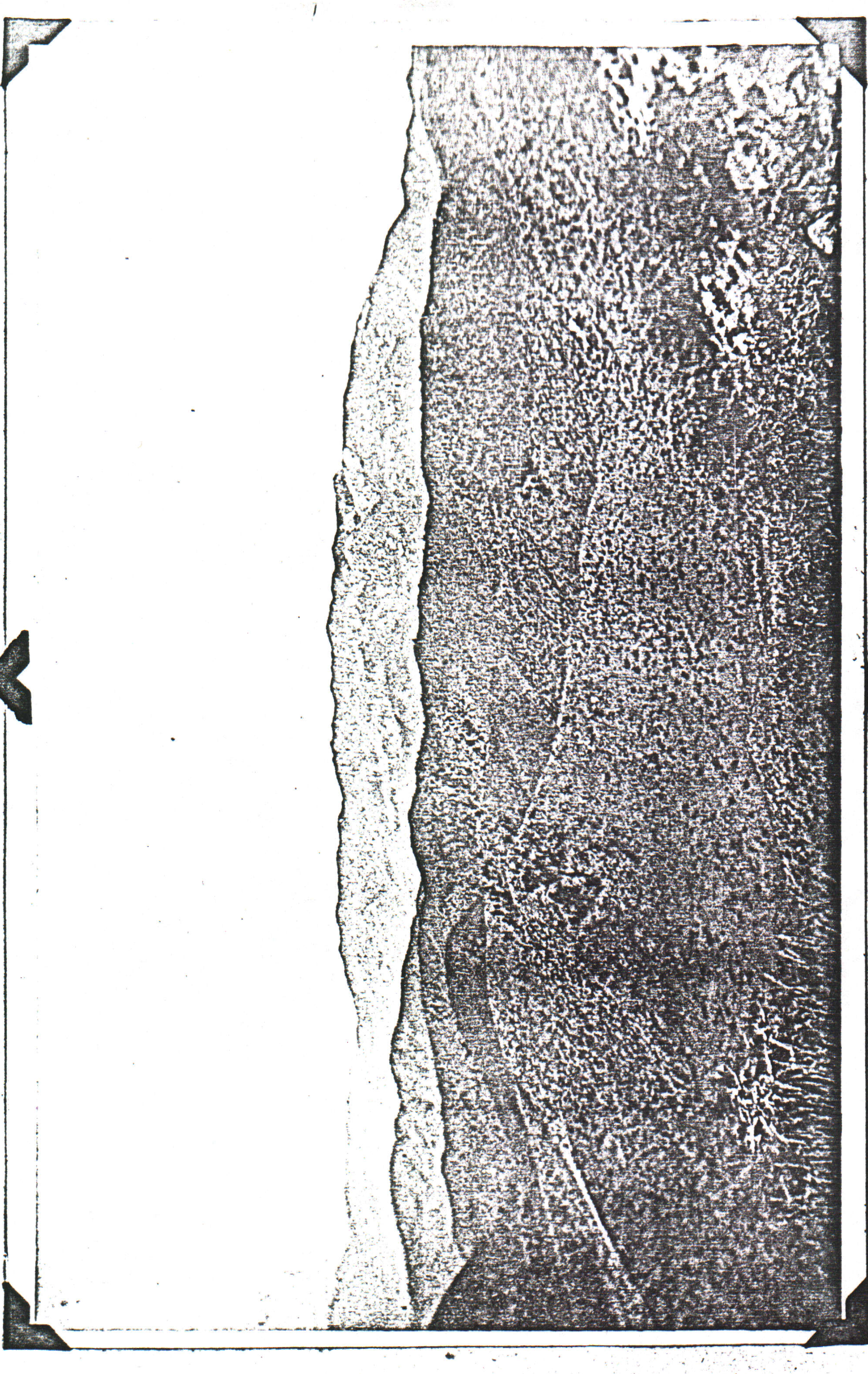
COST OF PRODUCTION

As this deposit can be mined on a large scale for many years to come through the cross-cut tunnel, costs per ton will consequently be very low and I feel the following figures allow a comfortable margin of safety:

Mining	$ .50	
Milling	.25	
Classifying, floating, filtering, drying and sacking	1.00	
Supplies	.20	
Assaying	.15	2.10
Reagents	.12	
Sacks @ 14¢ each	.07	
Fuel for drying	.10	
Incidentals	.20	.49
Power with 200 H.P. Diesel		.24
Insurance	.03	
Superintendence	.05	
Overhead	.02	.10
TOTAL PRODUCTION COST PER TON		$ 2.93

TRANSPORTATION

We are in receipt of offers from several of the larger trucking concerns to haul concentrates from the property to San Pedro Harbor, California, in ten-ton lots for $10.00 per ton. As stated previously, the route would be via Westguard Pass and Big Pine. San Pedro is the nearest seaport and shipments can be made from there to Atlantic, European, South



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CONCLUSION

Specifications and costs of a mill are not included herein because of the many factors to be taken into consideration. Several setups for the building of a mill are available and the cost will depend upon the capacity. I am informed that $50,000.00 would be ample to construct a mill capable of handling 500 tons of ore daily and would include a 30-day payroll, insurance, superintendence and other items as would be reasonably expected until such time as receipts were coming in from the sale of concentrates.

With a background of over twenty years' experience on molybdenum deposits, I strongly recommend this property to the careful investor as one of the potentially big paying mines in the world. The immense, highly profitable ore reserves, together with the ease of handling and treatment, make it a most attractive proposition.

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Copy to L.J.B. H

R E P O R T

O N T H E

M O L Y G R O U P O F M O L Y B D E N U M C L A I M S

E S M E R A L D A C O U N T Y, N E V A D A

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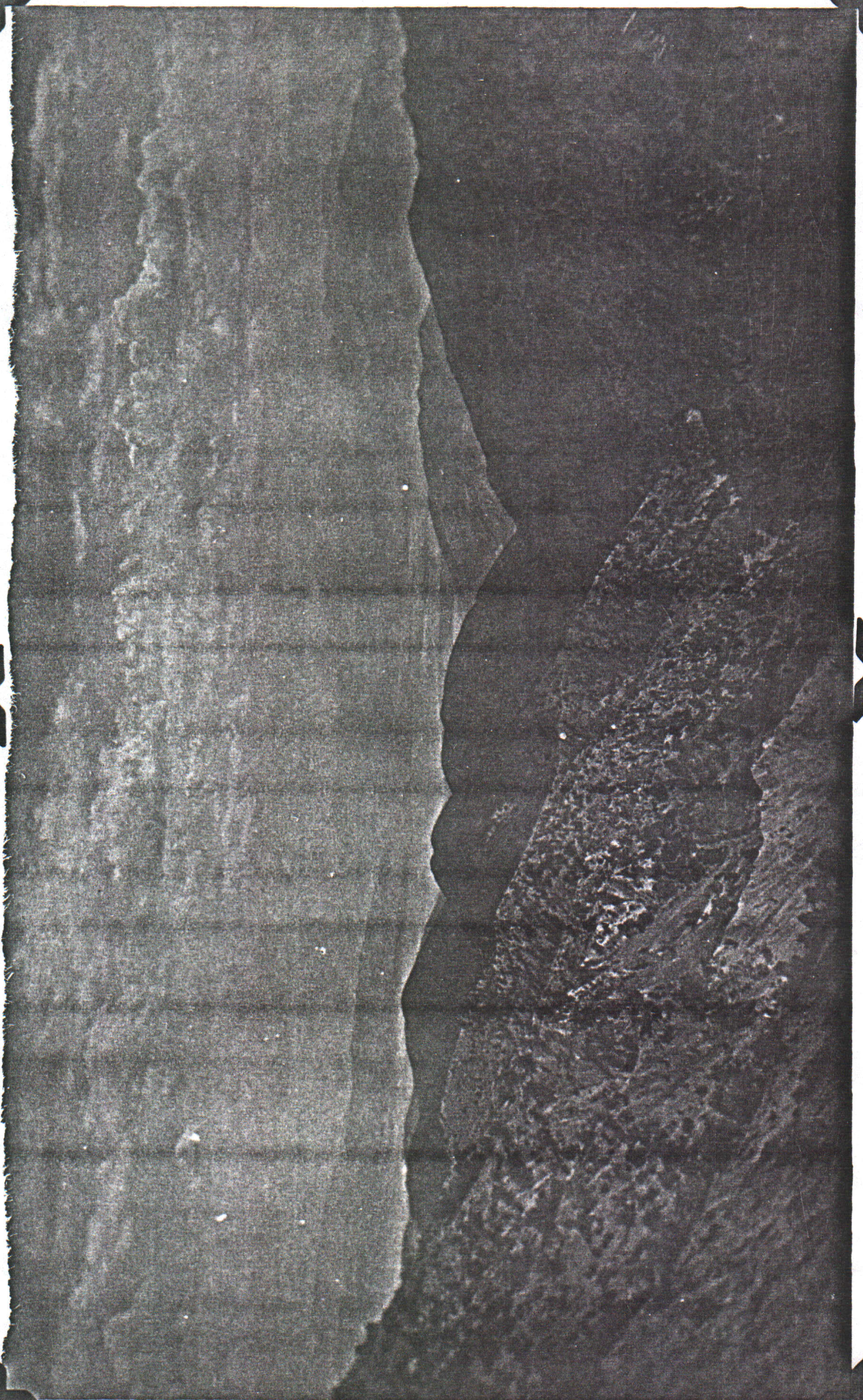

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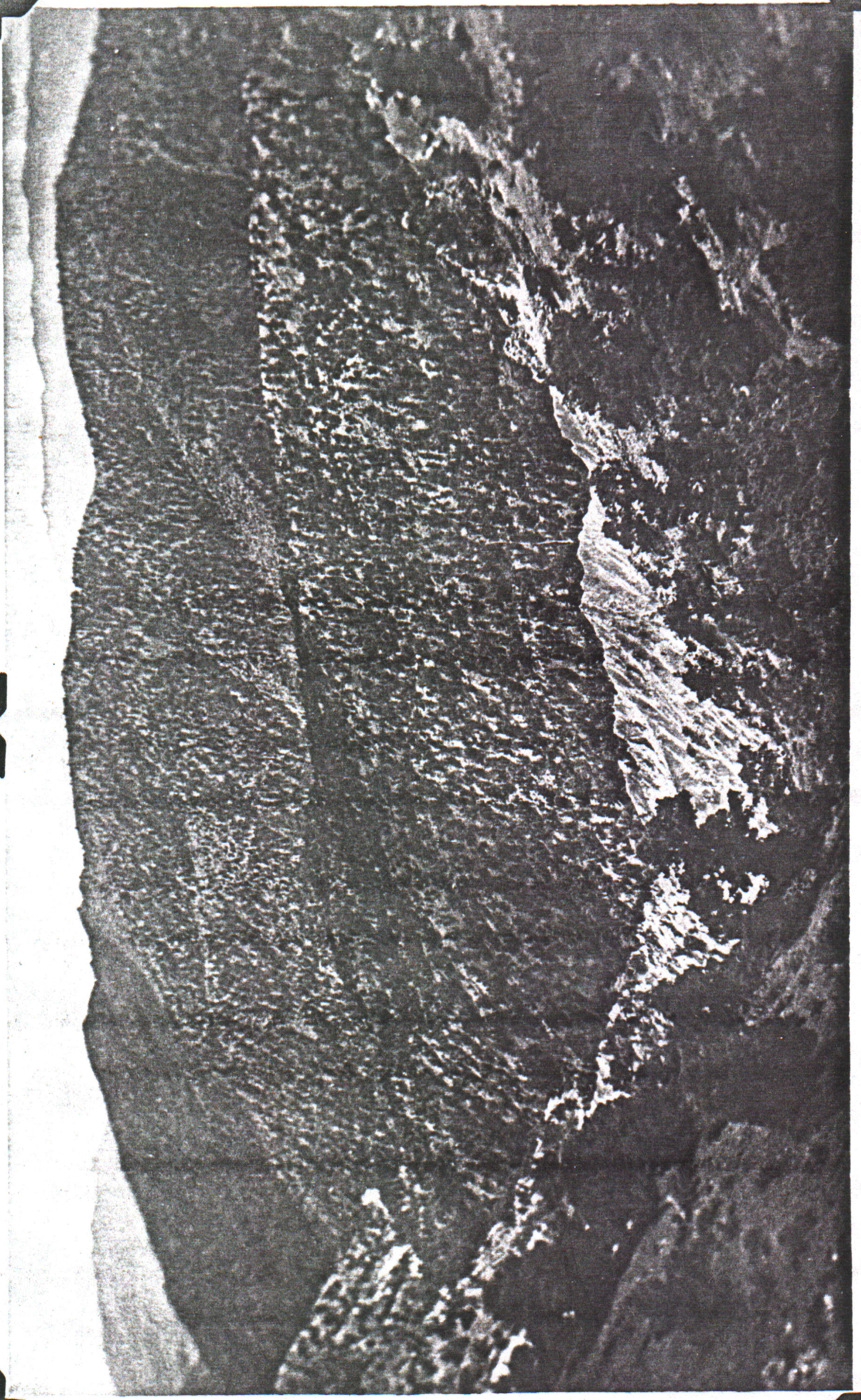

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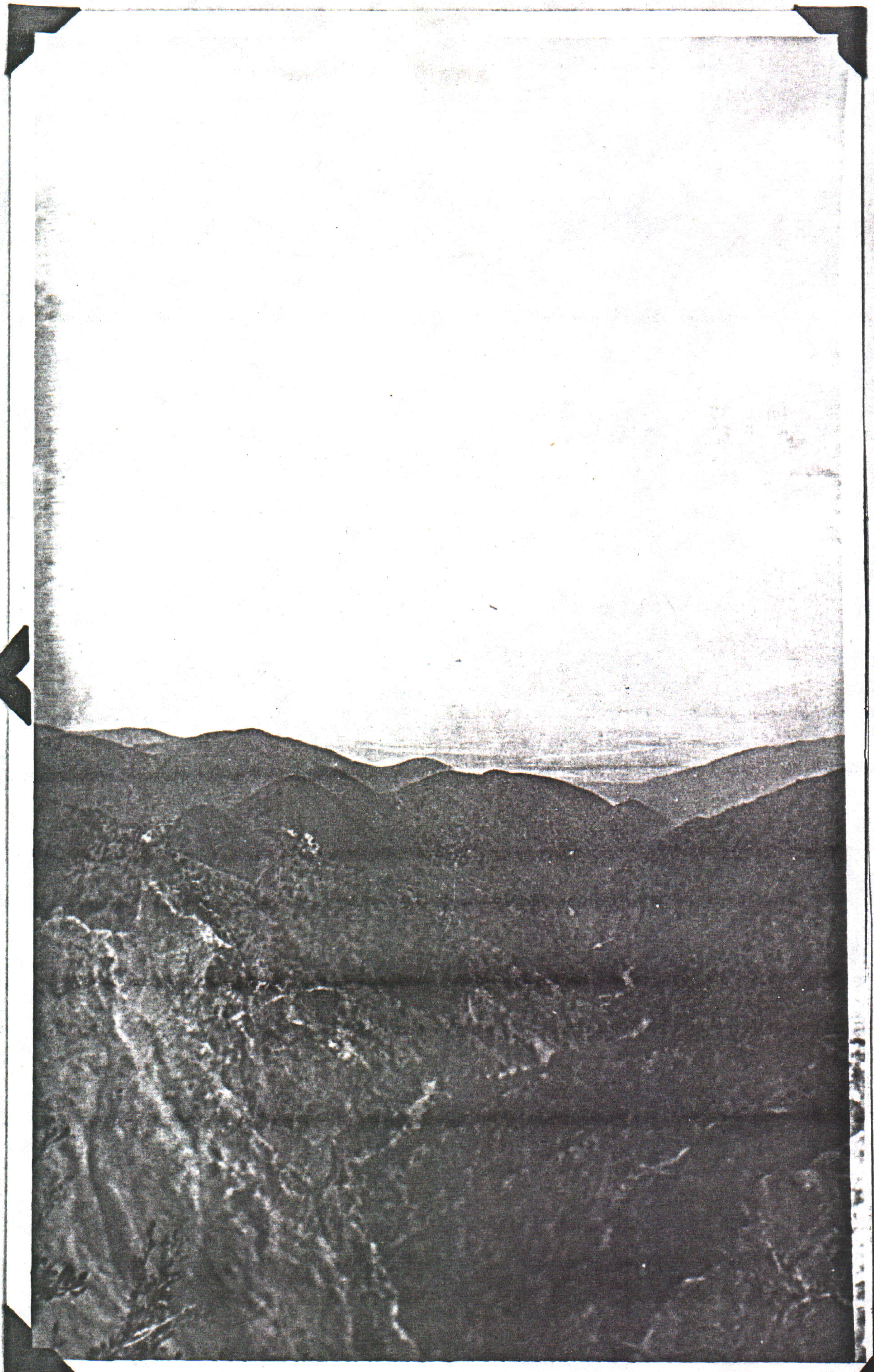

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