

ART. XXXVIII.—*Mineral Notices* by CHARLES UPHAM
SHEPARD.

1. *On Hagemannite, a new mineral from Arksutflord, Greenland.*

FOR my knowledge of the present species I am indebted to Mr. G. Hagemann, chemist to the Natrona chemical works, Alleghany county, Pennsylvania, for whom it is named and from whom I received it, along with its associates, pachnolite, cryolite, etc.

The mineral is in seams and veins of from one-third to half an inch in thickness, generally having white cryolite closely adhering to its sides, though it sometimes traverses a drusy ferruginous pachnolite. It has in some instances the appearance of having been deposited in layers over broad undulating surfaces, when it resembles certain opaline deposits, as menilite. Its color is ochre- or wax-yellow, rarely with a faint tinge of green; and being impalpable in structure, dull (or only faintly glimmering) and opaque, it reminds one of a very compact iron-flint, or of the yellow variety of chloropal from Alar, Bavaria. Its streak is paler than its color. It is not difficultly frangible, and shows an even fracture. $H.=3.0$ to 3.5 . $G.=2.59$ to 2.60 . It adheres but feebly to the tongue, without emitting a strong argillaceous odor.

When held in the flame of a candle, it decrepitates with surprising energy, throwing considerable fragments to a distance. In order to prepare it for blowpipe experiments, the mineral requires to be heated in a closed tube, during which it is observed to evolve much water and hydrofluoric acid. The decrepitated fragments soften easily in the first heat of the blowpipe, but without assuming a globular shape like cryolite. The color of the fused fragment passes quickly from light-pearl to a dirty greenish-gray. To borax it only imparts a feeble iron tinge. Its powder heated in a porcelain crucible to full ignition lost 10.1 p. c., and fused into a pinkish-white hard mass with a very rough surface. Having satisfied myself of the homogeneous nature of the mineral and its leading constitution, I requested Mr. Hagemann to undertake its analysis; and I here subjoin the results he has reached.

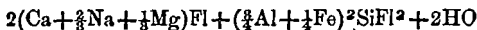
"In the specimen selected, ($G.=2.83$) it was impossible to discover even with the microscope, anything but the yellow mineral, which showed in many places a crystalline structure, or minute golden yellow points. It was hard to pulverize. The powder was heated with sulphuric acid in a platinum dish, whereby, with slight warmth, it evolved SiF_2 . When farther heated, it turned white, was easily decomposed, and by boiling with water and

chlorhydric acid gave a yellow solution. This, after filtering and oxydation by nitric acid, was precipitated with ammonia, much chlorid of ammonium having been previously added. The precipitate was redissolved and reprecipitated twice before it was free from lime. Lime was precipitated as usual, the filtrate evaporated to dryness and evaporated; the residuum redissolved and the soda and magnesia separated by means of acetate of baryta. Fluorine was determined by Wöhler's process, and silicium by boiling the mineral with carbonate of ammonia. The precipitated Al_2Si was separated as usual. Water was determined by heating the mineral under lime. The mineral contains a trace of phosphoric acid.

Al	Fe	Ca	Mg	Na	Fl	Si	HO	Insol.
12.00	5.82	11.20	2.30	8.45	40.10	7.79	10.44	1.08
12.21	5.87	11.16	....	...	40.51	....	....	....
11.98	6.17	11.16	....	....	....	....	....	....
<u>Mean, 12.06</u>	<u>5.96</u>	<u>11.18</u>	<u>2.30</u>	<u>8.45</u>	<u>40.30</u>	<u>7.79</u>	<u>10.44</u>	<u>1.08</u>

HO = 10.44	$\frac{10.44}{9}$	=	1.16	or 2	HO
Al = 12.06	$\frac{12.06}{13.6}$	=	0.886	}	= 1.098 " 2 { Al
Fe = 5.96	$\frac{5.96}{2.8}$	=	0.202		
Ca = 11.18	$\frac{11.18}{20}$	=	0.559	"	1 Ca
Mg = 2.30	$\frac{2.30}{12}$	=	0.191	}	= 0.558 " 1 { Mg
Na = 8.45	$\frac{8.45}{23}$	=	0.367		
Fl = 40.30	$\frac{40.30}{18}$	=	2.125	"	4 Fl
Si = 7.79	$\frac{7.79}{15}$	=	0.526	"	1 Si

The deduction of a formula is difficult. The following is suggested:



but it is very complicated; and it is uncertain whether SiFl_2 is capable of combining thus with metals. The iron was found to be present as sesquioxyd."

2. Cotunnite at South Hampton Lead Mine.

In a recent number of this Journal I have described scheelite as a rare product of the Hampton lead mine. I am now able to add cotunnite (PbCl) as a production, though similarly scarce, of the same locality. Two or three specimens have been brought to me by one of my pupils (Mr. P. W. Lyman, of the Junior class in Amherst College); and I have since heard of a fourth specimen, found by another visitor of the mine. The crystals are small, and occur in groups lining druses of quartz. They have the form of right-rectangular prisms, are without transparency and perfectly milk-white. When reduced to a fine powder the mineral is soluble in water, from which the nitrate of silver throws down the chlorid of silver.