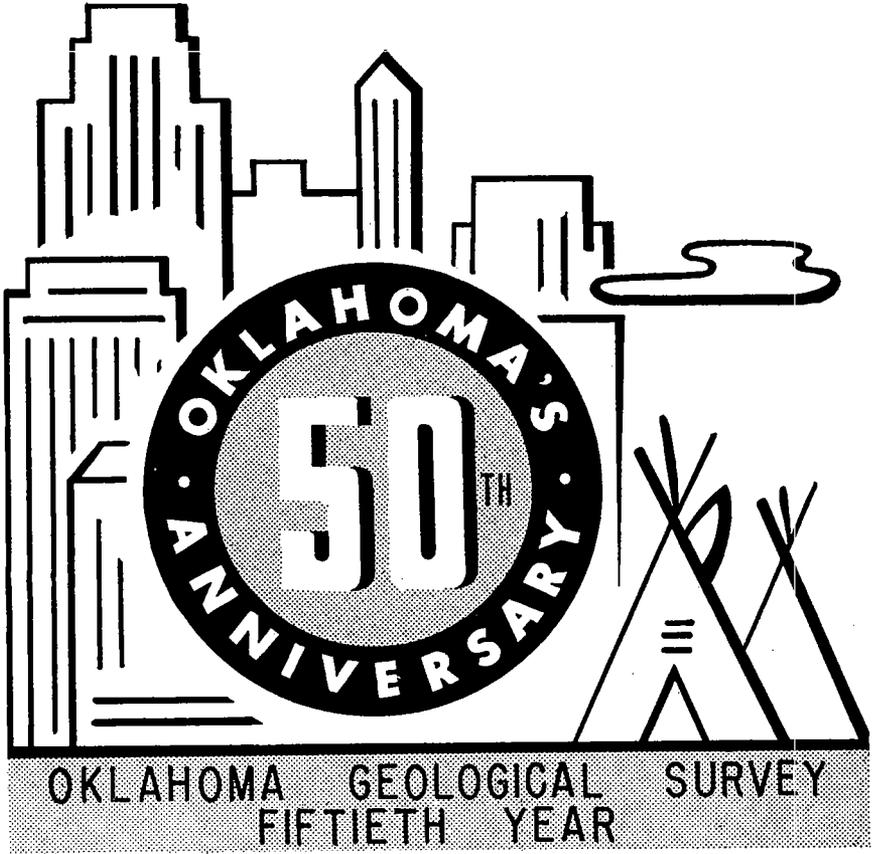


# OKLAHOMA GEOLOGY NOTES



## New Survey Publications

Uranium-bearing carbonaceous nodules of southwestern Oklahoma, by James W. Hill. Mineral Report 33, 6 pages, fold-in map. August 2, 1957. \$0.35 post-paid.

Geologic map of Criner Hills, Oklahoma, by E. A. Frederickson. Map GM-4, in color, scale 1:20,000. To be folded in pocket of guide book of Ardmore Geological Society field trip, Sept. 12-14, 1957. Map to be released for sale at Survey offices on Sept. 16, 1957. Price \$0.60 over the counter, \$0.75 mailed in tube.

## New Publication Available

On March 12 and 13 of this year the Fifth Biennial Symposium on Subsurface Geology was held at Norman. The meeting was arranged and organized by Carl A. Moore of the University of Oklahoma School of Geology. Dr. Moore edited the Proceedings and these have just been issued. The volume consists of 167 pages containing 10 original articles. The articles are on problems of carbonate reservoirs, the theme of the symposium.

The book is available at the University of Oklahoma, Business and Industrial Services, Extension Division, North Campus, at a price of \$5.00.

## Census of Oklahoma Geologists

A recent proposal to set up regional sections of the Geological Society of America has led me to take an informal census of the geologists of the State. It has been proposed that Oklahoma be part of a region consisting also of Texas and old Mexico. The proposal to set up this region was based upon figures counting fellows and members in the region. Only fellows vote, and Oklahoma is conspicuously low in number of GSA fellows. It would seem much better to group Oklahoma with Kansas, Texas, Arkansas, Missouri, and possibly Nebraska.

The following geological societies have members in Oklahoma:

American Association of Petroleum Geologists (members, assoc. mem., junior mem.)	1259
Tulsa Geological Society	666
Geophysical Society of Tulsa	401
Oklahoma City Geological Society	697
Oklahoma City Geophysical Society	98
Ardmore Geological Society	159
Geological Society of America	132
Shawnee Geological Society	(est.) 40
Okmulgee Geological and Engineering Society	(est.) 30
Society of Economic Geologists	no list
Paleontological Society of America	(1953) 23
Society of Economic Paleontologists and Mineralogists	74
Society of Vertebrate Paleontologists	4
Society of Exploration Geophysicists	391

These memberships are distributed among the cities of the State as follows:

	Tulsa	Okla. City	Ardmore	Norman	Shawnee	Ponca City	Duncan	Okmulgee	Barlesville	Enid	Other
AAPG	545	420	92	44	31	21	19	9	79	9	79
BSA-F.	31	1	1	9	0	0	1	0	2	2	0
GSA-Mem.	42	15	8	9	0	1	0	1	2	0	6
TGS	484	19	5	2	3	1	1	5	35	1	14
GST	320	1	1	0	0	27	0	0	33	0	2
OCGS	26	618	12	13	3	0	10	2	3	3	7
OC Geoph. S	3	78	1	1	8	0	0	0	0	0	2
Sh. G. S.	0	5	0	1	34	0	0	0	0	0	0
Ok. GES	0	0	0	0	0	0	0	27	0	0	3
Ard. GS	4	11	124	5	1	0	6	0	0	0	2
So. Expl. Geop.	270	39	2	3	4	29	0	1	19	6	18
So. Vert. Pal.	1	0	0	2	0	0	0	0	0	0	1
<b>Total</b>	<b>1726</b>	<b>1207</b>	<b>246</b>	<b>89</b>	<b>84</b>	<b>79</b>	<b>37</b>	<b>45</b>	<b>173</b>	<b>21</b>	<b>134</b>

The total number of known geological and geophysical society memberships of state residents is 3,941. Nearly all geologists are members of more than one society, and on the average each appears to belong to two. The total number of resident Oklahoma geologists is about 1,970.

—CCB

## What are the Uses of Gypsum?

It is well known that the reserves of gypsum in western Oklahoma are tremendous, which may justify a short answer to the question.

Close to 21.5 percent of the gypsum consumed in 1956 was used in the manufacture of portland cement, or as a filler in numerous products after grinding, or in agriculture as a fertilizer and soil conditioner. In these uses the gypsum is used without processing other than crushing and grinding.

The balance, or about 78.5 percent of the gypsum produced, is calcined to yield products which are utilized in the manufacture of materials such as various plasters, wall boards, tile, Keene's cement, etc. As a matter of fact, less than 3 percent of the total calcined goes for industrial purposes other than building materials. —ALB

## New State Depth Record in Cement Field

Magnolia Petroleum Company has established a new state drilling depth record at a geological wildcat in the western part of the Cement field structure in Caddo County. The test, No. 1 Sterba-Ordovician, SW $\frac{1}{4}$  NE $\frac{1}{4}$  SW $\frac{1}{4}$  section 35, T. 6 N., R. 10 W. is currently drilling below 18,886 feet (July 30, 1957) in shale which is either Lower Pennsylvanian or Upper Mississippian in age.

Oklahoma at the present time ranks sixth among the states in drilling depths accomplished. The record depths, year drilled, and age of rocks at total depth for the various states are listed below.

STATE OR AREA	YEAR	TOTAL FOOTAGE	AGE OF ROCK AT T. D.
South Louisiana	1956	22,570	Miocene
California	1954	21,482	Miocene
Wyoming	1949	20,521	L. Cretaceous
Mississippi	1951	20,450	Jurassic
Texas Gulf Coast	1955	19,060	U. Eocene
West Texas	1956	18,771	Mississippian
Oklahoma	1956	18,158	L. Pennsylvanian

The previous record for Oklahoma was established by the Frankfort Oil Company in its No. 1 Pruitt, C NE $\frac{1}{4}$  NW $\frac{1}{4}$  section 16, T. 4 N., R. 8 W., Grady County. Magnolia's test is now several hundred feet below this depth of 18,158 feet and it is planned to take the test to 20,000 feet.

At present, Oklahoma ranks third among the states in production depth records. The deepest well in the United States in Plaquemines Parish, South Louisiana, also found the deepest production at 21,465 feet. A well in Kern County, California, produced oil from 17,892 feet in rocks of Eocene age in 1953. In 1956, British-American's No. 2 Harrison, Knox field, Grady County, found production in the Bromide formation of Middle Ordovician age at 15,310 feet. This depth production record was superseded in early 1957 when the British-American No. 1 Reed, SW $\frac{1}{4}$  SW $\frac{1}{4}$  NE $\frac{1}{4}$  section 20, T. 3 N., R. 5 W., Knox field, recovered gas and condensate from the Second Bromide sand at 15,220-330 feet and Third Bromide at 15,575-635 feet. —LJ

## Chemicals from Petroleum

During the year 1956 crude oil consumed by the refining industry amounted to about 98 percent of the total produced whereas the chemical industry consumed only about 2 percent. During this same period the refining industry expended about 765 million dollars for new plants and for remodeling old ones, whereas the capital investment by the so-called petrochemical industry was over 570 million dollars and is expected to go over 700 million dollars in 1957.

The contrast in crude oil consumption for the production of fuel and for production of chemicals measured against the capital investment by the two types of industry is striking. A partial explanation lies in the fact that the chemical industry converted its 2 percent of the crude oil into products having a value of more than 3 billion dollars, which represented over 25 percent of the value of all chemical products. —ALB

## A Geologist Looks at the New Oklahoma Guide Book

In 1941 the University of Oklahoma Press printed the WPA compiled American Guide Series book on Oklahoma. The book was reprinted in 1945 and 1947. A completely revised edition has just been issued. It is a remarkably well done piece of writing. The book is 532 pages and contains 19 small, but useful, maps. One of these is a diagrammatic map of surface features, drawn by Dr. Hoy of the Geography Department of the University.

The text is especially strong in history. Several parts were written by specialists in various fields. The Oklahoma Geological Survey prepared the short piece on geology (p. 11-13), checked the elevations, and eliminated some of the grosser geologic errors of the earlier edition. The Survey's mineral map of Oklahoma was heavily drawn upon, as was "Highway Geology of Oklahoma" of the Oklahoma City Geological Society.

Geology plays but a small part in the book and most of this small part is sound. Many geologic slips arise from a layman's misunderstanding of terminology. Norman is said to be on a plateau (p. 172), the Blaine is placed at 50 million years old, instead of 200 million (p. 277), the Jurassic is technically correctly given as "more than ten million years ago (p. 288), but it is about 100 million. The fossil scale-tree base at El Reno is said to be 8 feet high. The "granite-topped mountains" (p. 292) are, of course, solid granite. That the Wichita Mountains are "one of the oldest ranges in the United States" (p. 322) is a curiously timed statement, for it has recently been shown that the rocks of the igneous core are youngest Precambrian. The statement about the type locality of the Checkerboard limestone, "Geologists say the highway-like formations are a freak of nature (p. 411) is naive. The pattern is the normal joint system in a brittle thin layer.

There are relatively few errors. The book is recommended as a companion to any who travel to the communities of the State. Used with "Highway Geology of Oklahoma" it gives the traveler a fine source of information on points of interest, scenic places, history, and human activities. —CCB

## Pelecypods of Oklahoma Late Mississippian

Dr. Elias' description of the fauna of the Redoak Hollow sandstone will appear in four parts. The third part, that on the clams, has just appeared (Journal of Paleontology, vol. 31, no. 4, pp. 737-784). Thirty-seven different clams are recognized, of which seventeen are new. A new genus, *Eopleurophorus*, is erected for *Cypricardia? tricostata* Portlock and related species, and a new subgenus of *Leptodesma*, *Springeria*, is established for two new species, but neither is designated subgenotype. The pelecypods show more Pennsylvanian affinities than they do Mississippian.

Elias' nude names of 1956 (Petroleum Geology of Southern Oklahoma, p. 87) are mainly validated here, but there are deviations.

1956 nude names	1957
<i>Nucula subventricosa</i>	N. ( <i>Nuculopsis</i> ) <i>subventricosa</i>
<i>N. anodontoides minuta</i>	N. (N.) <i>anodontoides minuta</i>
<i>Conocardium reticulatum</i>	C. sp. A
<i>Leptodesma matheri</i>	L. ( <i>Springeria</i> ) <i>matheri</i>
<i>L. stenzeli</i>	L. (S.) <i>stenzeli</i>
<i>L. longissima</i>	L. sp. A
<i>Schizodus rugosus</i>	<i>Sedgwickia rugosa</i>
<i>Aviculopecten pricei</i>	A. sp. C
<i>Streblopteria lissoptera</i>	<i>Streblochondria? tenuilineata</i>
<i>Pleurophorus elongatus</i>	not described

Elias introduces Tschernyschew's genus *Phestia* for *Leda inflata* Girty and his *Polidevcia* for *Nuculites vaseyana* McChesney. The subgenus *Orthoyoldia* of Verrill and Bush is used for *Yoldia glabra* Beede and Rogers.

Elias notes the generic equivalence and subgeneric distinctness of *Leiopteria* and *Leptodesma*. He selects *Leptodesma* as genus with subgenera *Leptodesma*, *Leiopteria* and *Springeria*. On the facts presented he is entitled to do so under Article 28 of the Rules, "If the names are of the same date, that selected by the first reviser shall stand."

Part 4 will describe the gastropods, cephalopods, ostracods, and minor groups. The evidence presented in the first three parts gives the age of the Redoak Hollow a Mississippian cast, with strong Morrow affinities.

The new subspecific name *Nucula (Nuculopsis) anodontoides minuta* is a still-born homonym of *Nucula minuta* Fleming 1828 and of *Nucula minuta* (Brocchi) DeFrance 1825. --CCB

## Two Decisions of Geographic Board

The U. S. Board on Geographic Names is a group which renders decisions on the correct name for geographic entities and on the proper spelling and description. The board has not been called upon to make many decisions in the past few years. Decision List No. 5701, just issued, covers the period May 1954 through March 1957. Only two Oklahoma names are considered. The lake 6 miles southeast of Leedey, Dewey County, is officially named Mabry Lake. The topographic depression in sec. 19, T. 2 S., R. 1 W. about 4 miles northwest of Woodford, in Carter County, is named Redoak Hollow. This is the type locality of the Redoak Hollow member of the Goddard shale.

## Short Junction Field Secondary Recovery Project

Continental Oil Company has just completed a gasoline plant at the Short Junction (now West Moore) field, located on the southwest flank of the Oklahoma City uplift in T. 10 N., Rs. 3 and 4 W., Cleveland County. This plant is of the absorption type using an ammonia refrigeration system and having a daily gas capacity of 60 million cubic feet. Its products will be 50 per cent natural gasoline and 25 per cent each of propane and butane. A secondary recovery project using 100,000 barrels of propane and butane followed by gas will be started in August on a 640-acre tract. The pilot project will be Continental's first field attempt at using liquified petroleum gas (LPG) in secondary recovery. It is being initiated when the reservoir pressure is still above the critical value of 1,900 psi. The gas-oil ratio is increasing and some wells do not yield their 46-barrel daily allowable. Continental owns about 40 per cent of the field and is urging early unitization of the entire field if the pilot project is successful.

Short Junction (now West Moore) field was discovered in 1948 but active development did not commence until 1954. At present, the field covers 8,040 acres and has 201 wells producing a paraffinic crude of 37.4 degrees A.P.I. gravity. The solution gas-oil ratio of the oil is approximately 1,050 cubic feet per barrel with an initial reservoir pressure estimated at 3,600 psi. Cumulative production to December 1, 1957, was 2,761,063 barrels and ultimate production will probably exceed 25,000,000 barrels. The reservoir is a stratigraphic trap resulting from truncation of the Bois d'Arc limestone (Hunton group, Devonian in age) overlain directly by Woodford or Pennsylvanian shale. A structure map using the top of the Haragan as a datum and an isopach map of the Bois d'Arc limestone in the field are included in a recent article by Ed Barrett and Eugene F. Culp (Oil and Gas Jour., vol. 55, no. 23, June 10, p. 172). —LJ

## Ordovician Conodonts

The jaw-like and tooth-like microfossils termed conodonts are abundant in many Paleozoic units. Used properly, they are excellent.

Mrs. Glenister of the State University of Iowa has just published a fine paper on conodonts from the Maquoketa formation in Iowa (Journal of Paleontology, vol. 31, p. 715-736). She identified 36 species, of which 5 are new. The fauna is compared with that of the Maquoketa of Missouri, the Maravillas of Texas, the Gelli-grin limestone of North Wales, and the Richmond of Kentucky and adjacent states.

Correlation of the Maquoketa of Missouri has traditionally been based upon the presence in the underlying Fernvale limestone of "*Rynchotrema capax*," supposedly a Liberty (Richmond) fossil. Evidence indicates that the Missouri Maquoketa is actually early Eden or even late Lexington in age. Conodonts, ostracods, and cephalopods all confirm this conclusion. It now appears that the type Maquoketa is also of this age. My Kentucky conodont collections include faunas from all Kentucky Ordovician units. *Amorphognathus* is a Logana genus. *Belodus* is late Cynthiana and early Eden. *Dichognathus* is especially a Cynthiana genus. I see little in the present fauna to relate it to the Richmond, but much to give Cynthiana affinity. *Amorphognathus* in this fauna is a surprise, for it should be much earlier. —CCB