THE MASSANUTTEN SANDSTONE

ROCKINGHAM, PAGE, SHENANDOAH AND WARREN COUNTIES, VIRGINIA

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The Massanutten Sandstone, Rockingham, Page, Shenandoah, and Warren Counties, Virginia

The designation "Tuscarora Sandstone and associated sandstones, of Silurian age" (Butts, 1933), along Massanutten Mountain and adjoining ridges in Rockingham, Page, Shenandoah, and Warren Counties, Virginia, is here abandoned and the name Massanutten Sandstone is reinstated for the thick sequence of sandstone and conglomerate occurring between the overlying Middle Silurian Bloomsburg Formation and underlying Martinsburg Shale of this isolated Silurian outcrop belt (Fig. 1).

Figure 1 near here.

The term Tuscarora Sandstone was originally applied by Darton and Taff (1896) to outcrops on New Creek Mountain in Mineral and Grant Counties, West Virginia, of a white sandstone bounded above by the "Cacapon Sandstone", now included in the basal Rose Hill Formation (Basal mid-Silurian), and bounded below by the redbeds of the Upper Ordovician Juniata Formation. It is named for Tuscarora Mountain on the common border line of Juniata and Perry Counties, Pennsylvania. This usage applies for exposures in Virginia, West Virginia, Maryland, and Pennsylvania north and west of the Shenandoah Valley where the bounding Rose Hill Formation (above) and Juniata Formation (below) are present. These bounding formations are absent in the more easterly Upper Ordovician and Silurian outcrop belts - Massanutten Mountain and associated ridges in the Shenandoah Valley, Virginia. The Massanutten Sandstone, now considered to be entirely Silurian in age (Pratt and others, 1975),

Figure 1.-- Index map showing Page, Rockingham, Shenandoah, and Warren Counties, Virginia; the Silurian outcrop area on Massanutten Mountain and adjoining ridges, and localities mentioned in the text.

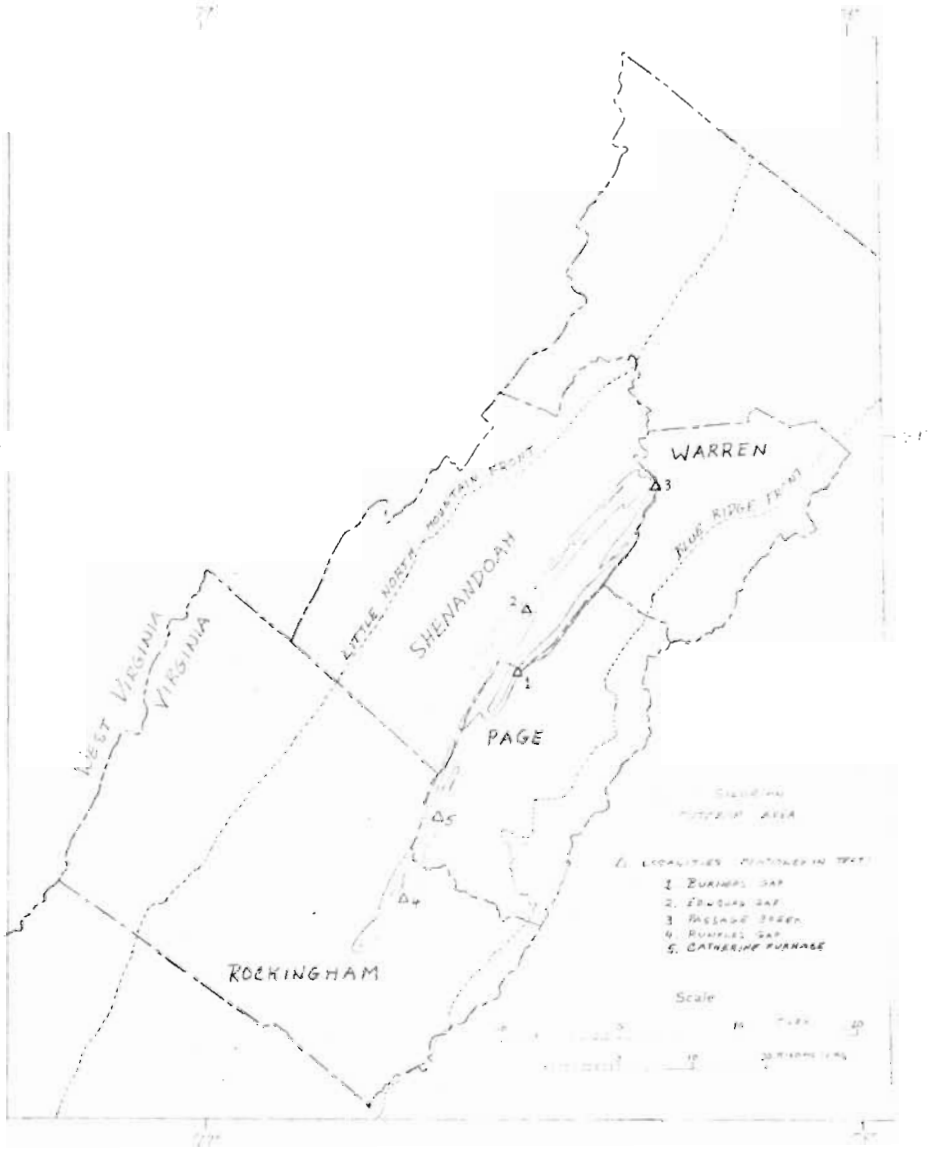
WARREN
SHENANDOAH
PAGE
ROCKINGHAM
WEST VIRGINIA
VIRGINIA
LITTLE NORTH MOUNTAIN FRONT
BLUE RIDGE FRONT
1
2
3
4
5
Scale

FIG. 1

is apparently correlative with the Tuscarora Sandstone, Rose Hill Formation, overlying Keefer Sandstone, and possibly younger Silurian rocks in the outcrop belts west of the Shenandoah Valley (Butts, 1940, Brent, 1960, Dennison, 1970). Stratigraphic implications of the Massanutten Sandstone are summarized by Dennison (1970).

The term Massanutten Sandstone was originally used by Geiger and Keith (1891) for Lower Cambrian sandstones in the Harpers Ferry, West Virginia, Maryland, and Virginia area which they correlated with the Silurian sandstones of Massanutten Mountain, a misconception later corrected by Keith (1894). Darton (1892, p. 14) applied the term Massanutten Sandstone, named "from the prominent Massanutten Mountains in which it is typically developed" to Upper Ordovician through Middle Silurian clastic rocks west of Shenandoah Valley, a practice soon abandoned (i.e., Darton and Taff, 1896).

Spencer (1897) was the first to study the geology of the Massanutten Mountain area. His usage of the name Massanutten has been followed by more recent workers (Woodward, 1941, Brent, 1960, Allen, 1967) to refer to the sandstone and conglomerate above the Ordovician Martinsburg Shale and below the "Rockwood" (now Bloomsburg Formation) of Massanutten Mountain. However his fossil-bearing "lower member", less than 70 m thick (Spencer, 1897, p. 9) is assigned herein to the Martinsburg Shale. I have examined these beds at Passage Creek and Catherine Furnace (localities 3 and 5, fig. 1), where they are silty, argillaceous, lithic arenites with interbedded gray shale, lithologies representative of the upper Martinsburg of the area. Spencer's upper

Massanutten "indurated sandstone, composed entirely of well washed and sorted quartz, in which cross-bedding is characteristic throughout" is the "Tuscarora-Clinton (Massanutten)" interval of Butts (1940, p. 234).

A reference section of the Massanutten Sandstone has been designated and described (Thornton, 1953, unpublished thesis) at Burners Gap, Page County, Virginia , 4.8 km N 25° W of Hamburg. Brent (1960) reports the following thicknesses: 646 feet (197 m) in a description of the section at Runkles (Ruckles) Gap, Rockingham County; 700 feet (213 m) at Burners Gap, Page County; and 840 feet (256 m) at Edinburg Gap, Shenandoah County (fig. 1). The unit thickens eastward and northward (Rader, written communication, 1976) to approximately 1200 feet (365 m) along Passage Creek on Va. route 687, Warren County. This locality at latitude 38° 57' N, longitude 78° 18' W, was studied by Pratt and others (1975 and unpublished data) who found Silurian plant material in carboaceous shale partings 21 to 253 m above the base of the Massanutten.

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