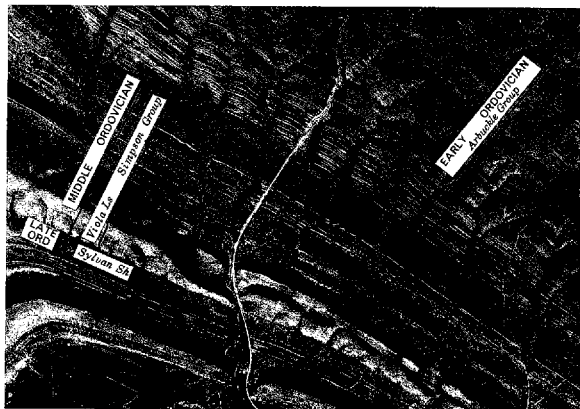


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Cover Picture

ORDOVICIAN ROCKS IN OKLAHOMA

SOUTH FLANK OF THE ARBUCKLE MOUNTAINS

The aerial photograph on the front cover is of outcrops of steeply dipping strata on the south flank of the Arbuckle Mountains just north of Springer. The narrow white band smoothly curving across the beds in a northerly direction is U. S. Highway 77, and the highway distance shown is slightly less than 2 miles.

Rocks of Ordovician age—more than 8,600 feet thick and consisting mainly of limestone—dominate the stratigraphic succession in the Arbuckle Mountains. Owing to the steep homoclinal southwest dip, the full Ordovician sequence is shown in this single remarkable photograph.

Early Ordovician limestone and dolomite assigned to the Arbuckle Group is 5,225 feet thick. Of Middle Ordovician age is the Simpson Group, 2,275 feet thick, which consists mostly of light-weathering limestones and tree-covered sandstones. The Viola Limestone, 825 feet thick and also of Middle Ordovician (Trentonian) age, crops out in the form of a prominent treeless ridge. Closing the Ordovician System in the Arbuckle Mountains is the Late Ordovician Sylvan Shale, a greenish-gray graptolite-bearing shale 300 feet thick that crops out in a valley above the Viola Limestone and below Silurian limestones of the Hunton Group.

From their large area of outcrop in the Arbuckle Mountains, Ordovician strata extend in subsurface throughout most parts of Oklahoma, cropping out again in the Wichita Mountains, Ouachita Mountains, and on the southwestern margin of the Ozark dome. They are of interest geologically for their great wealth of marine fossils, including brachiopods, bryozoans, trilobites, gastropods, cephalopods, graptolites, corals, ostracodes, and algae. Economically they are valuable for their tremendous reserves of petroleum, and they also supply vast quantities of crushed stone and building stone, glass sand, and raw materials for the manufacture of portland cement.

—W. E. H.

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Thymospora, A NEW NAME FOR *Verrucososporites**

L. R. WILSON AND B. S. VENKATACHALA†

The genus *Verrucososporites* was established by Knox (1950) to accommodate spores with the following structure: "Tetrahedral, trilete; spherical to triangular; 25-120 microns in diameter. Ornamentation of rounded, warty, or tuberculate processes; visible as rounded elevations at the margin." Among the 15 species described and figured by her, none show a monolete mark. A possible exception may be *V. tuberculatus* (Berry) Knox, which the writers consider to be a nomen ambiguum because it was based upon poorly preserved specimens and, in light of recent palynological knowledge, might have been incorrectly described and assigned. Knox (1950) did not specify a type species for the genus *Verrucososporites* and the first species listed by her, *Verrucoso-sporites abditus* (Loose) Knox had been transferred to the genus *Raistrickia* by Schopf, Wilson, and Bentall (1944), (syn. *Sporonites abditus* Loose 1932; *Verrucosi-sporites* (Loose) Loose, 1934). This species is a triradial spore with distinct trilete mark.

Potonié and Kremp (1954) emended *Verrucososporites* and restricted it to monolete spores with verrucose ornamentation. They selected *Laevigato-sporites obscurus* Kossanke, 1950, as the type species. All of those species assigned to *Verrucososporites* by Knox, except *V. tuberculatus*, were either reassigned by Potonié and Kremp (1954) to their former genera or to *Verrucosisporites* (Ibrahim) Potonié and Kremp, 1954. *Verrucosisporites* was emended by Bhardwaj (1955) and de Jersey (1960), but because that genus is not considered within the scope of this paper, no further comment about *Verrucosisporites* will be made. The genus *Verrucososporites* Knox (sensu stricto) is not the same as that of Potonié and Kremp (1954). These authors have actually used a preoccupied name for a new genus, a practice not permissible according to the International Code of Botanical Nomenclature (vide Article 62 and Article PB 6; also see Recommendation 6B).

It is desirable to recognize monolete spores with verrucose ornamentation as a genus separate from *Laevigatosporites*, but because *Verrucososporites* is not valid according to the International Code of Botanical Nomenclature, it is necessary to give these fossils a new generic name. Therefore *Thymospora* is proposed.

The name *Thymospora* is constructed from the Greek word *thymos* (warty excrescence) and *spora* (spore).

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†B. S. Venkatachala, Birbal Sahni Institute of Palaeobotany, Lucknow, India, takes this opportunity to thank the United Nations Technical Assistance Organization for providing him a fellowship during the tenure of which the present work at the School of Geology, The University of Oklahoma, was completed.

Thymospora gen. nov.

Synonymy: *Verrucosporites* (Knox) Potonié and Kremp, 1954.
Type species: *Thymospora thiessenii* (Kosanke, 1943) comb. nov.

Synonymy: *Laevigatosporites thiessenii* Kosanke, 1943.

Verrucosporites thiessenii (Kosanke) Bhardwaj, 1957.

Generic diagnosis.—Monolete miospores; oval to bean-shaped; suture simple, ranging to $\frac{3}{4}$ of long diameter of spore, in many cases obscured by ornamentation; wall approximately one to two microns thick in optical section, ornamentation verrucose to warty; verrucae often overlapping to form obvermiculate, rugose pattern.

Remarks.—*Laevigatosporites thiessenii* Kosanke, 1943, was the first species described with the ornamentation pattern given above; hence this species is here designated as the type species. Bhardwaj (1957) transferred *L. thiessenii* to *Verrucosporites thiessenii*.

Affinities.—The spores described from the fertile fronds of *Scolecoperis oliveri* Scott, 1932 (in Potonié, 1962), from the Autunian, France, and *Asterotheca oreopterida* Schlotheim, from the Farrington Group, Bristol, England, (Moore, 1946, in Potonié, 1962) belong to *Thymospora*. The following species belong to the newly established genus:

1. *Thymospora thiessenii* (Kosanke, 1943) comb. nov. (type species).

2. *Thymospora obscura* (Kosanke) comb. nov.

Synonymy: *Laevigatosporites obscurus* Kosanke, 1950.

Explanation of Plate I

- Figure 1. *Thymospora thiessenii* (Kosanke) comb. nov.; 18 microns
Figure 2. *Thymospora thiessenii* (proximal view); 18 microns
Figure 3. *Thymospora thiessenii* (distal view); 18 microns
Figure 4. *Thymospora pseudogranulata* (Bhardwaj) comb. nov.; 24 microns
Figure 5. *Thymospora reticulata* (Alpern) comb. nov.; 22 microns
Figure 6. *Thymospora obscura* (Kosanke) comb. nov.; 32.5x29.4 microns
Figure 7. *Thymospora pseudothiessenii* (Kosanke) comb. nov.; 37.8x29.4 microns
Figure 8. *Thymospora amblyogona* (Imgrund) comb. nov.; 28 microns
Figure 9. *Thymospora cingulatoidea* (Alpern) comb. nov.; 24 microns
Figure 10. *Thymospora verrucosa* (Alpern) comb. nov.; 37x35 microns
Figure 11. *Thymospora parverrucosa* (Alpern) comb. nov.; 44x29 microns
Figure 12. *Sporonites perverrucosus* Loose; 52.5 microns

Note: The above illustrations with the exception of figures 2 and 3 are reproduced from the originals cited in the text of the nomenclature. Figures 2 and 3 are from slide H-B, maceration no. 735, Hanna strip mine Harrison County, Ohio, supplied by Dr. R. M. Kosanke and is in the repository of the palynological collection of the Oklahoma Geological Survey.

Plate I



1



2



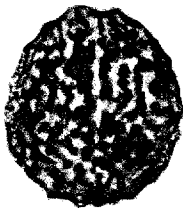
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6



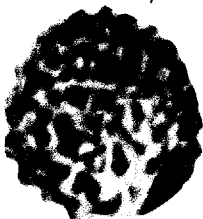
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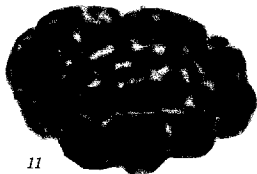
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9



10



11



12

Verrucososporites obscurus (Kosanke) Potonié and Kremp, 1954.

Holotype: Kosanke, 1950, pl. 16, fig. 6.

For diagnosis and description, see Kosanke, 1950, p. 29.

3. *Thymospora pseudothiessenii* (Kosanke) comb. nov.

Synonymy: *Laevigatosporites pseudothiessenii* Kosanke, 1950.
Verrucososporites pseudothiessenii (Kosanke) Potonié and Kremp, 1954.

Holotype: Kosanke, 1950, pl. 5, fig. 10.

For diagnosis and description, see Kosanke, 1950, p. 30.

4. *Thymospora amblyogona* (Imgrund) comb. nov.

Synonymy: *Verrucososporites amblyogonus* Imgrund, 1952.

Holotype: Imgrund, 1952, pl. 16, fig. 120.

For diagnosis and description, see Imgrund, 1952, p. 176.

5. *Thymospora pseudogranulata* (Bhardwaj) comb. nov.

Synonymy: *Verrucososporites pseudogranulatus* Bhardwaj, 1957.

Holotype: Bhardwaj, 1957, pl. 29, fig. 21.

For diagnosis and description, see Bhardwaj, 1957, p. 112.

6. *Thymospora cingulatoides* (Alpern) comb. nov.

Synonymy: *Verrucososporites cingulatoides* Alpern, 1958b.

Holotype: Alpern, 1958, pl. 2, fig. 33.

For diagnosis and description, see Alpern, 1958b, p. 80.

7. *Thymospora reticulata* (Alpern) comb. nov.

Synonymy: *Verrucososporites reticulatus* Alpern, 1958b.

Holotype: Alpern, 1958, pl. 2, fig. 34.

For diagnosis and description, see Alpern, 1958b, p. 80.

8. *Thymospora verrucosa* (Alpern) comb. nov.

Synonymy: *Verrucososporites verrucosus* Alpern, 1958b.

Torispora verrucosus Alpern, 1958b.

Holotype: Alpern, 1958, pl. 2, fig. 35.

For diagnosis and description, see Alpern, 1958b, p. 80.

9. *Thymospora parverrucosa* (Alpern) comb. nov.

Synonymy: *Verrucososporites parverrucosus* Alpern, 1959.

Holotype: Alpern, 1959, pl. 12, fig. 294.

For diagnosis and description, see Alpern, 1959, p. 154.

Sporonites parverrucosus Loose, 1932 (= *Verrucosa-sporites parverrucosus* (Loose) Loose, 1934) perhaps belongs to *Thymospora*. The description and illustration of Loose (1932) are not adequate for taxonomic consideration.

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New Survey Publications

Guide Book XI, *A Guide to Beavers Bend State Park*, was issued by the Oklahoma Geological Survey in January, 1963. The authors were W. D. Pitt, C. B. Spradlin, R. E. Bell, A. M. Gibson, C. E. Hopla, C. D. Riggs, G. A. Moore, C. C. Carpenter, G. M. Sutton, R. D. Burns, and E. L. Rice. Sections are on the geology, invertebrates, fishes, amphibians, reptiles, and birds of the area. The book has 46 pages and 15 figures. Price: \$1.00 paper bound.

In February 1963 the Survey issued Circular 62, *Petroleum Geology of Pawnee County, Oklahoma*, by Patrick H. Clare. The report includes a description of the subsurface stratigraphy and structure of the county, and a history of petroleum development with an evaluation of future oil and gas production. The book has 62 pages, 4 figures, 2 plates, and 10 tables. Plate I, showing cross sections, and plate II, consisting of 6 maps, are in the pocket. Price: \$2.00 paper bound and \$3.00 cloth bound.

New Thesis Added to O. U. Geology Library

The following Master of Geological Engineering thesis, completed but restricted in 1961, was released in December 1962 and is now available:

Subsurface study of Morrowan rocks in central and southern Beaver County, Oklahoma, by Lynn W. Barrett II.

ERRATA

Oklahoma Geology Notes, February 1963, Volume 23, Number 2

Page 22, first line: For northwest read northeast.

Pages 43 and 44: Figures 5 and 6 are transposed.

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