

# REVISION OF SOME STRATIGRAPHIC NAMES BETWEEN THE LOWER AND MIDDLE KITTANNING COALS IN EASTERN OHIO

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Recent observations on the strata between the Lower and Middle Kittanning Coals in eastern Ohio indicate that some additions and corrections in stratigraphic names are in order. Modifications pertain not only to beds associated with the Kittanning Coals but also to those in the intervening Strasburg cyclothem.

Certain of these changes have already been noted (Sturgeon and associates, 1958: 64, 66)<sup>1</sup>, but revisions there proposed are not valid under the provisions of the *Code of Stratigraphic Nomenclature* (1961: 653, Art. II). Sturgeon and others are preparing a detailed report, but it will not be concluded soon enough to permit use of the revised nomenclature in certain publications of the Ohio Division of Geological Survey that are nearing completion and in which these names should be included. This note is to validate these new and revised names, so that they will be available for use in the Survey's forthcoming publications.

The current use of stratigraphic names by the Ohio Division of Geological Survey for the section under consideration is that standardized by Stout and published by Bownocker and Dean in 1929 and employed in numerous subsequent publications (table 1).

There are four members for which new or restricted names are needed. The first of these is the Hamden Limestone. That name in Stout's generalized section applies to the marine limestone and shale overlying the Lower Kittanning Coal. This use is, however, in error, for at the type exposure (OGS 4275)<sup>2</sup> in section 16, Clinton Township, Vinton County (Stout, 1916: 25<sup>o</sup>; 1918: 173) the Hamden Member is a nonmarine ironstone that is undoubtedly associated with the Oak Hill Clay. Elsewhere in Ohio a marine limestone and shale member overlies the Lower Kittanning Coal, but it is absent at the type Hamden area. Hence Hamden should be restricted to the nonmarine ironstone and limestone in or below the Oak Hill Clay, and a name should be given to the marine member over the Lower Kittanning Coal. For the marine member the name *Columbiana*<sup>3</sup> is proposed, with type exposures along Brookwood Hollow in section 29, Perry Township, Columbiana County (OGS 3778). There the *Columbiana* Member consists of approximately 5.5 ft of fossiliferous black and gray shale with fossiliferous nodular limestone.

Locally, in Stark County, DeLong has recently found marine fossils in shale immediately above the Strasburg Coal. The fauna, including *Dunbarella* and chonetid brachiopods, is definitely marine. Although this fauna is quite limited in variety and is restricted to a small known outcrop area, the shale in which the fossils occur warrants a name for purposes of correlation and discussion. Tuscarawas is suggested as a name for this member from its exposures in the Tuscarawas River valley, with the type exposure in the abandoned strip mine of the Strasburg Coal and Clay Company, NW $\frac{1}{4}$ NW $\frac{1}{4}$ , section 30, Pike Township, and NE $\frac{1}{4}$ NE $\frac{1}{4}$ , section 25, Bethlehem Township, Stark County (OGS 13503).

<sup>1</sup>Sturgeon and others also discussed these changes at the Ohio Academy of Science meeting at Capital University, April 17, 1959.

<sup>2</sup>File number of the measured stratigraphic section on record at the Ohio Division of Geological Survey.

<sup>3</sup>It has come to our attention that *Columbiana* (Cooper, 1956, p. 57) has been used for a black graptolitic Ordovician shale in Alabama. While it is not the best practice, distance and age difference permit use of *Columbiana* herein.

Salem is not a good name for the nonmarine limestone in or below the Middle Kittanning Clay, as that name has been used previously elsewhere for a Mississippian limestone, a breccia, a gabbro-diorite, and a syenite. Furthermore, Stout and Lamborn (1924, p. 146) in their original description, indicated that the name Salem ". . . should probably be retained only until a more careful survey is made of the entire formation across the State . . ." Their type section is located along the abandoned Y. & O. Railroad at the deserted mine of the Salem Mining Company in the NW $\frac{1}{4}$ , section 3, Salem Township, Columbiana County (OGS 1717). Orton (1884, p. 188) had earlier noted this limestone at nearby Leetonia

TABLE 1  
*Generalized stratigraphic section for strata between the  
Lower and Middle Kittanning Coals in eastern Ohio*

Member	Lithology
Washingtonville	Shale, marine
Middle Kittanning	Coal, persistent
" "	Clay, siliceous
Salem	Limestone, impure, local
Red Kidney ore	Shales, siliceous
Strasburg	Coal, local
-----	Clay, flint and plastic
Oak Hill	Shales, siliceous
Hamden	Limestone, marine
Lower Kittanning	Coal
" "	Clay, plastic

TABLE 2  
*Revised generalized stratigraphic names for strata between the  
Lower and Middle Kittanning Coals in eastern Ohio*

Member	Lithology	Thickness
Washingtonville	Shale, marine, unsteady	4'-0"
Middle Kittanning	Coal, persistent	4'-0"
" "	Underclay	3'-6"
Leetonia	Limestone, impure, nonmarine, local	0'-6"
Red Kidney ironstone	Shale, siliceous, with nodular ironstone	10'-0"
Tuscarawas	Shale, marine, very local	1'-6"
Strasburg	Coal, local	0'-6"
Oak Hill	Underclay, flint and plastic	4'-0"
Hamden	Limestone or ironstone, nonmarine, unsteady	1'-6"
-----	Shale, siliceous	3'-0"
Columbiana	Limestone and shale, marine, unsteady	4'-0"
Lower Kittanning	Coal, persistent	2'-4"
" "	Underclay, plastic and flint	5'-0"

in section 12, Salem Township. Leetonia is, therefore, selected as the name for the nonmarine limestone associated with the Middle Kittanning Clay.

Near Nelsonville in the Hocking Valley area there is a nodular ironstone with well-preserved fossils plants in the Middle Kittanning Clay. Briggs (1838: 143) briefly described this ironstone, and it has become at least informally known as the Snow Fork ironstone from the valley of Snow Fork northeast of Nelsonville. Since the Leetonia and Snow Fork Members occur in the same stratigraphic position, it is quite possible that those two members are correlative.

In summary, the following changes in the generalized stratigraphic section

between the Lower and Middle Kittanning Coals in eastern Ohio are necessary. Hamden is restricted to the nonmarine carbonate member in the Oak Hill Clay. The new name Columbiana is proposed for the marine member, previously incorrectly called the Hamden, which overlies the Lower Kittanning Coal. The name Tuscarawas is proposed for the heretofore unrecognized marine shale over the Strasburg Coal. Leetonia is suggested to replace the poorly chosen name of Salem for the nonmarine carbonate member in the Middle Kittanning Clay. The revised stratigraphic section is shown in table 2.

## REFERENCE

- American Commission on Stratigraphic Nomenclature.** 1961. Code of stratigraphic nomenclature. *Am. Assoc. Petroleum Geologists Bull.* 45(5): 585-700 p.
- Bownocker, J. A., and E. S. Dean.** 1929. Analyses of the coals of Ohio. *Ohio Geol. Survey Bull.* 34: 360 p.
- Briggs, C., Jr.** 1838. Report (on Wood, Crawford, Hocking and Athens, and Tuscarawas counties): *Ohio Geol. Survey 2nd Ann. Rept.* 108-154 p.
- Cooper, G. A.** 1956. Chazyan and related brachiopods. *Smithsonian Misc. Coll.* 127(1): 1024 p.
- Orton, E.** 1884. Mines of Trumbull, Mahoning, Columbiana, Jefferson, Portage, Stark (excluding the Massillon field), Carroll, Tuscarawas, and Guernsey counties, chap. 3 of *Economic Geology.* *Ohio Geol. Survey.* 5: 169-300 p.
- Stout, W.** 1916. Geology of southern Ohio. *Ohio Geol. Survey Bull.* 20: 723 p.
- . 1918. Geology of Muskingum County. *Ohio Geol. Survey Bull.* 21: 351 p.
- , and **R. E. Lamborn.** 1924. Geology of Columbiana County. *Ohio Geol. Survey Bull.* 28: 408 p.
- Sturgeon, M. T., and associates.** 1958. The geology and mineral resources of Athens County, Ohio. *Ohio Geol. Survey Bull.* 57: 600 p.
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