

The State of Wyoming.  
Office of State Geologist,  
Cheyenne.

REPORT ON.

THE ARIZONIA GROUP.

NEOLA, LARAMIE COUNTY, WYOMING.

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LOCATION.

The ARIZONIA GROUP is situated in the NE of the NE of Section 36, and the SE of the SE of Section 25, T.14 N., R.70 W., at a point one mile south-west of Neola Post Office, twenty-two miles west of Cheyenne and four miles north-westerly from Granite Canon Station on the Union Pacific Railroad, in Laramie County, Wyoming.

EXTENT.

This group consists of four claims, namely:

The Arizona Lode Claim.

- " Gold Coin "
- " Anaconda "
- " Nevada " .

These cover about eighty (80) acres, held by location and discovery by HORACE E. ADAMS, Neola, Wyo. under the laws of the United States and the State of Wyoming.

HISTORY.

The ARIZONIA GROUP is one of the oldest active locations in Wyoming and has been known for many years as a valuable low grade property but

but in those days these ores were not available for profitable work by the methods of extraction then known and the low price of copper at that time.

In 1886, Prof. Wilbur C. Knight, Dept. of Mining Engineering and Geology, University of Wyoming, Laramie, Wyo. obtained numerous samples from this property and in his sworn statement filed in the contest case concerning this group before the United States General Land Office, gave the following assays of values obtained; (Prices at 1886 quotations.)

No.	Gold. os. per ton.	Silver. os. per ton.	Copper. per cent.	Total Value.
1.	10.60	2.00		\$ 218.00
2.	.70	trace		14.00
3.	.30	trace		6.00
4.	.45.	3.9		12.60
5.	trace	trace		
6.		trace		
7.	.20	trace		4.00
8.	1.30	1.40		27.40
9.	trace	3.00		3.00
10.	.40	2.00		10.00
11.	.45	1.60		10.60
12.	trace	trace		
13.	.25	trace		5.00
14.	.15	trace		3.00
15.	.20	trace		4.00
16.	.40	1.10		8.10
17.	.10	1.30		3.30
18.	.21	trace	1.32	7.36
19.	.32	trace	.27	6.40
20.	1.35	1.85		28.85
21.	.50	2.00		12.00
22.	.50	trace		10.00
23.	trace	2.40		2.40
24.	2.10	2.00	13.24	78.01
25.	.50		8.71	43.30

As above noted, only four of these samples were assayed for copper and the whole list is here given to show the actual grade of the ore taken from the workings at various times and the general values of the same.

## GENERAL GEOLOGY.

The old mining camp of Silver Crown and Heola is situated in the southern end of the range of mountains known as the Laramie Hills, which extend north and south along the Laramie-Albany County line.

The general formation of this range consists of a core of granites flanked on either side by the succeeding sedimentary formations, limestones, shales, sandstones etc.. The granite is usually of a reddish feldspathic variety, but gray granite is often noted and both forms of granite are found to contain numerous dykes, ledges and bands of gneiss, schist and diorite, gabbro and other dyke rocks, and it is here noted that the mineral showings of this range are all found to occur in intimate connection with these dykes or ledges.

These showings vary in different parts of the Hills but uniformly show copper ores with well defined surface indications, while the trend or direction of the veins or ledges, as well as that of the dykes etc. vary locally in the different camps of the range.

## THE ARIZONIA GROUP.

At this point the general formation is granite, cut by a series of huge dykes of gabbro and allied rocks showing much surface alteration and the whole general trend of these dykes is easterly and westerly.

The most prominent of these outcrops is covered by the trend of this group and shows a heavily mineralized band of altered gabbro-diorite extending east and west from the main shaft of this group for a distance of about two thousand feet and nearly two hundred feet in width.

This belt or band shows a number of smaller dykes or ledges, all more or less mineralized and the whole shows a broken, crushed and fissured

condition, with the small fissures and cracks filled with small stringers of quartz and the usual copper-iron sulphides and allied minerals. At the surface is noted the brown and red iron oxides found in all copper camps staining the surface rocks and showing the carbonates and copper oxides and native copper throughout the mass.

Numerous cuts and shafts have been made on the length and breadth of this huge outcrop and the values already noted in these holes indicate the whole to be mineralised to a remarkable degree and to form all a mass of what is practically a commercial ore, when handled in a suitable method of treatment and on a proper scale.

#### HAIN SHAFT.

This has been sunk at a point on the Arizona claim and the workings are as follows:-

Main Shaft, -----	160 feet.
80' Level, drift north,	80 "
"      "      south,	80 "
130' Level, drifts north,	110 "
"      "      south,	<u>40 "</u>
Shaft Development,	410 "

This shaft was sunk in ore the whole distance, as may be noted in the present walls, and drifts run at above noted depths, in the ore.

At the eighty ft. level the oxidised materials still hold, passing out a short distance below and here is noted a good showing of the ore in the stringers and streaks noted throughout the main mass, as well as the ore condition of the dyke which shows in the side walls and the roof along the whole drift. No sample was taken here.

On the lower or 139 level has been done the principal development work of the mine and the greatest showing made. The drifts on the north side of the shaft have been widened out into chambers from 20 to 40 feet in width and show that the whole mass is practically all ore, as the copper minerals may be noted at nearly any point on the walls.

Several streaks are noted, varying from four to eight feet across which appear more heavily mineralized than the main mass and on these bands the drifts of the mine should be run.

On this level the ore shows the sulphide condition usual at such a depth but native copper is also shown in this ore.

Samples were taken at different points in the recesses and assay results are as follows:

Number.	Description.	Gold.	Silver.	Copper.	Value
1	East side, East room,	5.80	trace	3.70	\$8.90
2	West " "	.80	trace	.57	1.37
3	North side, West Room,	3.20	trace	4.80	8.00
4	South " "	1.20	trace	3.30	4.50

These samples were taken at random but show the general grade of the ore as well as hand samples usually do and agree generally with the most reliable results so far obtained by large samples.

A sample was also taken at random from this ore now on the dump and results are as follows:

Number	Description.	Gold.	Silver.	Copper	Value.
1	Random sample from Dump.	\$8.80	trace.	\$4.20	\$7.00

It is evident that this ore carries a low but constant gold and copper value and that under proper treatment can be made to show a fair profit, the quantity and mining facilities being favorable.

This ore is considered to be adaptable to a fine-crushing, concentrating-cyaniding treatment on a large scale and is believed that it would yield readily to such treatment in a properly designed plant.

Sampling should only be done in not less than ton lots as the values are so scattered throughout the mass that smaller samples will not give a fair idea of the values contained.

#### Mill Sites.

No difficulty need be experienced in selecting a proper site for the largest works in the this vicinity, either on this property or at the main Crow Creek below the present shaft, as water may be brought to either site and there is ample fall for all purposes.

#### Water and Timber, etc.

Water may be had from either South Crow or Middle Crow Creek and put on any convenient spot. There is no timber on the group but the nearness to railroad for all fuel, timber and supply purposes renders this unimportant.

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It is considered that the ARIZONA GROUP offers a splendid opportunity for the development on a large scale of a large body of commercial ore and that the showings made fully warrant its further exploiting and treatment in a proper plant.

Respectfully Submitted.

*Henry B. Decker*

State Geologist.

Date of Examination:

January 12-13, 1907.

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