

NOTES ON THE OCCURRENCE OF SHERIDANITE NEAR STORY, SHERIDAN COUNTY,

WYOMING

The deposit visited is located in section 10, T. 53 N., R 84 W., about 150 yards downstream from the Lower Falls on North Piney Creek, Sheridan County, Wyoming. A claim was staked on August 4, 1941, by M. L. DeWitt, C. A. Hermanson, M. R. Halstead, and A. R. Nelson, all of Sheridan, with the name "Little Falls Claim." No development work has been done. Other claims for "talc" (supposedly sheridanite) have been reported on South Piney Creek but could not be found. The land on which the Little Falls Claim is located is the property of Mr. Carl Crawford of Sheridan.

The sheridanite occurs associated with dark gray jointed gneissic rocks along the south bank of North Piney Creek. The gneisses contain 10 to 20 percent of red granitic material, usually lit-par-lit injected. Strike of the sheridanite is N 50° E, with a dip of 85° NW to vertical. The mineral is exposed for about 200 feet along the strike to the east of the Little Falls claim stake and is covered to the west. The width of outcrop is about 35 feet. The body is apparently lenticular and is exposed in depth for about 25 feet downward along the cliff.

The sheridanite ranges in color from dark green to light tan. It is foliated, fairly soft, and has a greasy feel. When ground the powder is a light gray in color.

Mr. Crawford and Mr. Howard Brady, formerly of Sheridan, report the mineral can be traced southward from the Little Falls Claim over a mountain and into the canyon of South Piney Creek. This could not be verified as the country is very rough and all trails badly overgrown and eroded.

Signed,

F. W. Osterwald, Assistant Geologist
Geological Survey of Wyoming

31 August 1947

November 25, 1941

Mr. L. C. Morrison
Chamber of Commerce
Sheridan, Wyoming

Dear Mr. Morrison:

I am resorting herewith on the results of investigation of samples submitted to the Geological Survey of Wyoming as a possible aluminum ore. The deposit is reported to occur near itary, Sheridan County, Wyoming.

Dr. A. F. Hager by examination with the petrographic microscope, determined the submitted material to represent the mineral Sheridanite. Sheridanite was originally described from near Sheridan, Wyoming, and is a hydrous magnesium aluminum silicate.

Prof. C. S. Gilbert, through the co-operation of Professor C. A. Heath, of the Research Chemistry Department at the University of Wyoming, reports the following Quantitative analysis:

SiO	Samples submitted by L. C. Morrison	Theoretical compos- ition of Sheridanite $H_6Mg_3/1_2Al_2O_{13}$
SiO ₂ (silica).....	28.8%	30.2%
Al ₂ O ₃ (alumina).....	27.1% (small amounts of other oxides)	25.6%
MgO (Magnesia).....	32.4%	30.5%
H ₂ O (water).....	12.4% (loss on ignition)	13.6%
	<hr/> 100.7%	<hr/> 99.9%

at the present time it is not feasible to extract aluminum from silicates, such as Sheridanite. Almost the only aluminum ores are Bauxite, and Alunite. Bauxite is the principal ore and it is a hydrous aluminum oxide, with an alumina content of from 50% to 65%. For metal production, an alumina content of at least 52% and a silica content of less than 1% are desirable.

Aluminum, of course, is the most abundant of all metals and the second most common element in rocks. It is known that the crust of the earth, including all rock types, has an alumina content of about 15%. An ordinary kaolin clay contains between 30% and 40% alumina, but in the form of a hydrous aluminum silicate.

In summary, then, it seems unlikely that the submitted material could be utilized as an aluminum ore because (1) at present it is not possible to extract aluminum commercially from a silicate as low in alumina as Sheridanite, and (2) there are almost inexhaustible deposits of aluminum silicates which have a higher alumina content than Sheridanite.

Yours truly,

Horace D. Thomas
State Geologist

HDT:mk

REPORT ON ROCK SAMPLE NO. H1145

The sample was received from Dr. H. D. Thomas of the Geology Department, on November 18, 1941. It was from Sheridan County and was sent in as a possible Aluminum ore. It was later identified by Dr. Hagner as Sheridanite.

It is pale green with numerous irregular pink spots, has a pearly luster and a somewhat soapy feeling. It is brittle and somewhat laminated. Thin layers are translucent and it forms a white powder when ground.

It is insoluble in aqua regia, HCl, H₂SO₄ and KHSO₄.

Analysis:

		Theoretical for Sheridanite H ₆ Mg ₃ Al ₂ Si ₂ O ₁₃
SiO ₂	28.8%	30.2%
Al ₂ O ₃	27.1% (small amount of other oxides)	25.6%
MgO	32.4%	30.5%
H ₂ O	<u>12.4%</u> (loss on ignition)	<u>13.6%</u>
	100.7%	99.9%

Nov. 24, 1941