

form in all these minerals. It is most frequently found in arfvedsonite, through which it passes in all directions.

By examining the thin sections it was found, that the britholite is penetrated by aegyrite-needles, which are not placed in distinct positions in reference to the separate britholite individuals.

Among the single individuals a grayish brown amorphous substance is often found, probably a product of alteration of the britholite. In some cases this substance ramifies into the single individuals and makes the transverse sections opaque, even at a very small thickness of the sections.

Schizolite, a new mineral.

By Chr. Winther.

This mineral, which G. Flink found in 1897 in the Julianehaab district in South Greenland, was provisionally designated by him as «pink columns» (Meddelelser om Grønland XIV, 257). It is found in the locality of Tutop Agdlerkofia in grained albite. Besides a column of this mineral, embedded in the pegmatite from the nephelite-syenite which exists at Kangerdluarsuk, is found on a single piece in Flink's collection from that locality.

The new mineral, on account of its properties, is allied to the pectolite group and may best be characterised as an especially manganous species of the same.

The name has been formed from $\sigma\chi\acute{\iota}\zeta\omega$, cleave, on account of the minerals marked cleavage.

Physical properties. The schizolite appears as prismatic columns varying from pink to brown, which are found partly separate, partly in radially columnar groups spread in the mass of grained albite. The color is originally quite light red, but by alteration it becomes more brownish. The columns are varying

from semitransparent to opaque, all according to the color. It has an imperfect vitreous luster. A special characteristic of the mineral is a very marked cleavage along two faces parallel with the length of the columns.

Fully developed crystals were not found, only single columns, which were striated both lengthwise and crosswise. The examination of pieces cleaved off shows parallel extinction on both cleavage faces. The average value of the angle between the cleavage faces is $85^{\circ} 32'$.

The cleavage is so perfect and the mineral so brittle, that after many unsuccessful trials, all attempts to grind the transverse sections of the columns was given up. By chance it then happened, that a thin plate was knocked off, at a right angle with the length of the columns; an examination of this plate showed, that the extinction-direction does not bisect the angle between the cleavage planes. The mineral is accordingly monoclinic and the length parallel with the axis \hat{b} .

Taking into consideration the crystalline form of the pectolite, the cleavage-planes were chosen for base and macro-pinacoid. On the striated pieces combination-striae were found, corresponding to two orthodomes and one prism.

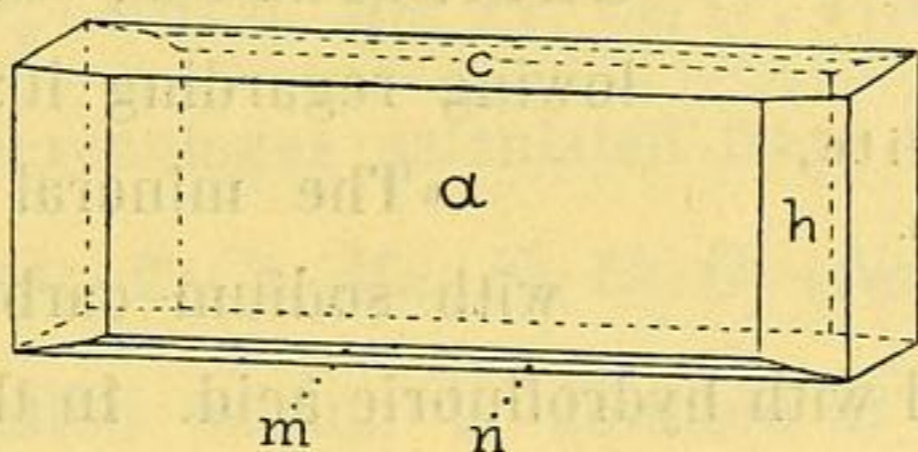


Fig. 3. Schizolite.

The measured angles are:

	Found	Calculated
$a : m = (100) : (20\bar{1}) =$	$28^{\circ} 52'$	$30^{\circ} 4'$
$a : n = (100) : (10\bar{1}) =$	$*50^{\circ} 30'$	—
$a : h = (100) : (610) =$	$*10^{\circ} 49'$	—
$c : n' = (001) : (\bar{1}01) =$	$*43^{\circ} 58'$	—
$c : m' = (001) : (\bar{2}01) =$	$65^{\circ} 36'$	$64^{\circ} 24'$

From this is calculated:

$$\dot{a} : \dot{b} : \dot{c} = 1.1496 : 1 : 1.0343;$$

$$\beta = 85^\circ 32' = (001) : (100).$$

For the pectolite is:

$$\dot{a} : \dot{b} : \dot{c} = 1.1140 : 1 : 0.9864;$$

$$\beta = 84^\circ 40' = (001) : (100).^1)$$

The optic axial plane forms a right angle with $\{010\}$. The mineral is optically positive. Of the axes of elasticity is $c = \dot{b}$. b lies in the acute angle between the axes \dot{a} and \dot{c} . $\dot{c}b = 13^\circ 8'$.

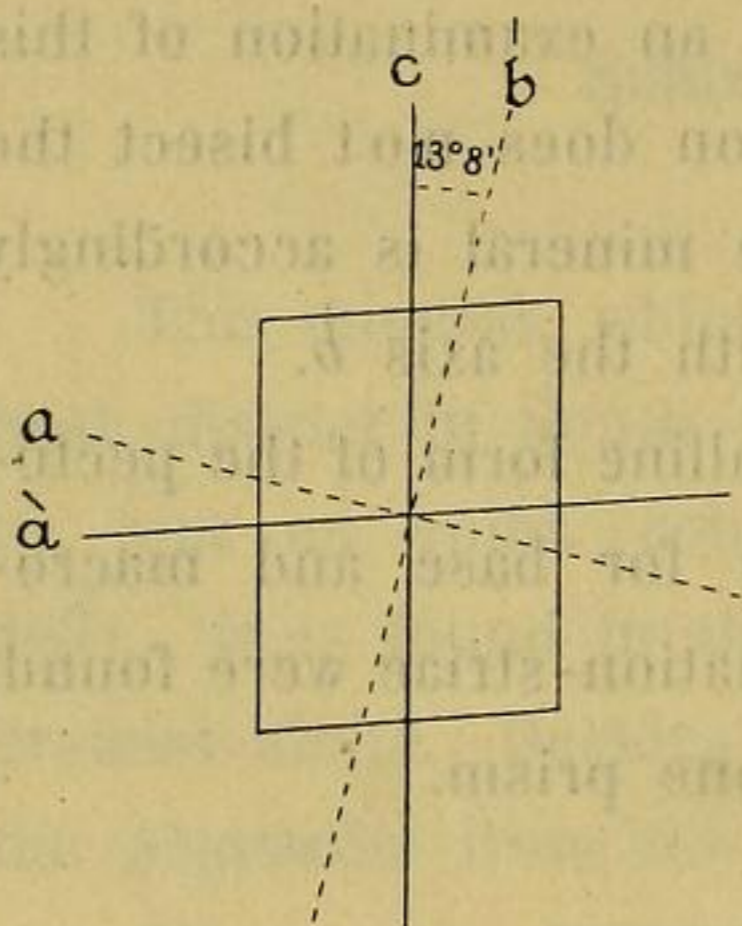


Fig. 4. Schizolite,
optic scheme.

The angle between the optic axes is for sodiumlight: $2E_y = 82^\circ 40'$. The double refraction for sodiumlight, measured on $\{100\}$ is 0.02711.

The specific gravity is stated in pycnometer to 3.089. The hardness is 5 — 5 $\frac{1}{2}$.

Chemical composition. The analysis was made by cand. polyt. Chr. Christensen, who states the following regarding it:

“The mineral was decomposed with sodium carbonate. The silica was evaporated with hydrofluoric acid. In the filtrate from the silica titanium was precipitated with sodium hyposulphite.”

“Another portion was treated in a platinum-basin with hydrofluoric and sulphuric acid and afterwards oxydized with bromine. The excess of bromine was driven off by boiling. *Fe*, *Ti* were precipitated with sodium acetate. *Mn*, *Ce* were then precipitated with ammonium sulphide; the precipitate

¹⁾ Dana, System of Mineralogy 1893, Page 373.

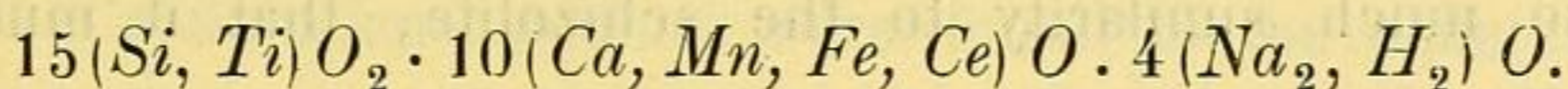
was dissolved in a very small quantity of hydrochloric acid and cerium precipitated with oxalic acid. In the filtrate thus obtained manganese was precipitated with sodium carbonate. In the filtrate from the precipitate by ammonium sulphide, calcium was determined in the usual manner.»

«Sodium was determined in a special portion. Water was estimated directly, as the mineral oxidizes on ignition.»

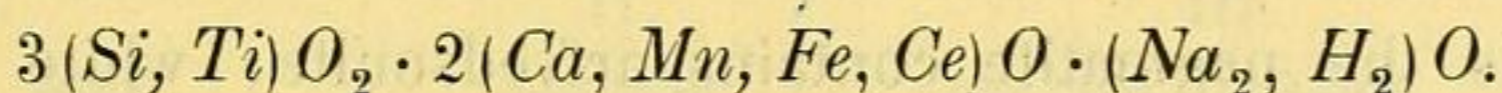
	I.			II.		III.		
	per cent	equiv.		per cent	per cent	per cent	per cent	
SiO_2	51.06	85.10	} 85.95	51.46	49.97			
TiO_2	0.68	0.85			0.69	0.67		
Ce_2O_3	1.47	0.91 ¹⁾	} 57.7	1.41	1.36			
FeO	2.79	3.87			2.80	2.70		
MnO	12.90	18.15			12.91	12.50		
CaO	19.48	34.79			19.50	18.90		
Na_2O	10.71	17.24	} 24.8	9.96	12.36			
H_2O	1.36	7.56			1.27	1.54		
	<u>100.45</u>			<u>100.00</u>	<u>100.00</u>			

I. is schizolite, according to Chr. Christensen's analysis.

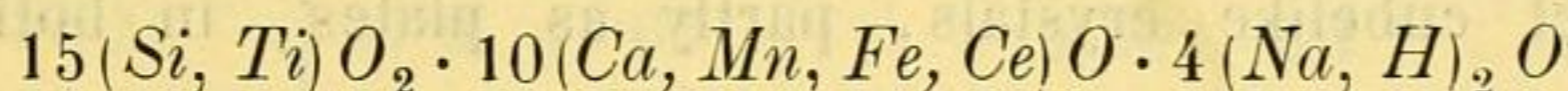
II. are the percentages calculated from the formula:



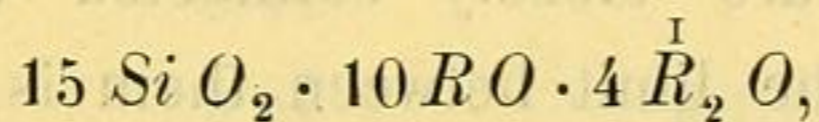
III. are the percentages calculated from the formula:



For simplification cerium is counted as bivalent. As will be seen from the table the result obtained for the schizolite is the formula:

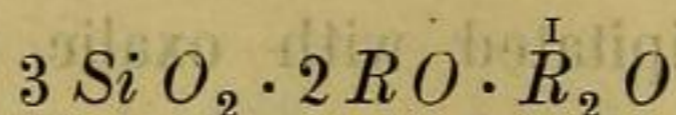


corresponding to



¹⁾ CeO .

while the generally adopted pectolite formula



does not agree very well with the analysis.

Both in composition and crystallographic properties the schizolite differs distinctly from the pectolite, so it is undoubtedly correct to classify it as a special mineral.

Occurrence. The schizolite from Tutop Agdlerkofia appears as mentioned above in a mass of grained albite, which also contains sphalerite, aegyrte and steenstrupite. The columns are on an average a few centimeters in length.

The one column, which was found in the material from Kangerdluarsuk, is imbedded in a pegmatite, which also contains eudialyte, arfvedsonite, aegyrte, white feldspar, steenstrupite and several other minerals.

Under the provisional name of "cubelike crystals" G. Flink (l. c. pag. 245) mentions a mineral found by him in the pegmatite at Naujakasik. On examination it was found to have so much similarity to the schizolite, that it must undoubtedly be considered as a variety of the same. It is therefore indicated in the following as "**schizolite variety A.**" Besides this the pegmatite contains arfvedsonite, white feldspar, eudialyte, nephelite, aegyrte and steenstrupite, exactly as the above mentioned pegmatite from Kangerdluarsuk.

The mineral appears partly as groups of very small and indistinct cubelike crystals, partly as plates, in both cases protruding freely into cavities of the pegmatite. In a few cases the plates are closely connected with the nephelite masses, so that the limit between them is difficult to decide. The color is brown with greasy to vitreous luster. In thin pieces cleaved off the mineral is transparent; the plates are

opaque. A distinct cleavage in two directions (transverse on the plates), is characteristic.

The small crystals are too imperfect to make measurements possible and on the plates no edge planes were found, so the crystallographic material was very poor.

In both cleavage planes there is parallel extinction in the direction of the edge between them. The optic axial plane is parallel with the edge between the cleavage planes. The angle between these was found to be about 85° .

The specific gravity was determined to be 3.084. The hardness is $5 - 5\frac{1}{2}$. The analysis is by cand. polyt. Chr. Christensen, who states the following:

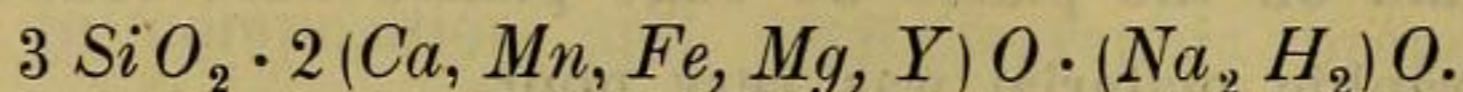
«The mineral was decomposed with hydrochloric acid; in the filtrate from the silica was precipitated with ammonium sulphide; the precipitate was dissolved in hydrochloric acid and iron precipitated with sodium acetate. In the filtrate from this yttrium was precipitated with oxalic acid. The precipitate of yttrium oxalate was ignited, dissolved in nitric acid and precipitated with ammonia. In the filtrate from the precipitate by oxalic acid manganese was precipitated with sodium carbonate.»

«Calcium and sodium were found in the usual way in the filtrate from the precipitate by ammonium sulphide.»

	I.		II.		III.		IV.	
	per cent	equiv.	per cent	per cent	per cent	equiv.	per cent	
SiO_2	51.44	85.7	51.79	54.09	90.1		53.61	
Y_2O_3	2.40	2.1 (YO)	2.19					
FeO	2.01	2.8	2.00 (Fe_2O_3)	0.10	0.14 (FeO)		0.10	
MnO	11.69	16.5	11.63	4.33	6.1		4.33	
CaO	20.53	36.2	20.13	29.82	53.3		29.83	
MgO	0.13	0.3	0.12					
Na_2O	9.50	15.3	9.82	9.18	14.8		9.55	
H_2O	2.25	12.5	2.32	2.48	13.8		2.58	
	99.95		100.00	100.00			100.00	

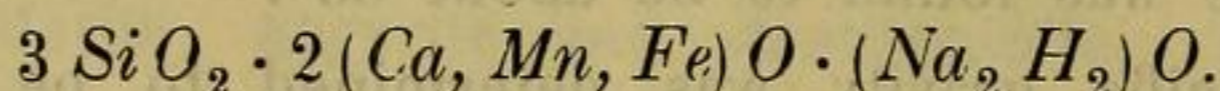
I. is «schizolite variety A» according to analysis by Chr. Christensen.

II. are the percent values calculated from the formula:



III. is manganpectolite (Williams), according to the recalculated analysis (see below).

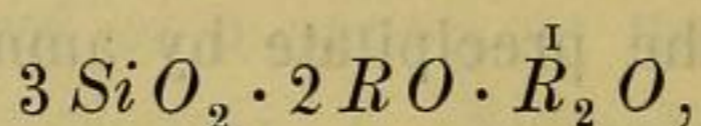
IV. are the percent values, calculated from the formula



In the above table a manganpectolite, which Williams¹⁾ found in nephelite-syenite from Arkansas, has been used for the sake of comparison. It contains according to Williams imbedded particles of calcite and the analysis shows that 0.82 per cent of carbonic acid to be present. In the above table the quantity of calcium corresponding to this quantity of carbonic acid is deducted and the rest is recalculated on 100 percent.

The iron in the manganpectolite and the yttrium in the schizolite variety are for the sake of simplification calculated as bivalent.

As will be seen from the table the schizolite variety corresponds exactly with the generally adopted pectolite formula:



in the same way as the manganpectolite.

On the other hand a comparison of the analysis for schizolite and schizolite-variety A leads to the supposition that a nearer relationship exists between these two minerals. When disregarding the fact that the schizolite contains cerium, and the schizolite variety yttrium, the principal difference in composition is found to be, that the latter mineral contains much more water, than the former. As the schizolite looks very fresh, while the schizolite

¹⁾ Groth's Zeitschr. 18, 387.

variety makes an impression of being considerably altered, there is good reason to consider the schizolite variety as being a partly altered schizolite.

New examinations of Steenstrupite,

by O. B. Boeggild.

A considerable quantity of steenstrupite was collected by G. Flink¹⁾ on his voyage to Greenland in the summer of 1897, which shows several new and interesting forms not mentioned by Moberg²⁾ in his paper on steenstrupite. In the following pages the two above mentioned dissertations are referred to as well as Lorenzen's³⁾ first information concerning the steenstrupite.

The mineral occurs in the following localities, all situated in the district of Julianehaab, South Greenland. On the bottom of the Firth of Kangerdluarsuk and Naujakasik to the East of the same the mineral was formerly found, but now it has also been found at Tupersiatsiap, close to the last mentioned place and in 3 localities lying on the Northern side of the Firth of Tunugdliarfik, namely Nunarsiuatiak, Agdlunguak and Tutop Agdlerkofia. The mineral from the last mentioned locality is called by Flink: «Brown rhombohedra»; the steenstrupite found here, and which represents the least altered form of the mineral, occurs also in a type considerably different from the others.

¹⁾ Berättelse om en Mineralogisk Resa i Syd-Grönland sommaren 1897, by Gust. Flink; this review, Vol. XIV, 1898.

²⁾ Joh. Chr. Moberg: Bidrag til kändedomen om Steenstrupin; this review, Vol XX, 1898; in abbreviated form quoted in Zeitschr. f. Krystallographie, Vol. 29 under the name: Zur Kenntniss des Steenstrupins.

³⁾ Lorenzen: Undersøgelse af nogle Mineraler i Sodalith-Syeniten fra Julianehaabs Distrikt; this review, Vol. II, 1881.