

Fe <sub>2</sub> O <sub>3</sub>	2.19	2.58
FeO	5.97	5.46
MnO	0.04	0.35
MgO	19.40	19.48
CaO	10.73	10.60
Na <sub>2</sub> O	2.16	2.15
K <sub>2</sub> O	0.28	0.35
H <sub>2</sub> O+	0.98	1.21
F <sub>2</sub>	(0.46)	0.46
	<hr/>	<hr/>
	99.80	100.24
O=F	0.22	0.22
	<hr/>	<hr/>
	99.58	100.02

1. Actinolite, Krageroe, Norway. Washington analyst.
2. Actinolite, Krageroe, Norway. Stanley analyst. *Am. Jour. Sci.*, 23, 34, 1907.

The two analyses resemble each other very closely, so closely, indeed, for most of the constituents that these might be considered as duplicate determinations. It may be worthy of note that Stanley used the basic acetate method for the separation of iron and alumina from magnesia, whereas we used the simpler method of a triple precipitation with ammonia water in the presence of considerable ammonium chloride. The difference in result as regards magnesia is negligible, and the slightly higher alumina in Stanley's analysis may be attributed to some slight difference in the colorimetric determination of titanium, as the sum  $Al_2O_3 + TiO_2$  is almost identical in the two analyses.

### SCHOEPITE, A NEW URANIUM MINERAL FROM KASOLO, BELGIAN CONGO<sup>1</sup>

T. L. WALKER, *University of Toronto*

Recently Professor Schoep<sup>2</sup> described six new uranium minerals from Kasolo in the Belgian Congo. These occur along with torbernite and uranotile apparently as alteration products of uraninite. The writer was fortunate in securing for the Royal Ontario Museum of Mineralogy a suite of specimens representing the various associated minerals. An examination of the specimens showed that there is still another mineral in this association. It is well crystallized but, unfortunately, there is not sufficient material for a quantitative chemical analysis.

<sup>1</sup> Read at the meeting of the Mineralogical Society of America, Ann Arbor, Michigan, Dec. 29, 1922.

<sup>2</sup> *Comptes Rendus*, 1921 and 1922.

The mineral in question closely resembles Schoep's becquerélite, being sulphur yellow in color, and adamantine in lustre. The crystals are seldom more than one and a half mm. in length, and about one mm. in diameter. They possess one very perfect cleavage (001). When examined under the microscope, most of the cleavage plates are found to be transparent, lemon yellow in color, and exhibit no pleochroism. The indices of refraction in such plates as determined by the immersion method are  $\beta = 1.714$  and  $\gamma = 1.735 \pm .003$ . Fragments resting on one of the faces of the prismatic zone show strong pleochroism, Y or Z, lemon yellow, X colorless. In such plates  $\alpha$  was found to be  $1.690 \pm .003$ . Since in all plates the extinctions are parallel to the cleavage or to the crystal edges, the mineral on optical grounds appears to be orthorhombic. The acute bisectrix is normal to the cleavage so that the basal plates show good interference figures with a large optical angle. The mineral is optically negative,  $\rho > \nu$ .

The powdered mineral reacts in microcosmic salt for uranium. If a few fragments be mounted on a slide in hydrochloric acid and observed with the microscope, the mineral is seen to dissolve readily with the evolution of small bubbles. From these scanty data one might suggest that the mineral is a carbonate of uranium.

Three crystals were measured on the two-circle goniometer. The results indicate that the mineral is orthorhombic. Eleven forms were observed as shown in the accompanying table.

TABLE SHOWING FORMS OBSERVED ON SCHOEPITE

LETTER	FORMS	OBSERVED		CALCULATED		FACES
		$\phi$	$\rho$	$\phi$	$\rho$	
<i>c</i>	(001)	.....	0	.....	0	3
<i>a</i>	(100)	90°	90°	90°	90°	6
<i>b</i>	(010)	0	"	0	"	5
<i>m</i>	(110)	67°10'	"	66°54'	"	3
<i>d</i>	(011)	0°	41°10'	0°	41°11'	6
<i>f</i>	(021)	"	60°19'	"	60°15'	6
<i>e</i>	(041)	"	75°	"	74°04'	1
<i>x</i>	(104)	90°	27°06'	90°	27°09'	2
<i>o</i>	(122)	49°41'	53°22'	49°33'	53°26'	4
<i>q</i>	(124)	49°33'	33°58'	"	33°59'	2
<i>p</i>	(111)	66°57'	65°53'	66°54'	65°51'	9

The relative size of the faces of the different forms present is shown in Figure 1.

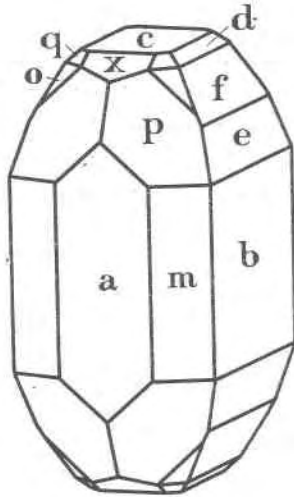


FIGURE 1. SHOWING DEVELOPMENT OF SCHOEPITE CRYSTALS

From the above measurements the crystallographic constants are as follows:—

$$p_o : q_o : r_o = 2.053 : 0.875 : 1$$

$$a : b : c = 0.426 : 1 : 0.875$$

It is worthy of note that so many of the secondary uranium minerals are biaxial, negative, with X colorless, and normal to perfect cleavage or tabular development, while Y and Z are almost identical in some shade of yellow. This peculiar regularity seems to be quite independent of the nature of the uranium compound as shown by the following list of minerals: bassetite, uranospinite, gilpinite, uranocircite, uranophane, schroeckingerite, zippeite, phosphuranylite, and tyuyamunite.

As this mineral appears to be quite distinct in optical and crystallographic properties from all known uranium minerals, the writer proposes to name it schoepite in honor of Professor Alfred Schoep, of the University of Ghent, who has contributed so much to our knowledge of the secondary uranium minerals from the Congo.