

TABLE 1
 ANGLES OF COLUMBITE FROM BOOTHWYN, PA.

Letter	Form		Observed		Calculated	
	Symbol		φ	ρ	φ	ρ
	Gdt.	Mill.				
a	∞0	(100)	89° 40'	90° 00'	90° 00'	90° 00'
b	0∞	(010)	0 00	" "	0 00	" "
g	∞	(110)	68 00	" "	68 05	" "
m	∞3	(130)	39 50	" "	39 39	" "
z	∞5	(150)	27 00	" "	26 26	" "
u	1	(111)	67 40	43 30	68 05	43 48
n	21	(211)	79 10	61 40	78 37	61 09
*	2½	(412)?	—	—	84 16	60 48

MONAZITE FROM BOOTHWYN, PENNSYLVANIA

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There are but two known occurrences of monazite in Pennsylvania, one near Morgan Station, Delaware County¹ and the other in the quarry near Boothwyn which yielded the columbite described in the preceding paper. The latter occurrence has never been described, but merely mentioned in notes by the writer.² The present seems an opportune time to publish some data on this occurrence.

Some years ago, while looking thru various old collections of Pennsylvania minerals, especially the Theodore D. Rand collection, at Bryn Mawr College, and private collections of several mineralogists of Delaware County, the writer found included therein, under the name of "sphene" (titanite), some more or less transparent brown crystals, from 1 to 3 cm. in length, labeled as found in the quarry southwest of Boothwyn. These were seen at once to be erroneously identified (altho there were true titanite crystals from the same locality included in the collec-

¹ Hamilton, S. H., Monazite in Delaware County, Pa. (Report of discovery by J. Glanding Dailey). *Proc. Acad. Nat. Sci. Phila.*, 1899, 377-378.

² In the following publications: Directory of the mineral localities in and around Philadelphia (by Elmer Bengé and E. T. W.), *Min. Coll.*, 14, 7, 1907; Radium in Pennsylvania. *Min. Coll.*, 14, 20, 1907; Philadelphia Mineralogical Club (minutes), *Min. Coll.*, 14, 45, 1907; and Radioactive minerals found in Pennsylvania and their effect on the photographic plate," *J. Franklin Inst.*, 165, 67, 70, 71, and 77, 1908.

tions), and measurement of their angles with a contact goniometer demonstrated their real character. Who was responsible for the mistaken identification is not certain, but it was probably Dr. J. T. M. Cardeza, an amateur mineralogist who collected extensively in that region some 50 years ago. Good specimens are now on exhibition in the Academy of Natural Sciences in Philadelphia.

The habit of the crystals is prismatic to tabular on the front (ortho) pinacoid. The dominant termination is a front (ortho) dome, which makes an angle of 54° with the pinacoid a (100) and is therefore x ($\bar{1}01$). The prism shows a φ angle of 47° , both angles being characteristic of monazite. Minute faces of the following additional forms are often present: side (clino) pinacoid b (010), side (clino) dome e (011), pyramid v ($\bar{1}11$), and positive front (ortho) dome w (101). Some of the crystals are twinned, according to the usual law for this mineral, on the front pinacoid a (100). As these monazite crystals are of unusual size and quality, it seems worth while to publish a drawing showing their average development, which is placed on the frontispiece along with the columbite crystal from the same locality (Fig. 2).

A NEW OCCURRENCE OF RHODONITE

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The granite pegmatites of Connecticut have yielded a large number of interesting minerals in the past. The feldspar quarries of Branchville and Haddam Neck have been most productive, but other quarries in the vicinity of Middletown and Portland—especially the Strickland quarry, Collins Hill, Portland—have produced a goodly number of specimens. Professor William North Rice¹ has listed the minerals from Middletown and vicinity as follows: Sphalerite, magnetite, gahnite, chrysoberyl, bismutite, orthoclase (crystals), albite, oligoclase, beryl, iolite, garnet, epidote, tourmaline, muscovite (crystals), lepidolite, biotite, columbite, samarskite, monazite, triplite, torbernite, autunite, uraninite. Manganese occurs in the pegmatites usually as a phosphate or

¹ Rice and Gregory, *Manual of the Geology of Connecticut. Ct. Geol. Nat. Hist. Survey, Bull. 6, 73*; Professor Rice has recently added molybdenite and zircon to this list.