

# OKLAHOMA GEOLOGY NOTES

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## *Cover Picture*

### QUATERNARY DEPOSITS IN WESTERN OKLAHOMA

#### CIMARRON SAND DUNES

Quaternary dune-sand deposits are not uncommon in Oklahoma. They are, however, for the most part stabilized by vegetation. One of the larger areas of such sand deposits is a broad belt along the north bank of the Cimarron River from near Guthrie to northwestern Woods County. In only a few places is the surface of these sand hills nearly devoid of vegetation and the hills active sand dunes. A scene from one such area, the Little Sahara State Recreation Area, is the subject for this month's cover.

In western Oklahoma the prevailing winds are southerly so that, when the Cimarron River is dry or nearly so, as it is through most of the year, sands are blown out of the channel onto the north bank. The channel deposits are derived mostly from erosion of older Quaternary deposits, the Tertiary Ogallala Formation, and the underlying Permian redbeds, and the sorting action of the winds produces from them light-colored well-sorted sand deposits.

This picture, provided by the Oklahoma Planning and Resources Board, is the last of the series for the 1963 volume of the *Notes*, in which it was endeavoured to represent each geologic system by a photograph of one of its Oklahoma outcrops. Little Sahara Recreation Area is one of the more easily accessible dune areas along the Cimarron River, being on the west side of U. S. Highway 281, about 3 miles south of Waynoka, T. 24 N., R. 16 W., Woods County.

—A. N.

## TYPE SPECIES OF *Edestus* LEIDY

CARL C. BRANSON

Edestids are sharks with symmetrical elements of bone supporting teeth or tooth-like units arranged in a row, an arc, or a spiral. The first specimen described was made known in papers by Leidy in 1856 and 1858. The specimen came from "Coal Measures, Frozen Rock, Arkansas River, Indian Territory," and Leidy named it *Edestus vorax*, a new genus and new species. Every subsequent writer who has committed himself has listed the form as from Arkansas (Newberry and Worthen, 1870, p. 353; Newberry, 1888, p. 114; Newberry, 1889, p. 218; Hay, 1929, p. 572; Abel, 1919, p. 138).

The locality is obviously in the former Cherokee Nation of Indian Territory, now part of the State of Oklahoma. Frozen Rock (no longer known by that name) was a landing at the Coodey plantation on the west side of the Arkansas River. With help from Miss Opal Carr, history librarian, Mrs. Alice M. Timmons of the Phillips Collection, Jack D. Haley of the Manuscripts Division, and Dr. Arrel Gibson of the Bizzell Library, The University of Oklahoma, it was determined that Frozen Rock is near the mouth of Coody Creek (Coodey's, Coata, Coody's) about three miles east of Muskogee in Muskogee County, Oklahoma. The site is described in a quotation in a Texas newspaper of a letter from a Confederate soldier who camped there (Foreman, 1947, p. 341). The rock was described as porous slate rock (shale) exposed between the William Coodey house and his brother's house. Frozen Rock School was (in 1946) on the east line of sec. 29, T. 15 N., R. 19 E. (U. S. Geological Survey, Topographic Branch, Keefeton quadrangle). The rock is said to be four miles above Bayou Manard, four miles below the Creek agency, and seven miles below Fort Gibson, and to be three miles east of Muskogee. A seep above the exposure let water run over the shale, and in winter a sheet of ice formed.

The locality, if at Frozen Rock itself, is in NE $\frac{1}{4}$  SW $\frac{1}{4}$  sec. 28, T. 15 N., R. 19 E., Muskogee County, Oklahoma, which is also the site of the William Shorey Coodey house. The stratigraphic position of the locality is less certain. The Riverton coal (about an inch thick) is in the upper part of the steep bank, and Warner Sandstone caps the low bluff. Fossils would be from the McAlester Shale or from the Savanna Formation in the immediate area.

Dr. Horace G. Richards of the Academy of Natural Sciences of Philadelphia kindly lent the holotype of *Edestus vorax* for study. It is no. 9899 in the collection and is accompanied by four labels. These read:

"*Edestus vorax* Leidy  
Frozen Rock, Arkansas R., Indian Territory  
Pres. by W. S. Vaux"

"*Edestus vorax* Leidy: Journ. A. N. S. III  
Pl. 15, figs. 1-4 9899 Frozen Rock  
W. S. Vaux. Arkansas River, Ind. Ter."

“Acad. of Nat. Sci.  
 Paleontology No. 9899  
 Edestes vorax Leidy  
 Frozen Rock, Arkansas R.”  
 (this label bears a blue star and one orange lozenge)

“**Edestus vorax**  
 Frozen Rock, Arkansas River, Indian Territory  
 Lower Carboniferous to Permian  
 Shark: teeth serrated, roots large, deeply  
 claspings the next tooth.”

It seems unlikely that a fossil of this type could weather out and be preserved as is this one. The specimen is in unweathered condition and appears to have come from a coal mine. The specimen is black, and Leidy stated that when first received the crevices were filled with carbonaceous matter, leading Leidy to conclude that it was collected from a coal bed. Leidy gave the information that the specimen was presented to the academy by “William S. Vaux, Esq., who obtained it from an itinerant showman. The latter informed Mr. Vaux that the specimen was discovered at Frozen Rock, Arkansas river, twenty miles below Fort Gibson, in the Indian Territory.” (Leidy, 1858, p. 159).

It is here considered that *Edestus giganteus* Newberry, 1889, is *Edestus vorax* and that almost certainly the collector obtained the holotype of *Edestus vorax* from a coal mine near Decatur, Macon County, Illinois, the type locality of *E. giganteus*. The coal mined there is Illinois No. 5, the Springfield (Harrisburg) coal of the St. David cyclothem, Carbondale Formation. The stratigraphic level is that of the Fort Scott Formation of Oklahoma, Marmaton Group, and stratigraphically 300 feet above the strata at Frozen Rock.

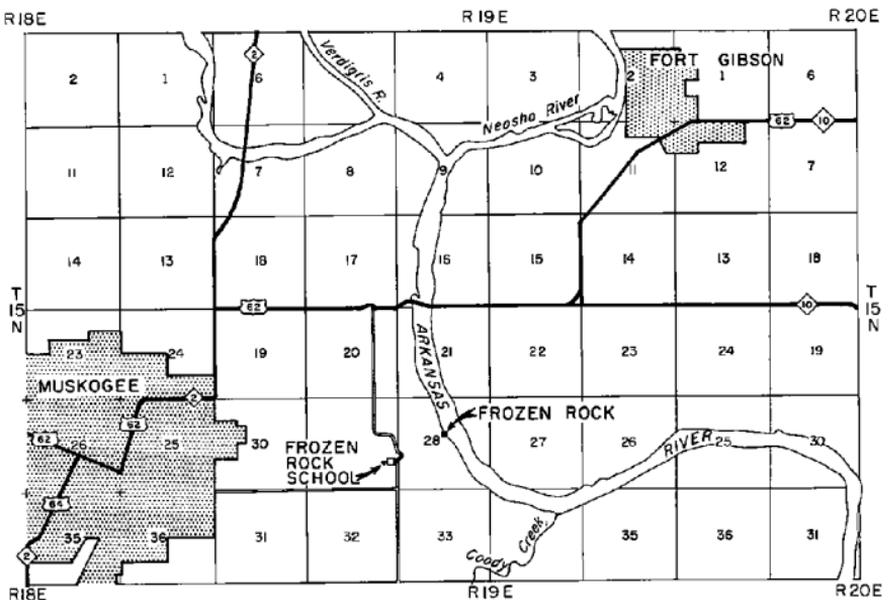


Figure 1. Map showing location of Frozen Rock.

Family EDESTIDAE Leidy, 1857  
(nom. trans. from Edestina)

*Edestus vorax* Leidy, 1856

- Edestus vorax** Leidy, 1856, Acad. Nat. Sciences Philadelphia, Proc., vol. 7, p. 414.  
**Edestus vorax** Leidy, Leidy 1857, Acad. Nat. Sciences Philadelphia, Proc., vol. 8, p. 301-302.  
**Edestus vorax** Leidy, Leidy 1858, Acad. Nat. Sciences Philadelphia, Jour., 2d ser., vol. 3, p. 159-160, pl. 15, figs. 1-4.  
**Edestus vorax** Leidy, Newberry 1889, N. Y. Acad. Sciences, Annals, vol. 4, pl. 4, fig. 2.  
**Edestus giganteus** Newberry, Newberry 1889, U. S. Geol. Survey, Mon. 16, p. 225-226, pl. 41.  
**Edestus giganteus** Newberry, 1889, N. Y. Acad. Sciences, Annals, vol. 4, p. 121-122, pl. 6.  
not **Edestus vorax** of Newberry and Worthen, 1870, Ill., Geol. Survey, expl. of pl. 1 and pl. 1, fig. 2. The figure is of *E. minor*.  
not **Edestus vorax** of Miller, 1889, North American Geology and Paleontology, p. 597, fig. 1129. The figure is a reproduction of the erroneously labeled figure of Newberry and Worthen, 1870.

The specimen consists of all or part of four bone bases and of parts of four "teeth." It weighs 23 ounces. The preserved length is 13 cm, height 13.5 cm, greatest thickness 4.3 cm. The "teeth" are triangular, are bordered by large, rounded serrations, and are flattened ovate in outline. The surface is enamel, which is marked by longitudinal wrinkles. The base of each tooth is bordered by a distinct rounded ridge, which curves backward and upward, thence upward and forward along a rectangular area of bare (not enameled) bone. This bare area extends to the base of the serrated blade.

Each tooth is set upon and is part of the anterior upper end of an elongate and arched bone element, which is deeply grooved on its upper side. The groove receives the lower edge of the next basal element. The suture between the individual bases is distinct. The first unit (and presumably the succeeding ones also) bears a prominent rounded keel on the leading edge. Next to the keel, about mid-length on each side, is a foramen 4 mm in diameter. These are believed to be openings for blood vessels nurturing the bone.

The lateral surfaces of the bone are marked by fine sinuous broken ridges. The lower lateral surface bears longitudinal ridges and grooves.

The following species have been referred to *Edestus*.

*Edestus crenulatus* Hay, 1909

Locality and horizon unknown

*Edestus davisii* Woodward, 1886. Equal *Helicoprion davisii*.

*Edestus giganteus* Newberry, 1889. Synonym of *E. vorax*.

Pennsylvanian: Decatur, Macon County, Illinois

*Edestus karpinskyi* Missuna, 1907

Upper Carboniferous: near Kolomna, Moscow area, Russia

*Edestus heinrichi* Newberry and Worthen, 1870

Cap rock of Pennsylvanian coal, Belleville, St. Clair County, Illinois, also Decatur, Macon County, Illinois, and Vermillion County, Indiana

*Edestus lecontei* Dean, 1897. Equal *Helicoprion lecontei*.

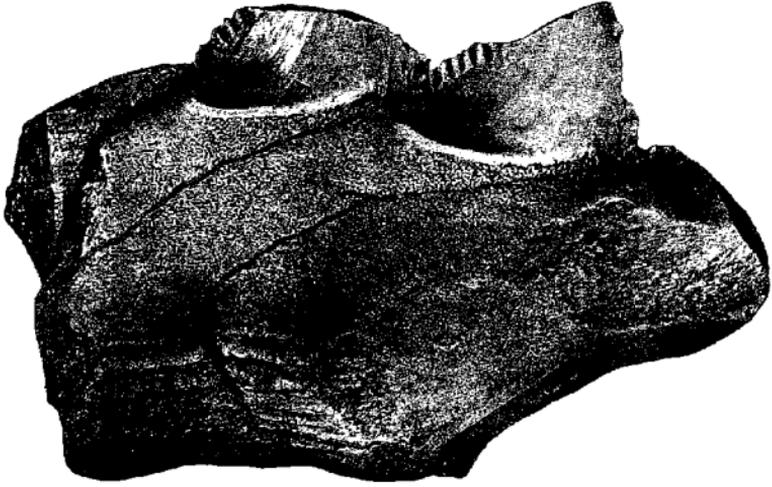


Figure 2. Right side of holotype of *Edestus vorax*.

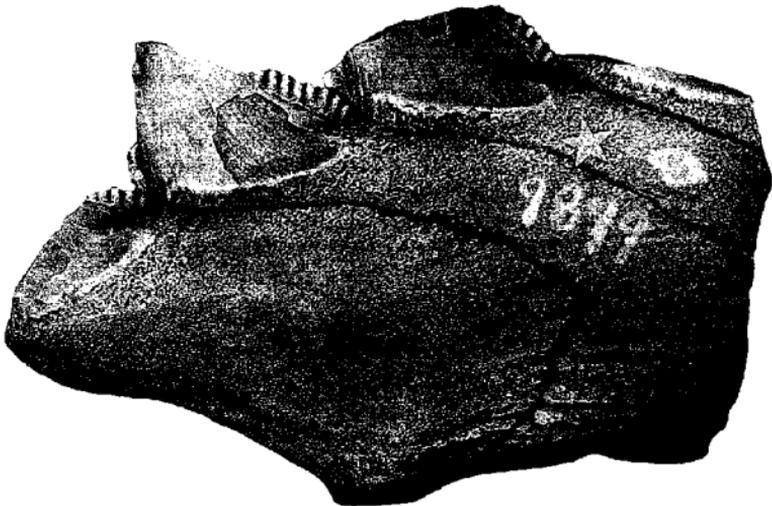


Figure 3. Left side of holotype of *Edestus vorax*.

- Edestus minor* Newberry, 1866  
Desmoinesian: Parke County, Indiana, and Posey County, Indiana
- Edestus minusculus* Hay, 1909  
Moscovian: Mjatschkova, near Moscow
- Edestus mirus* Hay, 1912  
Above Tyson coal, Desmoinesian, Pennsylvanian: Lehigh, Webster County, Iowa
- Edestus protopirata* Trautschold, 1879  
Upper Carboniferous: Moscow area, Russia  
(as *Protopirata centrodon* by Trautschold, 1888)
- Edestus newtoni* Woodward, 1917  
Millstone grit: Brockholes, near Huddersfield, Yorkshire, England
- Edestus serratus* Hay, 1909  
Horizon and locality unknown
- Edestus triserratus* Newton, 1904  
Marine band, 54 feet below Twist coal, Nettlebank, Staffordshire, England
- Edestus vorax* Leidy, 1856  
Probably from St. David cyclothem, Macon County, Illinois

Obrutchev (1953) assigned the known species to four genera. In the genus *Edestus*, he left only *E. vorax* and *E. giganteus*. To genus *Protopirata* Trautschold he assigned the type species, *P. protopirata*, *P. heinrichi*, *P. karpinskyi*, *P. crenulata*, and *P. serrata*. New genus *Edestodus* was conceived of as including the type species, *E. minor*, *E. minusculus*, and *E. mirus*. The new genus *Lestrodus* contains only *L. newtoni*.

More advanced and somewhat distantly related genera are *Helicoprion*, *Lissoprion*, *Toxoprion*, *Helicampodus*, *Sinohelicoprion*, *Sarco-prion*, *Parahelicampodus*, from Permian and Triassic strata.

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## Second Annual Meeting—Oklahoma Section of National Association of Geology Teachers

The second annual meeting of the Oklahoma Section of the National Association of Geology Teachers will be held in conjunction with the Oklahoma Academy of Science, December 7, at the Oklahoma Center for Continuing Education, The University of Oklahoma.

With Gerald M. Friedman, president, presiding, the morning session will consist of talks by invited speakers on the theme "Introductory Geology at the College Level." The principal speaker will be Dr. John L. Snyder, Director of Education, American Geological Institute, Washington, D. C., whose topic will be "The Future of Introductory Geology at the College Level." Dr. Snyder will discuss the surveys conducted on this subject by the Institute. Other speakers will be Dr. David B. Kitts, The University of Oklahoma, who will speak on "Fact and Principle in Elementary Geology," and Dr. V. Brown Monnett, Oklahoma State University, whose topic will be "Consider the Student."

At the business meeting plans for next year's symposium will be discussed. The subject, "Earth Science Program at the High School Level," has been suggested for the 1964 meeting.

The Oklahoma Section includes representatives of all of the Oklahoma colleges and universities that have a geology curriculum, the petroleum industry, high schools, and the Oklahoma Geological Survey.

RÉSUMÉ OF NEW NOMENCLATURE PUBLISHED IN  
OKLAHOMA GEOLOGY NOTES

February 1962 through December 1963

The following is a list of new taxa published in *Oklahoma Geology Notes* during the past 23 months. It supplements the first list published in January 1962.

| NAME                                    | AUTHOR        | VOLUME | PAGES   |
|---|---------------|--------|---------|
| <b>Crinoidea</b>                        |               |        |         |
| <i>Endelocrinus bransoni</i> , n. sp.   | Strimple      | 22     | 28-29   |
| <i>Tarachiocrinus</i> , n. name         | Strimple      | 22     | 135-136 |
| <i>Tholiocrinus</i> , n. name           |               |        |         |
| <i>Dasciocrinus aulicus</i> , n. sp.    | Strimple      | 23     | 101-107 |
| <i>Graphiocrinus lineatus</i> , n. sp.  | Strimple      | 23     | 191-194 |
| <b>Blastoidea</b>                       |               |        |         |
| <i>Placoblastus ehlersi</i> , n. sp.*   | Fay & Reimann | 22     | 30-49   |
| <i>Strongyloblastus</i> , n. gen.*      | Fay           | 22     | 132-135 |
| <i>S. petalus</i> , n. sp.*             |               |        |         |
| <i>Hadroblastus</i> , n. gen.*          | Fay           | 22     | 189-195 |
| <i>H. convexus</i> , n. sp.*            |               |        |         |
| <i>Phaenoblastus conicus</i> , n. sp.*  |               |        |         |
| <i>Nodoblastus</i> , n. gen.*           | Fay           | 23     | 174-180 |
| <i>N. librovitchi</i> , n. comb.*       |               |        |         |
| <i>Pentremoblastus conicus</i> , n. sp. | Fay & Koenig  | 23     | 267-270 |
| <b>Brachiopoda</b>                      |               |        |         |
| <i>Kozlowskia adairensis</i> , n. comb. | Branson       | 22     | 240-244 |
| <b>Arthropoda</b>                       |               |        |         |
| <i>Helminthochiton riddlei</i> , n. sp. | Frederickson  | 22     | 298-302 |
| <b>Conodonta</b>                        |               |        |         |
| <i>Oistodus angulensis</i> , n. sp.     | Harris        | 22     | 199-211 |
| <i>O. bilongatus</i> , n. sp.           |               |        |         |
| <i>O. multicorugatus</i> , n. sp.       |               |        |         |
| <i>Eofalodus</i> , n. gen.              |               |        |         |
| <i>E. brevis</i> , n. sp.               |               |        |         |
| <i>Ptiloncodus</i> , n. gen.            |               |        |         |
| <i>P. simplex</i> , n. sp.              |               |        |         |
| <i>Histiodella</i> , n. gen.            |               |        |         |
| <i>H. altifrons</i> , n. sp.            |               |        |         |
| <i>H. serrata</i> , n. sp.              |               |        |         |
| <b>Cephalopoda</b>                      |               |        |         |
| <i>Diaboloceras neumeieri</i> , n. sp.* | Quinn & Carr  | 23     | 111-118 |

\* Not an Oklahoma form.

| NAME                                    | AUTHOR       | VOLUME | PAGES   |
|---|--------------|--------|---------|
| Plantae (megafossils)                   |              |        |         |
| <i>Dadoxylon adaense</i> , n. sp.       | Wilson       | 23     | 215-220 |
| Plantae (microfossils)                  |              |        |         |
| <i>Reduviasporonites</i> , n. gen.      | Wilson       | 22     | 91-96   |
| <i>R. catenulatus</i> , n. sp.          |              |        |         |
| <i>Quisquilites</i> , n. gen.           | Wilson &     | 23     | 16-19   |
| <i>Q. buckhornensis</i> , n. sp.        | Urban        |        |         |
| <i>Thymospora</i> , n. name*            | Wilson &     | 23     | 75-79   |
| <i>T. thiessenii</i> , n. comb.         | Venkatachala |        |         |
| <i>T. obscura</i> , n. comb.*           |              |        |         |
| <i>T. pseudothiessenii</i> , n. comb.   |              |        |         |
| <i>T. amblyogona</i> , n. comb.*        |              |        |         |
| <i>T. pseudogranulata</i> , n. comb.*   |              |        |         |
| <i>T. cingulatoides</i> , n. comb.*     |              |        |         |
| <i>T. reticulata</i> , n. comb.*        |              |        |         |
| <i>T. verrucosa</i> , n. comb.          |              |        |         |
| <i>T. perverrucosa</i> , n. comb.       |              |        |         |
| <i>Vestispora fenestrata</i> , n. comb. | Wilson &     | 23     | 94-100  |
| <i>V. foveosa</i> , n. comb.            | Venkatachala |        |         |
| <i>V. quaesita</i> , n. comb.           |              |        |         |
| <i>V. foveata</i> , n. comb.            |              |        |         |
| <i>V. velensis</i> , n. comb.*          |              |        |         |
| <i>V. magna</i> , n. comb.*             |              |        |         |
| <i>V. irregularis</i> , n. comb.*       |              |        |         |
| <i>V. cancellata</i> , n. comb.*        |              |        |         |
| <i>V. laevigata</i> , n. sp.            |              |        |         |
| <i>Arcellites diktyotus</i> , n. comb.* | Potter       | 23     | 227-230 |
| <i>A. pupus</i> , n. comb.*             |              |        |         |
| <i>A. lobatus</i> , n. comb.*           |              |        |         |
| <i>A. argus</i> , n. comb.*             |              |        |         |
| <i>A. pyriformis</i> , n. comb.*        |              |        |         |
| <i>A. medusus</i> , n. comb.*           |              |        |         |
| <i>A. hexapartitus</i> , n. comb.*      |              |        |         |
| <i>A. vectis</i> , n. comb.*            |              |        |         |
| <i>A. reticulatus</i> , n. comb.*       |              |        |         |
| <i>A. nudus</i> , n. comb.*             |              |        |         |

## RUSSIAN CEPHALOPODS

CARL C. BRANSON

The volume describing the ammonites is volume 6 of *Fundamentals of Paleontology* but was the second volume to be published. The remainder of the cephalopods have now been treated in volume 5. As in most volumes, numbers of new taxa are proposed and it is difficult to sort these out of the big volume. Those detected are:

Volborthellidae Balaschov, new family (p. 72).

Vologdinellidae Balaschov, new family (p. 72).

*Vologdinella* Balaschov, new genus (p. 72). Type species *Orthoceras (?) antiquus* Vologdin, 1930, Middle Cambrian of Kazakhstan.

*Bohemites* F. Zhuravleva, new genus (p. 84). Type species *Orthoceras aculeatum* Barrande, 1877. Upper Silurian of Bohemia.

*Shimizuoceras* F. Zhuravleva, new name (p. 85) for *Foersteoceras* Shimizu and Obata, 1936 (homonym of *Foersteoceras* Ruedemann, 1925).

*Arpaceras* F. Zhuravleva, new genus (p. 89). Type species *A. raphaeli* F. Zhuravleva, new species (p. 89; pl. 16, fig. 4). Upper Devonian of Armenia.

*Lopingoceras* Shimansky, new genus (p. 90). Type species *Orthoceras lopingense* Stoyanow, 1909. Upper Permian of Djulfa, Armenia.

*Coralloceras* F. Zhuravleva, new genus (p. 91). Type species *Orthoceras coralliforme* Le Maitre, 1950. Upper Devonian of North Africa.

Bolloceratidae F. Zhuravleva, new family (p. 104).

*Devonocheilus* Shimansky, new genus (p. 108). Type species "*?Phragmoceras timanicum* Holzapfel, 1899." Upper Devonian of Timan. *Devonocheilus* sp. is figured as plate 27, figures 13-14.

*Cyrtocheilus* Shimansky, new genus (p. 109). Type species *Cyrtocheras obliquum* Foord, 1888. Middle Devonian of Germany.

*Evlanoceras* F. Zhuravleva, new genus (p. 109). Type species *Pachtoceras evlanensis* Nalivkin, 1947. Upper Devonian of the Russian platform.

*Cyclopites* F. Zhuravleva, new genus (p. 110). Type species *Pachtoceras cyclops* Wenjukov, 1886. Upper Devonian of the Russian platform.

Mitrocentratinae F. Zhuravleva, new subfamily (p. 114).

Aphelaeceratinae Shimansky, new subfamily (p. 129).

Knightoceratinae Shimansky, new subfamily (p. 131).

Subclymeniidae Shimansky, new family (p. 131).

Phacoceratidae Shimansky, new family (p. 131).

Clymenonautilinae Shimansky, new subfamily (p. 136).

Neothrincoceratidae Shimansky, new family (p. 137).

Heminautilinae Shimansky, new subfamily (p. 150).

*Rossicoceras* Balaschov, new genus (p. 201). Type species *Endoceras hasta* Eichwald, 1860. Upper Ordovician of Esthonia.

*Helenites* F. Zhuravleva, new genus (p. 221). Type species *Sactoceras formosum* F. Zhuravleva, 1957. Silurian of Tunguska.

Ellinoceratidae Balaschov, new family (p. 223).

*Devonobactrites* Shimansky, new genus (p. 236). Type species *Orthoceras obliqueseptatum* Sandberger, 1850. Middle Devonian of Germany.

Lobobactritidae Shimansky, new family (p. 236).

*Cochleiferoceras* Shimansky, new genus (p. 238). Type species *Orthoceras cochleiferum* Sandberger, 1850. Middle Devonian of Germany.

*Erbenoceras* B. Bogoslovsky, new genus (p. 336). Type species *Anetoceras advolvens* Erben, 1960. Eifelian-Coblentzian of France.

*Petteroceras* B. Bogoslovsky, new genus (p. 345). Type species *Pharciceras ? errans* Petter, 1959. Devonian of Africa.

*Metacanites dollei* Librovitich (p. 348), new name for *Prolecanites serpentinus* Dollé, 1912 (not Phillips, 1836).

Posttornoceratidae B. Bogoslovsky, new family (p. 359).

Axinolobinae Ruzhencev, new subfamily (p. 388).

The book is *Osnovy Paleontologii*, volume 5, 438 pages. Illustrations are ill-advisedly divided, as follows:

|                  | PAGES   | FIGURES | PLATES |
|------------------|---------|---------|--------|
| Ectocochlia      | 1-29    | 12      | 1      |
| Nautiloidea      | 33-169  | 143     | 44     |
| Endoceratoidea   | 173-204 | 12      | 7      |
| Actinoceratoidea | 207-225 | 21      | 3      |
| Bactritoidea     | 229-239 | 6       | 3      |
| Ammonoidea       | 243-425 | 187     | 32     |

Publication is by Akademii Nauk SSSR. Although dated 1962, the book was probably issued in 1963.

Volume 13 of the same series was also received in October. The volume is on Mammalia. It consists of 421 pages and 543 figures, but carries no plates. No new taxa were detected.

The *Osnovy* will be completed by volume 12, on the lower vertebrates, and by volumes 14 and 15, on the plants. Volume 1 is being revised and will be reissued.

## New Theses Added to O. U. Geology Library

The following doctoral dissertations were added to The University of Oklahoma Geology Library in November 1963:

*Palynology of Vermejo Formation coals (Upper Cretaceous) in the Canon City coal field, Fremont County, Colorado*, by Robert Travis Clarke.

*Palynology of the Red Branch Member of the Woodbine Formation (Upper Cretaceous) in Bryan County, Oklahoma*, by Richard W. Hedlund.

## Arkoma Basin Reference Book

The Rinehart Oil News Company has recently issued a comprehensive area reference book on the Arkoma basin. The book consists of two loose-leaf volumes, one devoted to the Oklahoma section and the other to the Arkansas section. The work was compiled and edited by R. P. Brooks, Jr.

Sectionalized and arranged to present a complete review of this area's gas play to mid-1963, the book includes material on the geologic background and development history of 100 fields in Oklahoma and 60 fields in Arkansas. The data for each field are supplemented by a recent plat and an electric log of a discovery well. Each volume has five sections: geological notes, field data, production, significant failures, and electrical logs.

The Rinehart Company has adopted the loose-leaf format for its area reference books to permit "updating of all material through the issuance of additional or supplemental pages (at a nominal cost) as future developments warrant." Two sections of the Oklahoma volume, geologic notes and production, have yet to be issued but will be mailed to purchasers of the volume at an early date. The book may be purchased from the Rinehart Oil News Company, P. O. Box 1208, Dallas, Texas. The Arkansas volume contains 247 pages and costs \$17.50. The Oklahoma volume now contains 278 pages, but will have more than 300 pages when complete. Its price is \$22.50. The set may be purchased for \$35.00.

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