	Percent	Insoluble Deducted	Ratios	
Insol. in HNO_3	3.66			
Te	43.66	45.33	.351	.373=3×.124
S	0.69	0.71	.022	
Se	None			
Bi	50.94	52.90	.254	.254=2×.127
Fe	0.50	0.52	.009	—
Mg	Trace	Trace		
	99.45	99.46		

This checks closely with the theoretical formula Bi_2Te_3. No pyrite was observed; the iron may have been derived from a silicate.

Under the microscope the mineral is galena white, very soft and has moderately strong anisotropism. Etching tests gave the following results:

1 : 1HNO_3 —effervesces vigorously and stains brown to black.
1 : 1HCL —stains light brown to iridescent; in some areas the action is very slow.
KCN (20%)—negative.
$FeCl_3$ (20%)—immediately tarnishes iridescent.
KOH (40%)—stains differentially to dark gray.
$HgCl_2$ (5%) —negative.

These results vary markedly from those given in Davy and Farnham's tables. Inspection of the analyses given in Dana's System of Mineralogy shows that the sulphur in tetradymite varies in different localities from zero to over 5 per cent. This variation in composition probably accounts for the difference in etching behavior of different specimens.

Geologically this occurrence of tetradymite is unique and the fact that it does not occur with other sulphides and tellurides is noteworthy.

PIGEONITE FROM THE TRIASSIC TRAPS OF THE CONNECTICUT VALLEY

Joseph L. Gillson, *Massachusetts Institute of Technology*

In the diabase from West Rock, New Haven, Connecticut, specimen 106 of the Educational Series of rocks prepared by Diller,[1] Pirsson[2] noted the presence of a white "augite" in addition

[1] Diller, J. S.: The educational series of rocks. *U. S. Geol. Survey Bull.* **150** (1898).

[2] Pirsson, L. V.: *Idem*, p. 268.

to the normal augite which is the principal dark mineral of the rock. The mineral is readily found in the slide by testing the interference figures of the pyroxenes. A number of the grains yield a very small optic axial angle, while the angle of the principal dark mineral is of the size common to augite. Pirsson stated that this white augite was of wide occurrence in the Connecticut valley.

In describing the rock at New Haven he said[3]:

> Two varieties of pyroxene occur. The one is the usual brownish kind characteristic of this class of rocks; the other is a white or colorless one . . . . the difference between them, since the brown one is light in tone, is not extremely marked . . . . the exact nature of the white augite is not known.

He also mentioned the occurrence of a similar pyroxene in diabase rocks in Sweden, northern England, Brazil, and Nova Scotia, and said that it is characterized by a remarkably small optic axial angle.

Emerson[4] does not mention the occurrence of more than one pyroxene in the Connecticut River traps.

The same mineral was found by the writer in a specimen from the No. 4 Lane quarry in Westfield, Mass. A special trip was made to this quarry in order to collect more material. No doubt now exists but that the mineral is one of the original pyrogenetic minerals of the diabase, and occurs throughout the rock at this point.

Since the identity of this "white augite" never seems to have been established the rock from the Lane quarry was ground, and the minerals were separated in order to determine the optical properties of the pyroxenes. Since the two varieties have nearly identical magnetic properties and specific gravities it was found impossible to separate them into fractions. Moreover the two so closely resemble each other that one could not be isolated under the binocular microscope.

The optical properties of the white augite are as follows:

$\alpha = 1.695 \pm .003$	Extinction angle $C \wedge Z = 45°$ approximately.
$\beta = 1.698 \pm .003$	$2V = 10°54'$ in one specimen.
$\gamma = 1.719 \pm .003$	$2V = 24°16'$ in another specimen.

Dispersion moderate. Optically +, colorless in thin section, and non-pleochroic.

[3] Pirsson, L. V.: *Op. cit.*

[4] Emerson, B. K.: Plumose diabase and palagonite from the Holyoke sheet. *Bull. Geol. Soc. Am.*, **16**, 91–130 (1905). The geology of Massachusetts and Rhode Island, *U. S. Geol. Survey Bull.* **597** (1917).

These properties are so close to those given for pigeonite by Larsen[5] that without a chemical analysis it seems reasonably certain that this white augite is pigeonite.

The augite has a slate brown color in thick grains and higher refractive indices than the pigeonite, alpha being about 1.701, beta 1.707 and gamma, 1.726. The optic angle is about 60 degrees.

The approximate proportions of the minerals in the diabase at the Lane quarry are as follows:

	Per cent
Labradorite	45
Augite	40
Pigeonite	10
Accessories	5

The occurrence of pigeonite in the diabase at the Lane quarry adds one more interesting mineral to those found there by Shannon.[6]

PROCEEDINGS OF SOCIETIES

PHILADELPHIA MINERALOGICAL SOCIETY

Academy of Natural Sciences of Philadelphia, Sept. 2, 1920.

A stated meeting of the Philadelphia Mineralogical Society was held on the above date, Mr. Millson presiding in the absence of the president and vice-president. Nineteen members and four visitors were present. Nominations for officers for the coming year were presented.

Reports on summer trips constituted the program of the evening. Mr. Biernbaum described a trip to New England, in company with Messrs. Radu and Hoadley. The localities visited included Auburn and Paris, Maine; Grafton and Acworth, N. H.; Portland, Middletown, Danbury, and Meriden, Conn.; and Paterson, N. J. Specimens of the following minerals obtained were exhibited: topaz, apatite, cassiterite, tourmaline, beryl, lepidolite, columbite, and prehnite. Mr. Hoadley spoke of his trip to Montreal and vicinity. Mr. Rosenbaum reported on visits to Paterson, and Cornwall, Pa.

Mr. Trudell then gave an account of a trip to the South Mountain district in Adams County, accompanied by Messrs. Cajori and Gordon. Piedmontite was collected in the metarhyolite near Gladhill, and native copper with cuprite was obtained in veins in the metabasalts.

SAMUEL G. GORDON, *Secretary pro tem.*

[5] Larsen, E. S.: The microscopic determination of the non-opaque minerals. *U. S. Geol. Survey Bull.* **679**, p. 225 (1921).

[6] Shannon, E. V.: Famous mineral localities. The datolite locality near Westfield, Mass. *Am. Mineral.*, **4**, 4–5 (1919).

Stilpnomelane and chalcodite at the trap quarries of Westfield, Mass. *Proc. U. S. Nat. Museum*, **57**, 397–403 (1920).