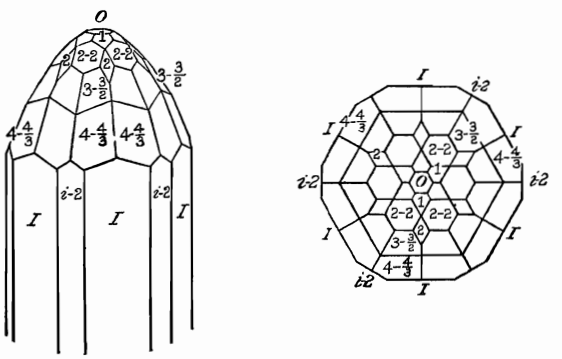
ART. XLI.—*Notes on some North Carolina Minerals;* by W. EARL HIDDEN.

[Continued from vol. xxii, p. 25.]

BERYL.—The accompanying figures represent the form of a remarkable crystal of beryl found some years since in Alexander county, North Carolina. It was found lying loose in the surface soil, on the land known as the Pendergrass land, which adjoins to the east that of the "Emerald and Hiddenite Mining Company." Soon after its discovery it went into the collection of Mr. J. A. Stephenson of Statesville, N. C., who yet retains it. It is of nearly faultless transparency, with only a slight aquamarine tint. All its planes are brilliantly polished. It is about 1^{cm} long and 30^{mm} in diameter.



The large development on this crystal of the rare planes $3\text{–}\frac{3}{2}$ and $4\text{–}\frac{4}{3}$ is unprecedented in mineralogical records. The work now going on in this new mineral region brings to light occasionally crystals of emerald and of beryl, exhibiting this same development of rare planes, but with the basal plane [*O*] very much larger in proportion.

COLUMBITE.—The mineral thought to be *æschynite* from Ray's mica mine, Yancey county, N. C., has, upon analysis, proved to be columbite. The crystals are unusually well formed and have been found in groups weighing over a pound. Their common parallel grouping is interesting.

URANINITE.—Careful determinations of the specific gravity of uraninite from Mitchell county, N. C., gave the following results for three different specimens: 8·968, 9·05, 9·218. Thus proving that it is not entirely free from alteration, though it has an appearance very much like magnetite.

"EUXENITE."—At my request Professor J. W. Mallett has lately examined the so-called "euxenite," from Wiseman's mica

mine, N. C., with results differing widely from those of Dr. J. L. Smith. The material for this analysis was obtained at the locality by the writer. The analyses by both Mallett and Smith are given below:

	Mallett.	Smith.
Nb_2O_5	47·09	54·12
$SnO_2 + WO_3$	·40	·21
Y_2O_3	13·46	24·10
Ce_2O_3	1·40	
$Di_2O_3 + La_2O_3$	4·00	
CaO	1·53	5·53
U_2O_3	15·15	9·53
FeO	7·09	·31
MnO		·08
H_2O	9·55	5·70
	99·67	99·58

Titanium was carefully sought for by Mallett but none was found; it is essential to true euxenite. I incline to the opinion of Professor Mallett, who, in a late letter to me, stated he had concluded that this so-called "euxenite" was only *altered samarskite.* Its intimate association with samarskite, its uncrystalline form, and the varying analyses, point to this conclusion.

FERGUSONITE.—Through the kindness of Professor Mallett I am enabled to give an analysis of the fergusonite from the new locality discovered by the writer in Burke county, N. C., where it was found to exist quite abundantly in the placers of the Brindletown gold district. The occurring form is a very acute octahedron, with the basal and hemihedral planes. Color, brown-black and crystals mostly covered with a gray crust, the faces hardly smooth. Sp. gr. 5·87 (Smith).

	Mallett.	Smith.
Nb_2O_5	43·78	48·12
Ta_2O_5	4·08	
$SnO_2 + WO_3$	·76	
Y_2O_3, etc.	37·21	40·20
Ce_2O_3	·66	
$Di_2O_3 + La_2O_3$	3·49	
U_2O_3	5·81	5·81
FeO	1·81	2·75
CaO	·65	
H_2O	1·62	1·50
	99·87	98·38

Prof. Mallett states further: "That it is useless to attempt any separation of the earths grouped under the head of yttria

(in an analysis made on a few grams of material) so long as competent chemists, working on many pounds of material, have not only not found any means of accurate separation, but are not even agreed as to the independent existence and number of the earths to be separated."

This Burke county fergusonite is thought to be identical with Shepard's "rutherfordite," described from the same locality many years ago on a very small amount of material.

ALLANITE.—I have lately identified this mineral at two new localities in North Carolina, i. e. at the emerald locality in Alexander county, in the feldspar veins of the gneiss; and in a decomposed feldspar at the Wiseman mica mine in Mitchell county. At the first-mentioned locality the mineral occurs as small, well-polished prisms, of a light brown color, sparsely distributed in the feldspar (oligoclase for the most part), and is not otherwise noteworthy excepting an unusually high percentage of La_2O_3, viz: 14 per cent. From the second-named locality the crystals are of unusually perfect form for allanite, and contain over 8 per cent of yttria. Some of the crystals were 2^{cm} long and over 1^{cm} in thickness. They were all more or less covered with a thin reddish-gray crust due to alteration. Some few had become entirely altered into an allanite-gummite.

Below is an analysis by Mallett on the purest material then obtainable; its color was pitchy black, through thin edges slightly greenish:

	Mallett.	Norway.
SiO_2	39·03	33·60
Al_2O_3	14·33	12·58
Y_2O_3	8·20	20·83
Ce_2O_3	1·53	4·56
Fe_2O_3	7·10	13·48
FeO	5·22	
MnO	trace,	$Na_2O+K_2O=$ ·62
MgO	4·29	1·60
CaO	17·47	9·59
H_2O	2·78	3·34
	99·95	100·20

The relatively small proportion of cerium, writes Professor Mallett, and larger amount of yttrium, is remarkable, though paralleled by a Norway orthite. The oxygen ratio is essentially that of allanite and orthite.

Stony Point, N. C., Sept. 11, 1882.