OKLAHOMA

GEOLOGY NOTES

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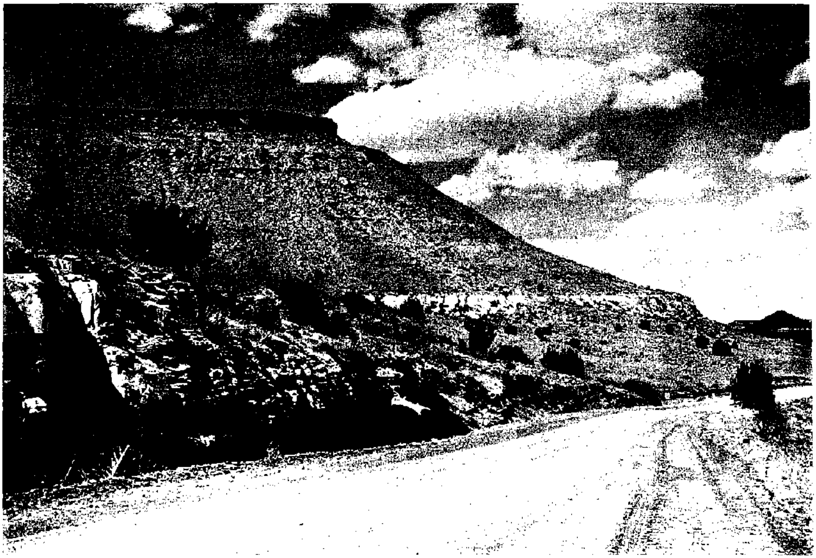

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Volume 23, Number 9

Cover Picture

TRIASSIC AND JURASSIC ROCKS IN NORTHWESTERN OKLAHOMA

LABRIER (TATE) BUTTE, CIMARRON COUNTY

Areally and volumetrically, the Triassic and Jurassic are the least represented of the geologic systems in Oklahoma. Exposures of these rocks are confined to Cimarron and Texas Counties in the western part of the Panhandle. Jurassic rocks may occur in the subsurface in the extreme southeast part of the State. They are known to be present south and east of there in the subsurface of Texas and Arkansas.

The cover picture is of Labrier (Tate) Butte in SE¼ sec. 20, T. 6 N., R. 1 ECM, about 6 road miles north of Kenton and about 1 mile north of Black Mesa, Cimarron County. The photograph is reproduced from Muehlberger and others (1961, frontispiece and p. 74) through the courtesy of the New Mexico Bureau of Mines and Mineral Resources. The butte was illustrated by Stovall (1943, pl. 7), who gave a measured stratigraphic section (p. 259-260). A vertical aerial photograph of Black Mesa, which appeared on the cover of the December 1962 issue of the *Oklahoma Geology Notes,* included Labrier Butte at the upper left-hand corner (Sutherland, 1962).

The section exposed is from the Dockum Group (Upper Triassic) upward to the Dakota Group (Lower Cretaceous). The rock shown in the lower left-hand corner of the photograph is the uppermost Dockum unit of the area, the Sheep Pen Sandstone, which is a light-brown and thin-bedded rock, containing streaks of red and green mudstone. It is underlain by maroon and green mudstone of the Sloan Canyon Formation. The light-colored cliff at the base of the slope in the middle background is the Upper Jurassic Exeter Sandstone. The slope above the Exeter to the base of the second scarp from the top of the butte is the Upper Jurassic Morrison Formation. The lower part of the Morrison is dominantly sandstone, whereas the upper part is dominantly shale and limestone. The two scarps at the top of the butte are composed of Lower Cretaceous rocks of the Dakota Group.

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—A. N.

A New Species of *Dadoxylon* from the Seminole Formation (Pennsylvanian) of Oklahoma

L. R. Wilson

The Pennsylvanian rocks of Oklahoma contain many fragments of silicified cordaitean-type wood that, because of their lack of primary tissues or because of their relatively poor preservation, must be assigned to the genus *Dadoxylon*. The fossil described here, from Ada, Pontotoc County, Oklahoma, is remarkable because of its large size. Unfortunately no primary tissues were discovered in thin sections and the preservation is not so complete as is desirable for detailed morphological work; nevertheless, study has revealed that the *Dadoxylon* from Ada is different from other North American species reported in literature and also from those species in other parts of the world the descriptions or specimens of which have been seen. Numerous descriptions of fossil woods assigned to *Dadoxylon,* or related genera, published during the late 19th and early 20th centuries, are inadequate (Penhallow, 1900; Seward, 1917, 1919). The material upon which these descriptions have been based should be restudied but unfortunately not all is preserved.

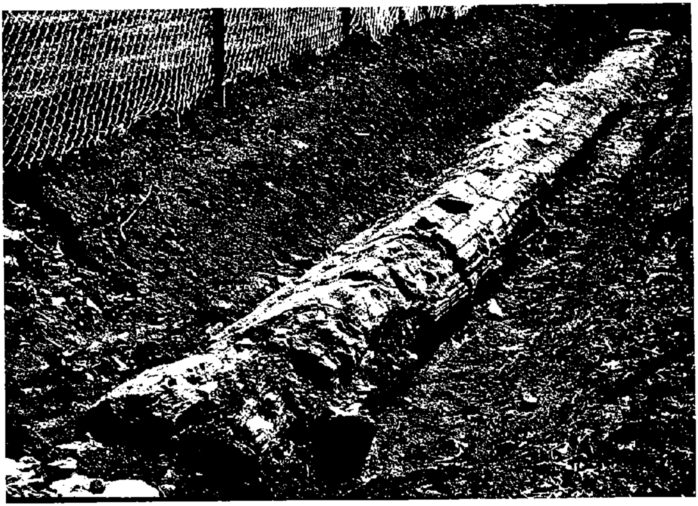

Figure 1. Dadoxylon adaense, **sp. nov. in Wintersmith Park, Ada, Oklahoma. The silicified log is 58 feet, 5 inches long and 2 feet, 3 inches in diameter at its base. The lowest 2 feet, 3 inches of the specimen is not shown in the photograph.**

The *Dadoxylon* from Ada (fig. 1) was discovered in the southeast corner of Wintersmith Park during the 1930's but was not excavated until February 1962, at which time the Ada Park Department erected a hurricane fence around the specimen. In April 1962, B. G. Anderson reported this fossil to the Oklahoma Geological Survey and, in company with him, P. S. Karr (Park Superintendent), H. J. Huddleston (Chairman of the Park Commission), and C. C. Branson (Director of the Oklahoma Geological Survey), the writer examined the specimen and collected some fragments of the fossil log for microscopic study.

The fossil log is 58 feet, 5 inches long, is 2 feet, 3 inches in diameter at its base, and tapers uniformly to 15 inches at the top where it is abruptly truncated. The fossil is cracked into segments of one to several feet. No remains of a root system or of the terminal part of the tree are present. Bark or extending branches are not present on the trunk and only one branch scar in the form of a knot was observed. This fossil knot was approximately 25 feet from the top end of the log and, because it was fragmented, it was collected for microscopic study. Two feet, three inches from the base of the log an 18-inch section is missing, but it was found in a nearby gully and is now on permanent display in the Geology Department of The University of Oklahoma.

The absence of a root system and branches indicates that the log had been transported by water prior to its silicification. This theory is substantiated by the fact that the fossil is lying in a matrix of fine conglomerate and cross-bedded sandstone. The matrix is a Seminole Formation sediment of Missourian (Pennsylvanian) age.

The large size of the log led to an inquiry among paleobotanists as to the existence of other fossil *Dadoxylon* logs of similar proportions. The general opinion is that the specimen is the largest known. A search of paleobotanical literature revealed that in 1831 a Carboniferous (Pennsylvanian) fossil log, 72 feet long, was discovered on the Brandling estate at Wideopen near Newcastle, England. This fossil was described by Lindley and Hutton in 1831 (see Seward, 1917, p. 254) and named *Pinites brandlingii.* Later authors placed it in the genus *Araucarites,* and in *Cordaioxylon.* Finally Seward (1917, p. 254) transferred it to *Dadoxylon.* In August 1962, while visiting the Hancock Museum in Newcastle, the writer attempted to determine the whereabouts of this specimen. No records of the specimen were found, and so a visit was made to the Geological Survey and to the British Museum in London. Several thin sections of the log are preserved there, but the fossil in its original form no longer exists. Therefore, the *Dadoxylon* fossil in Wintersmith Park appears to be the largest log of *Dadoxylon* known. Fortunately Ada has taken steps to preserve this unique fossil.

A microscopic examination of the log section revealed zones of deformed cells, which to the naked eye appear to be annual growth rings. The dimensions of the cells and the walls in these zones are essentially the same as in other parts of the secondary xylem. All the cells are crushed, variously distorted, and discontinuous, a condition which probably occurred at about the time of burial and before the wood was silicified. Because no growth rings occur in the log, one can postulate that the tree grew in a warm moist climate that was devoid of seasons and that its ecological relations were similar to those of certain present-day tropical rain forests. From other paleobotanical studies in Oklahoma (Wilson, 1963), it is known that the vegetation associated with *Dadoxylon* during Pennsylvanian time consisted largely of giant lycopods, *Calamites*, true ferns, seed ferns, and other plants characteristic of the swamps in which the vegetation that later became the coal beds of Oklahoma accumulated.

Transverse, longitudinal radial, and longitudinal tangential thin sections were prepared from the specimens of silicified wood collected at Ada. Cell preservation in the central portion of the log is poor and no primary tissues were observed. Sections prepared from the outermost secondary wood were used for the photomicrographs in this article. The microscopic slides mentioned above are in the paleobotanical collection of the Oklahoma Geological Survey, number OPC 902, slides 1 to 7.

Dadoxylon adaense, sp. nov.

Figures 1-3

Growth rings absent; secondary xylem consists of tracheids and rays; tracheids filaform, fairly uniform in shape, diameter 39 to 53 μ, length 500 to 1,140 μ; bordered pits in 1 to 3 rows (most in 2 rows, few in 1 or 3) on radial walls of tracheids, alternate, hexagonal, 19 to 21 μ in diameter; pit orifice circular, approximately one-third diameter of pit; tangential tracheid walls apparently unpitted; rays abundant, 1 to 36 cells high, most between 9 and 15, uniseriate, some biseriate in part, rectangular except round to triangular top and bottom cells, 19 to 30 μ high, 9 to 30 μ wide in tangential view, in radial view 126 to 200 μ long, 14 to 30 μ high, generally not extending over more than five tracheids, lateral pitting not observed.

The specific epithet is given in reference to the locality of Ada, Oklahoma, where the species was discovered.

Holotype:—Microscope slides OPC 902-1 to 7 from log in Wintersmith Park, Ada, Oklahoma. These are in the collections of the Oklahoma Geological Survey.

Age.—Seminole Formation, Skiatook Group, Missouri Series, Pennsylvanian System.

Location.—Southeast corner of Wintersmith Park, Ada, Oklahoma, SE¼ SW¼ NW¼ sec. 2, T. 5 N., R. 6 E., Pontotoc County, Oklahoma.

Discussion.—It is unfortunate that primary wood of *Dadoxylon adaense* has not been found because closer natural assignment of this remarkable specimen is desirable. Its cordaitean affinity is quite certain because of its general araucarian wood characters and Pennsylvanian age, but assignment to the genus *Cordaites* or the more probable *Mesoxylon* must await discovery of the primary tissues. Tynan (1959) has reported the identification of *Cordaites michiganensis* Arnold from the Seminole Formation near Beggs, Okmulgee County, Oklahoma. A comparison of its wood structure with that of *Dadoxylon adaense* reveals the following differences: ray cells crossing tracheids—*C.*

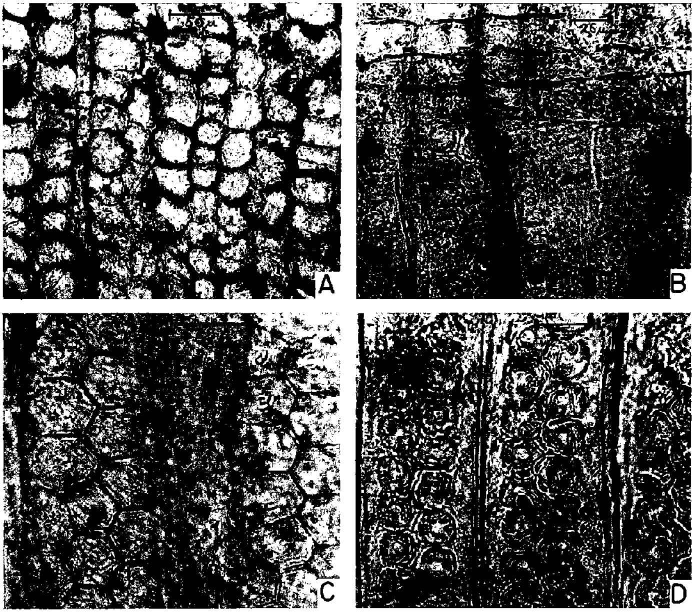

Figure 2. Photomicrographs of secondary wood sections of Dadoxylon adaense, **sp. nov.**

A. Transverse section showing xylem tracheids with a wood ray (third row on left). Slide OPC 902-2-1.
B. Radial longitudinal section showing xylem tracheids (vertical cells) with biseriate bordered pits, and a wood ray (3 cells high and horizontal). Slide OPC 902-2-1.
C. Radial longitudinal section of two xylem tracheids showing biseriate and triseriate bordered pits. Preservation of the bordered pits is limited to outlines and to vestiges of several orifices. Slide OPC 902-1-1.
D. Radial longitudinal section of three xylem tracheids with biseriate rows of bordered pits. The circular orifices are clearly apparent in the bordered pits of the middle tracheid. Slide OPC 902-1- .

michiganensis 1 to 4, *D. adaense* 2 to 5; rows of bordered pits per tracheid—*C. michiganensis* 2 to 4 (mostly 2), *D. adaense* 1 to 3 (mostly 2); lumen or orifice—*C. michiganensis* nearly equal to diameter of pit, *D. adaense* approximately one-third of pit diameter. *Dadoxylon adaense* differs from *D. steidtmannii* Miner (1936) mainly in the larger diameter of bordered pit orifice (three-fourths diameter of pit), in shorter ray-cell length (crosses 1 to 3 tracheids), and in the seriation of ray cells which appears to be more commonly two and three than in *D. adaense* which has one and two seriate rays. *Dadoxylon douglasense*

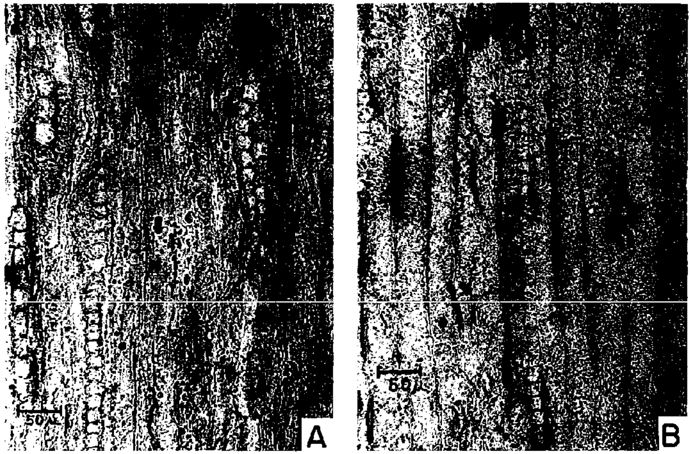

Figure 3. Photomicrographs of secondary wood sections of Dadoxylon adaense, **sp. nov.**

A, B. Longitudinal tangential sections showing xylem tracheids and several uniseriate and one biseriate wood rays. Slides OPC 902-5-1 and OPC 902-4-1.

Steidtmann (1934) from the Douglas Formation (Virgilian) of Kansas has a structure similar to *D. steidtmannii* (Miner, 1936, p. 457) but, from the description of the species, it appears to differ in the greater length of the ray cells (crosses 1½ to 7 tracheids), and in a larger number of pits on the lateral walls of each ray cell (1 to 5 pits). Penhallow's (1900) *D. prosseri* from the Permian of Chase County, Kansas, differs from *D. adaense* in length of the ray cells (crosses 2 to 4 tracheids), and has 2 to 4 pits on the lateral walls. Dawson's (1863) *Cordaites materiarium* (Steidtmann, 1934, p. 400-401; Goldring, 1921) has been identified from the Coffeyville Formation (Missourian-Pennsylvanian), Potato Creek, Montgomery County, Kansas; and, although somewhat similar to *D. adaense,* the number of ray cells is higher (up to 40) and the pits on the lateral ray-cell walls are one to five. *Cordaites recentium* (Dawson) Penhallow, 1900, was reported by Goldring (1921) from "near" Bartlesville, Oklahoma, below the Americus Member of the Foraker Limestone (Wolfcampian-Pennsylvanian). This species has a single row of pits on the radial walls of the tracheids, whereas *D. adaense* normally has two rows. *Cordaites recentium* at present has the distinction of being the only fossil found that shows evidence of growth rings and therefore seasonal or variable growing conditions in Oklahoma's Pennsylvanian plant history.

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Basement Rocks and Structural Evolution of Southern Oklahoma

The Ardmore Geological Society will sponsor a field trip to southern Oklahoma on October 3, 4, and 5, 1963. The trip will be under the leadership of Dr. William E. Ham of the Survey and the material presented will essentially cover the content of the forthcoming Survey Bulletin 95, *Basement rocks and structural evolution of southern Oklahoma,* by W. E. Ham, C. A. Merritt, and R. E. Denison. Among the major results of this study is the discovery that virtually all the so-called basement of the Wichita Mountains is not Precambrian but Early and Middle Cambrian in age. This basement complex of the Wichita Province is widely distributed in the subsurface as graywackes, basalts, and rhyolites. This stratiform basement sequence underlies the thick basin sediments of southern Oklahoma, and, because of its foldable nature, has been largely responsible for their tectonic development. In contrast, the massive Precambrian granite of the Eastern Arbuckle Province is truly cratonic and rocks deposited above it have failed by block faulting and gentle folding.

Registration for the trip will be on the afternoon of October 3 at Lake Murray Lodge, south of Ardmore. The evening will be devoted to a social hour, smorgasbord dinner, and a talk by Dr. Ham. The trip will commence at 7:30 AM, October 4, and the first day will be devoted to visiting outcrops in the Arbuckle Mountains area. The evening will be spent at Lawton. The second day will be spent in the Wichita Mountains area with the trip terminating 11 miles east of Altus.

Attendance will be strictly limited to the first 200 registrations received. The registration fee is $18.00 (students $10.00) and it covers guidebook, maps, field lunches, smorgasbord dinner, and social hours. Transportation will be by participants' vehicles. Registration forms may be obtained from:

ARDMORE GEOLOGICAL SOCIETY
c/o E. W. Wakeland
618 Little Building
Ardmore, Oklahoma

Magnetic Profile Across the Watts Reef, Adair County, Oklahoma

J. A. E. Norden, J. M. Langton, and J. M. Hancock, Jr.

INTRODUCTION

The results of recent geological investigations in the northeastern part of Adair County, Oklahoma (Hancock, 1963), suggested to the senior author the possibility of delineating near-surface reef masses in that area by means of magnetic surveys. To test the possibility, on June 5, 1963, a magnetic survey was conducted by the authors, assisted by J. P. Cannon, across a near-surface reef mass 1.5 miles northwest of Watts, Adair County (fig. 1). The reef is herein referred to as the Watts reef. Because the purpose of this investigation was the study of the magnetic contrast across the reef, observation stations outside the reef boundaries were strategically selected to eliminate the possible effects of faulting in the area surrounding the reef. Selection of station sites and delineation of the reef mass were based upon detailed surface and photogeologic studies of the reef and its environs.

GEOLOGIC AND GEOPHYSICAL CHARACTERISTICS OF THE WATTS REEF

The Watts reef, an elongate bioherm approximately 4,000 feet long and 1,600 feet across at its widest point, covers an area in the SE cor. sec. 12 and NE cor. sec. 13, T. 19 N., R. 25 E., and SW cor. sec. 7 and NW cor. sec. 18, T. 19 N., R. 26 E. (fig. 1). The reef is a crinoidal limestone development within the St. Joe Group, overlain by the Reeds Spring Formation (Osagean) and resting upon the Noel Black Shale Member (Kinderhookian) of the Chattanooga Formation. The Reeds Spring is composed of alternating blue-gray limestone and white to tan chert. The Noel Black Shale is composed of black, fissile, pyritic shale (Cram, 1930).

Magnetic susceptibilities of rock samples of these formations were measured on a magnetic susceptibility bridge, model MS-3*, yielding the following values in cgs units:

Reeds Spring Limestone	0.8×10^{-6}
Reef limestone	1×10^{-6}
Noel Black Shale	41×10^{-6}

The instrument enables accurate measurements of rock susceptibilities, which are made in a magnetic field of the same order of magnitude as that of the Earth's field. The field used is produced by alternating current, and the instrument neither measures nor is affected by remanent magnetism (Geophysical Specialties Co., 1962).

From the values given above, the magnetic-susceptibility contrast (Δk) between the reef limestone and the Noel Black Shale is 40×10^{-6}

* Geophysical Specialties Co., Hopkins, Minn.

cgs units. Theoretically, in a field in which H = 0.6 oersted this would produce a polarization contrast ($\Delta \mathfrak{J}$) of 0.000024 cgs unit.

VERTICAL-MAGNETIC-INTENSITY-ANOMALY PROFILE

A magnetic-profile survey across the Watts reef area was made using ten observation stations, six of which were placed directly upon the reef. Magnetic-vertical-intensity measurements were made by means of a Ruska Type V-3 vertical magnetometer, serial no. 5708. The instrument sensitivity was set at 10.43 gammas per scale division. The temperature correction factor was +0.1 gamma per 1°C. Figure 2 is a plot of the observed field data after corrections for temperature, diurnal, and geomagnetic longitudinal and latitudinal variations. The curve shows a marked drop of the vertical-magnetic-intensity-anomaly curve across the reef mass from station 3 to station 8. A slope tie across these stations gives an average drop of about 15 gammas. The polarization contrast for the 15-gamma vertical-intensity variation can be computed by

$$\Delta \mathfrak{J} = \frac{Z\pi}{\Delta Z} \qquad (1)$$

Equation (1) yields a polarization contrast of 0.0000239 cgs unit for a 15-gamma vertical-intensity variation. This value is in close agreement with the computed polarization contrast based upon the measured magnetic-susceptibility contrast of the rock samples of the reef lime-

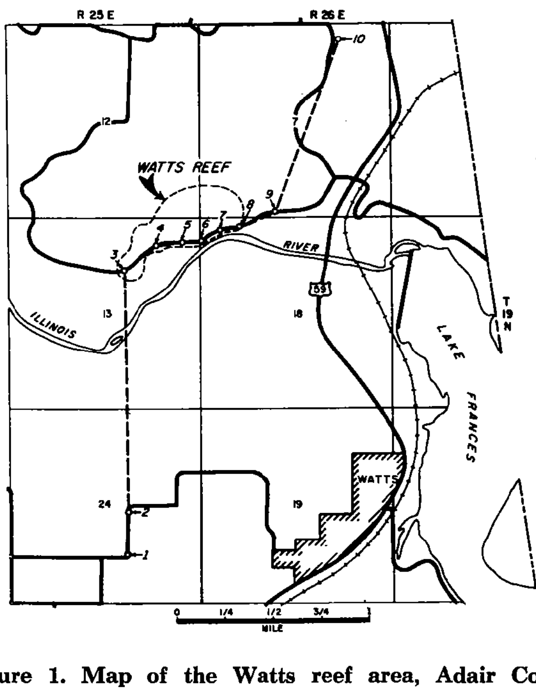

Figure 1. Map of the Watts reef area, Adair County, Oklahoma, showing line and stations of magnetic profile.

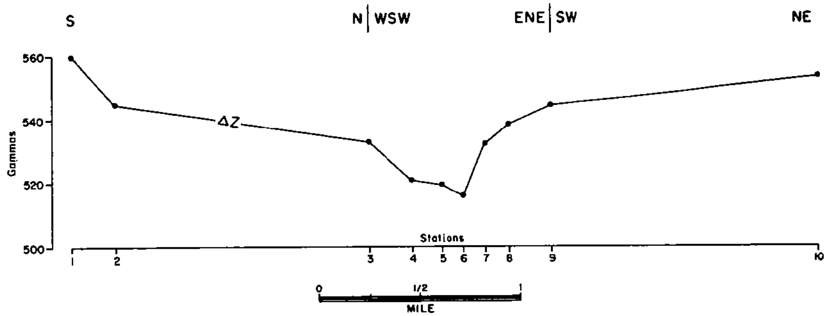

Figure 2. Vertical-magnetic-intensity anomaly across Watts reef, Adair County, Oklahoma.

stone and the Noel Black Shale in a field having H = 0.6 oersted. The estimated depth of the bottom of the reef mass below the level of the road is about 50 feet. This value may be applied only to the central part of the mass as it tapers rapidly toward its edges.

CONCLUSIONS

A vertical-magnetic-intensity profile across the Watts reef, Adair County, Oklahoma, yielded field evidence of the feasibility of delineating near-surface reef masses by magnetic surveys. The delineation of such masses depends upon the near-surface stratigraphic position of the reef and upon the magnetic-susceptibility contrast between the reef rock and the adjacent sediments. Measurements made on rock samples of the Watts reef and of the underlying Noel Black Shale showed a magnetic-susceptibility contrast of 40 $\times$ 10^{-6} cgs units. The polarization contrast was computed to be 0.000024 cgs unit in a field having H = 0.6 oersted. The magnetic profile of the ten stations across the Watts reef showed a 15-gamma drop in vertical magnetic intensity across the reef. This value is in close agreement with the effect to be expected from the polarization contrast computed for the media investigated.

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Notes on Conodont Literature

Carl C. Branson

In 1962 I reviewed geographic occurrence of conodonts in reporting the discovery by Ching of Devonian, Mississippian, Pennsylvanian, and Permian forms from China (Branson, 1962), and stated that conodonts were as yet unknown in South America. Walter Youngquist has called my attention to a note reporting an Ordovician collection from northwestern Argentina (Youngquist and Iglesias, 1951).

The first significant paper on Russian conodonts in more than 100 years was published in May by Sergeeva (1963). The faunule is from Lower Ordovician beds of the Leningrad region and consists of a new species of *Scolopodus,* two species of *Drepanodus,* three new species of *Oistodus,* two new species of *Paltodus,* a new species of *Tetraprioniodus,* two new species of *Falodus,* a new species of *Ambalodus,* a new species of *Amorphognathus,* and unnamed species of *Acontiodus, Trichonodella, Lonchodus, Lepodus* (nude name?) *Paracordylodus,* and *Volchodina* (nude name?). *Paltodus variabilis* Sergeeva is a junior homonym of *P. varabilis* Furnish, 1938.

Conodonts occur in Oklahoma from Cambrian(?) to Early Permian. The Cambrian(?) forms were mentioned by Müller (1956) and said to be from the upper part of the Signal Mountain Limestone. Müller described and figured the forms in 1959. *Cordylodus oklahomensis* (p. 447-448, text-fig. 3A; pl. 15, figs. 15, 16) and *C. proavus* (p. 448-449, text-fig. 3B; pl. 15, figs. 11, 12, 18) are from Chapman Ranch on U. S. Highway 77 in the Arbuckle Mountains. *Oneotodus* sp. a (p. 458, pl. 13, fig. 17) and *O.* sp. indet. (p. 458, pl. 13, fig. 15) are from the same area.

Oklahoma conodonts have given much trouble. Jones (1941) described a fauna from the black shale above the Dawson coal in Collinsville, Tulsa County. This paper was reproduced by photo-offset and has not been regarded as being validly published in a form recognized by the International Rules of Zoological Nomenclature. The paper described 4 new genera, 47 new species, and 8 new "varieties" (= subspecies). Of these *Bryantodus curvatus* (rendered as *B. cruvata* on p. 19) is a junior homonym of *B. curvatus* Ulrich and Bassler, 1926; *B. inclinatus* is a junior homonym of *B. inclinatus* Holmes, 1928; *B. parva* (= *parvus*) is a junior homonym of *B. parvus* Huddle, 1934. A new specific name of *Hamulosidina* is spelled *delicatissima* in the text (p. 28), *delicata* and *delicatula* in the explanation of the plate (p. 52). *Bryantodus altax* (p. 21) is corrected to *B. alta* (= *altus*) on page 50. The generic name *Oxygonus* Jones (p. 31), from Grubb's unpublished manuscript, is a junior homonym of *Oxygonus* Leconte, 1863, an elaterid beetle.

Spathognathodus commutatus Branson and Mehl, 1941, was described from "Pitkin limestone, Craig County, Oklahoma" (1941, p. 98), on page 104 given as "near Afton." The limestone exposed in Craig County nearest to Afton is the Hindsville Limestone, but it is here suspected that the specimens came from limestone in the Fayettville Shale in the railroad cut in SW¼ sec. 1, T. 25 N., R. 21 E. No Pitkin occurs in Craig County.

A curious citation of an Oklahoma conodont appears in the Miscellanea volume of the Treatise on Invertebrate Paleontology (Hass, 1962). *Gondolella curvata* Stauffer and Plummer is figured on page W60 as figure 37 (9a, 9b) noted as derived from Stauffer and Plummer (1932). Figure 9b is certainly their plate 3, figure 11, a specimen of *G. magna* from the East Mountain Shale of Palo Pinto County, Texas. Figure 9a is not recognizable as taken from the paper. The Treatise stated that the figured specimens were from the Labette Shale of Oklahoma, and this is certainly not the case with the original of figure 9b and is probably not true of the original of figure 9a.

Description of Oklahoma conodonts is proceeding slowly but steadily. A list of Oklahoma references is appended.

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An Emendation of the Sporomorph *Arcellites* Miner, 1935

D. R. Potter*

Miner (1935) described and illustrated a number of specimens of an Upper Cretaceous spore from Disko Island, Greenland, under the name *Arcellites disciformis*. The specimens illustrated by photomicrographs are fragmentary and do not show the proximal germinal structures, but the shape and wall processes are sufficiently distinctive to facilitate identification of more complete specimens. Schemel (1950) recognized the generic similarity of well-preserved specimens collected by him from the Crill coal (Upper Cretaceous) of Iowa and named them *A. crillensis*.

Hughes (1955) separated a homogeneous group of sporomorphs from an assemblage described in the genus *Triletes* by Dijkstra (1949, 1951), and he established from these the organ genus *Pyrobolospora*. Probably because of an oversight of the papers by Miner (1935) and Schemel (1950), he did not refer the sporomorphs to *Arcellites*. *Pyrobolospora* should be a synonym of *Arcellites*, and, in the light of new morphological information, the genus *Arcellites* needs emendation.

The two species described by Cookson and Dettmann (1958) in the genus *Pyrobolospora* also should be referred to *Arcellites*.

Recent palynological studies of the Omadi Formation (Lower Cretaceous) of Oklahoma have revealed numerous specimens of *Arcellites* in the basal portion of the coal exposed in sec. 5, T. 3 N., R. 1 ECM, Cimarron County, Oklahoma.

This coal has been described by Rothrock (1925) as Lower Cretaceous, and by Schoff and Stovall (1943) as occurring in the basal portion of the Upper Cretaceous. Branson (1958) applied the Kansas subsurface terminology to the Oklahoma Panhandle and placed the strata containing the coal in the Omadi Formation.

Hughes kindly examined the photomicrographs of the Oklahoma specimens and stated (personal oral communication) that the fossils are similar to those described by him as *Pyrobolospora hexapartita* from the Wealden of England. The specimens of *Arcellites* illustrated on plate I are from the Omadi Formation of Oklahoma and are in the palynological collections of the Oklahoma Geological Survey, Norman, Oklahoma.

Genus *Arcellites* Miner, 1935, here emended

Type species.—Arcellites disciformis Miner, 1935.

Synonymy.—Pyrobolospora Hughes, 1955.

Spores spherical or subspherical with prominent necklike segments (generally six) rising from proximal germinal area; diameter 150 microns or upward; triradiate tetrad scar small, obscured by neck segments; wall appears two-layered, inner thinner and darker than

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outer, surface of outer layer variously ornamented with granules, verrucae, or long appendagelike processes.

The following species are here considered to belong to the genus *Arcellites* and most are given new taxonomic assignment:

1. *Arcellites disciformis* Miner, 1935 (type species). Amer. Midland Naturalist, vol. 16, no. 4, p. 600, pl. 20, figs. 64-66.
2. *Arcellites dikyotus* (Dijkstra, 1949) comb. nov.
   Synonymy:—*Triletes dikyotus* Dijkstra, 1949. Meded. Geol. Sticht., new ser., no. 3, p. 24, pl. 2, fig. 10.
3. *Arcellites pupus* (Dijkstra, 1949) comb. nov.
   Synonymy:—*Triletes pupus* Dijkstra, 1949. Meded. Geol. Sticht., new ser., no. 3, p. 25, pl. 2, figs. 3, 8.
4. *Arcellites lobatus* (Dijkstra, 1949) comb. nov.
   Synonymy:—*Triletes lobatus* Dijkstra, 1949. Meded. Geol. Sticht., new ser., no. 3, p. 25, pl. 2, fig. 9.
   Pyrobolospora lobata Hughes, 1955. Geol. Magazine, vol. 92, no. 3, p. 211.
5. *Arcellites argus* (Dijkstra, 1951) comb. nov.
   Synonymy:— *Triletes argus* Dijkstra, 1951. Meded. Geol. Sticht., new ser., no. 5, p. 13, pl. 2, fig. 6.
6. *Arcellites pyriformis* (Dijkstra, 1951) comb. nov.
   Synonymy:—*Triletes pyriformis* Dijkstra, 1951. Meded. Geol. Sticht., new ser., no. 5, p. 14, pl. 2, fig. 9.
   Pyrobolospora pyriformis Hughes, 1955. Geol. Magazine, vol. 92, no. 3, pl. 11, figs. 1, 2.

Explanation of Plate I

Arcellites cf. A. hexapartitus

Figure 1. **Equatorial diameter of spore body, 310 μ. Total length including neck, 650 μ. Appendages approximately 45 to 48 μ long.**
Slide OPC 992 A-5-2.

Figure 2. **Equatorial diameter of spore body, 220 μ. Total length including neck, 625 μ. Appendages approximately 75 μ long.**
Slide OPC A-2-1.

Figure 3. **Equatorial diameter of spore body, 235 μ. Total length including neck, 500 μ. Appendages approximately 70 μ long.**
Slide OPC 992 A-7-4.

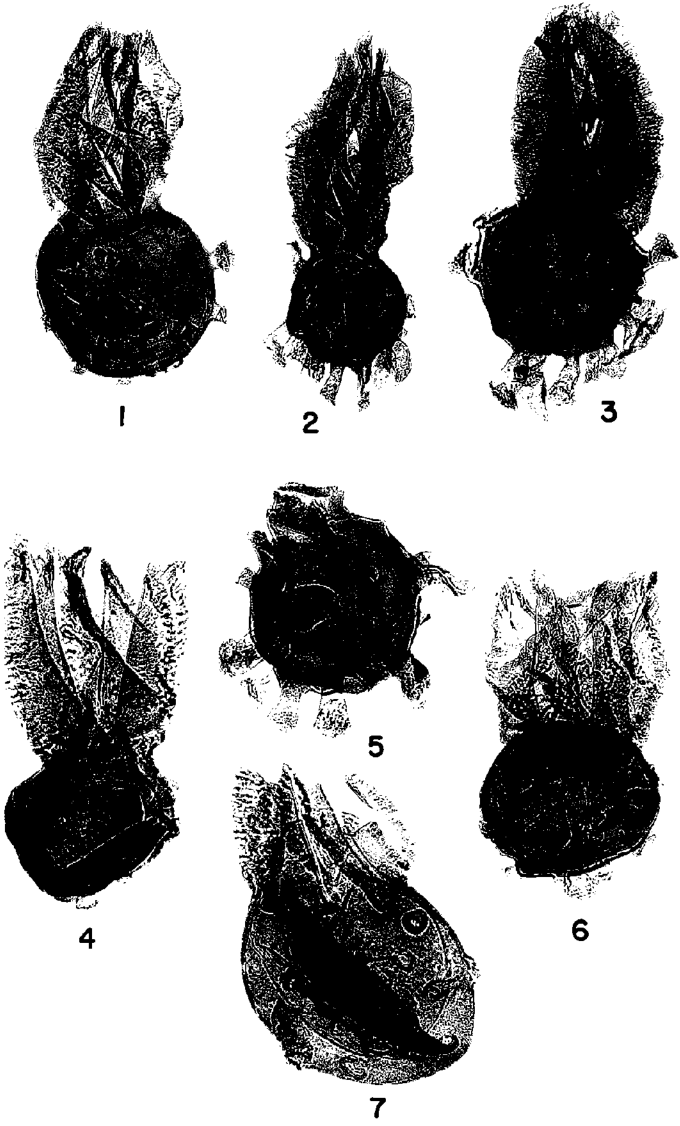
Figure 4. **Equatorial diameter of spore body, 200 μ. Appendages approximately 50 μ long.**
Slide OPC 992 A-4-3.

Figure 5. **Equatorial diameter of spore body, 265 μ. Total length including neck, 520 μ. Appendages approximately 45 μ long.**
Slide OPC 992 A-6-1.

Figure 6. **Equatorial diameter of spore body, 250 μ. Total length of spore body, 350 μ. Appendage basal diameter approximately 22 to 30 μ.**
Slide OPC 992 A-4-1.

Figure 7. **Equatorial diameter of spore body, 235 μ. Total length including neck, 380 μ. Appendages approximately 40 μ long.**
Slide OPC 992 A-5-1.

Plate I



7. *Arcellites medusus* (Dijkstra, 1951) comb. nov.
Synonymy:—*Triletes medusus* Dijkstra, 1951. Meded. Geol. Sticht., new ser., no. 5, p. 14, pl. 2, fig. 10.
Pyrobolospora medusa Hughes, 1955. Geol. Magazine, vol. 92, no. 3, p. 210.
8. *Arcellites hexapartitus* (Dijkstra, 1951) comb. nov.
Synonymy:—*Triletes hexapartitus* Dijkstra, 1951. Meded. Geol. Sticht., new ser., no. 5, p. 14, pl. 2, figs. 7, 8.
Pyrobolospora hexapartita Hughes, 1955. Geol. Magazine, vol. 92, no. 3, p. 207-209, pl. 10, figs. 4, 5.
9. *Arcellites crillensis* Schemel, 1950. Amer. Jour. Botany, vol. 37, no. 9, p. 751, 753, figs. 16-19.
10. *Arcellites vectis* (Hughes, 1955) comb. nov.
Synonymy:—*Pyrobolospora vectis* Hughes, 1955. Geol. Magazine, vol. 92, no. 3, p. 204-207, pl. 10, figs. 1-3; pl. 11, fig. 6; pl. 12, figs. 3-8, 10-11, text-figs. 1, 2.
11. *Arcellites reticulatus* (Cookson and Dettmann, 1958) comb. nov.
Synonymy:—*Pyrobolospora reticulata* Cookson and Dettmann, 1958. Micropaleontology, vol. 4, no. 1, p. 40-41, pl. 1, figs. 2-6.
12. *Arcellites nuda* (Cookson and Dettmann, 1958) comb. nov.
Synonymy:—*Pyrobolospora nuda* Cookson and Dettmann, 1958. Micropaleontology, vol. 4, no. 1, p. 41-42, text-fig. 2.

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Hidden Taxonomic Material

Carl C. Branson

New names for paleontologic taxa are, in all too many cases, published in obscure ways. The name *Conocardium semiplenum* White, 1877, was proposed as follows: "In case the discovery of more perfect specimens should confirm the opinion that this shell belongs to an undescribed species, I propose for it the name of *C. semiplenum*" (White, 1877, p. 94).

The new generic and specific names of fossils from the Sosio beds of Sicily, given by Di Gregorio, were inadequately proposed and the fossils badly illustrated. Gemmellaro proposed many of his new genera and species in a leaflet series held then and now by few libraries (Bulletino, Societa Sciencia ed Economiche di Palermo), and in some cases changed names and generic assignments before publishing in the Giornale, and in other cases did not publish a final description.

For some time the University of Chicago required publication of doctoral dissertations and exacted a bond from the new Doctor of Philosophy, and in some cases reproduced a version of the dissertation "published" in crude photo-offset with bad illustrations (Smith, 1938; Jones, 1941).

The new generic name *Glossothyropsis* was proposed in these terms: "In configuration it recalls the Jurassic genus *Glossothyris* and in default of a suitable generic locus the term *Glossothyropsis* might be used for it" (Girty, 1934, p. 251).

Embrik Strand, who would in another sphere be termed a free-loader, proposed new names for generic homonyms which others had detected. He knew nothing of the animals involved, and paleontologists are fortunate that few of these were names for fossils.

Perhaps the most exasperating instance of hidden taxa is that of the three new generic names proposed by Licharev in the Russian translation of a textbook. The reference has been badly cited by some authors and even more authors listed the reference as "not seen." The book is actually the translation into Russian of the Broili revision (1924) of von Zittel's Grundzüge der Paläontologie (Paläozoologie), I Abteilung, Invertebrata, translated into Russian as Osnovy Paleontologii (Paläozoologiya) under the directorship of A. N. Riabinin, published in 1934. The book is a fantastic accomplishment, containing 1,056 pages. The Broili edition had 1,467 text figures, the Russian version 2,001 figures. The brachiopod section was supervised by B. K. Licharev. He gave the new name *Paeckelmannia* to *Tornquistia* Paeckelmann, 1930, homonym of *Tornquistia* Reed, 1896 (footnote, p. 509). The new name proved to be junior synonym of *Waagenites* Paeckelmann, 1930. The new name *Grabauellina* was proposed for *Derbyina* Grabau, 1931, homonym of *Derbyina* Clarke, 1913 (p. 507 and footnote). The new subgenus of *Derbyia*, *Derbyaeconcha*, was proposed with "genoholotype" (=subgenotype) *Derbyia anomala* Licharev, 1932 (p. 507 and footnote, which is a one-sentence description in German).

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Hunton Crinoids

Oklahoma Geological Survey Bulletin 100, *Crinoids of the Hunton Group (Silurian-Devonian) of Oklahoma,* by Harrell L. Strimple, was issued on August 14, 1963. The book is a description of the known crinoid fauna of the Bois d'Arc, Haragan, and Henryhouse Formations, comprising more than 1,000 specimens representing 34 genera, 49 species, and 1 subspecies; of these, 7 genera, 22 species, and the subspecies are new.

The book contains 169 pages, 30 text-figures, and 12 plates. It is available at the Survey offices, $3.00 cloth bound, $2.00 paper bound.

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