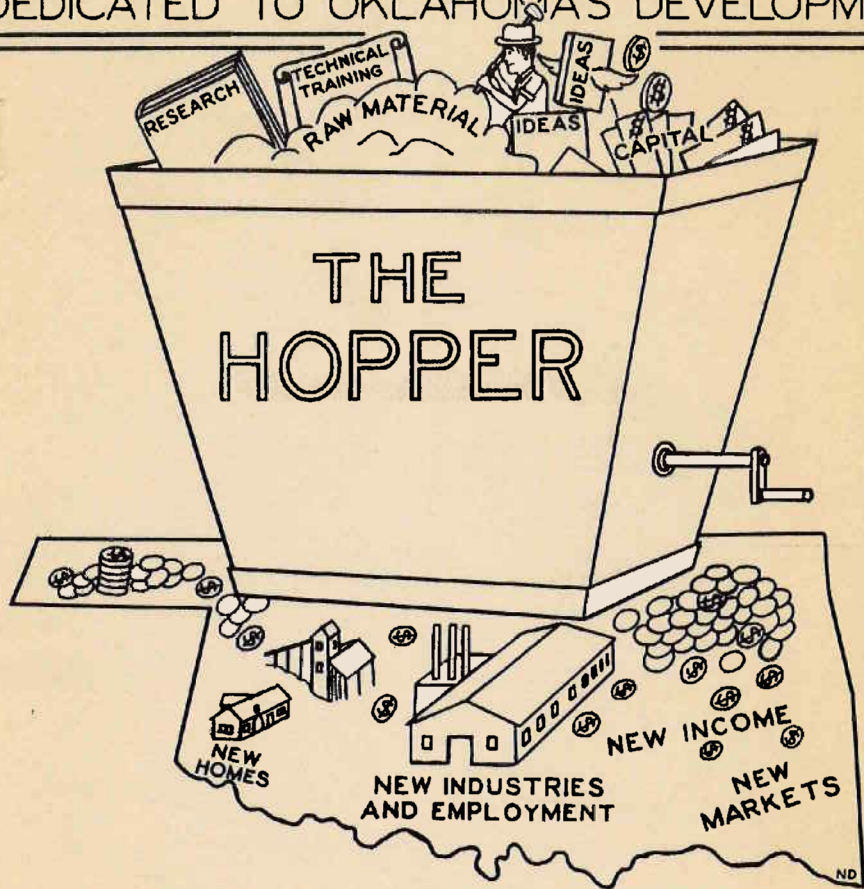


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## REPORT ON OUACHITA MOUNTAINS RELEASED

Oklahoma Geological Survey, Circular 34 was placed on sale on June 23, 1955. Written by Dr. William D. Pitt of the university staff for his doctoral dissertation at Wisconsin, the circular consists of 34 pages, 4 pages of photographic illustrations, 8 black line figures and a colored map. The map is on a scale of 1.5 inches to a mile, shows seven stratigraphic units, and has two structural cross-sections. It shows nearly all of Township 5 S., Range 24 E., and part of Township 5 S., Range 23 E. and Township 4 S., Range 24 E.

Bedding fissility is the overwhelmingly dominant kind of parting in the mapped area. This fact led to revisions in the stratigraphic as well as in the structural interpretation of the area. As work progressed it was discovered that a sandstone lay beneath the Collier shale. This newly-identified formation is named the "Lukfata sandstone", after the creek along which all three of the formation's members crop out prominently. The lower member, of which an estimated 45 feet is exposed, consists mostly of inter-laminations of thin-bedded, dark silty limestone and shale; the middle member, about 40 feet thick, consists mostly of black fissile shale interbedded with thin beds of silty, quartzitic sandstone; and the upper member, about 60 feet in thickness, is made up mostly of thick beds of quartzitic sandstone, and local thin beds of black fissile shale, especially near the member's base. Several other noteworthy changes in the interpretation of the stratigraphy are suggested for this area:

- (1) Evidence is presented to suggest that much of the silica of the highly siliceous Ouachita facies was deposited by ground water.

(2) Previous estimates of formation thicknesses are inaccurate: the Collier shale, previously estimated to be 200 feet plus, is found to be 180 feet; the Crystal Mountain sandstone is 50 to 100 feet, rather than 500 feet plus; and the Mazarn shale is estimated to be 600 feet, rather than 1000 feet.

(3) Insoluble residues derived from several samples of limestone from the Collier shale and Lukfata sandstone formations suggests that the amount of insoluble residue in these limestones varies inversely with the bedding thickness.

(4) Mineralogically the Collier shale consists mostly of quartz and sericite, as shown by thin-section and x-ray analyses.

(5) A brief heavy-mineral study of the Crystal Mountain sandstone yielded mostly opaques, especially pyrite and iron oxides, and only two non-opaque heavy minerals, zircon and garnet.

Structurally the core area is interpreted as part of an anticlinorium rather than as part of a window in a thrust sheet. The most impressive evidence to support the anticlinal interpretation is that the belt of readily identifiable Collier limestone lies inside the Crystal Mountain sandstone, paralleling the outcrop band of the Crystal Mountain sandstone and dipping under it. Both these formations, as well as all other Paleozoic rocks in the mapped area, dip outward from the main anticlinal axis except where minor folds locally affect dip and strike.

Circular 34 can be obtained for \$1.50 post-paid at the Survey office in Norman. Bound in blue cloth, it is priced at \$2.00.

#### NEW REPORT ON WATER FLOODING NOWATA COUNTY

The U. S. Bureau of Mines has just released its Report of Investigations 5134, "Recent developments in water flooding in Nowata County, Okla., oil fields, 1954-55", by J. L. Eakin. Four newly established floods in Delaware-Childers and a pilot project in Curl Creek are discussed.

The pilot flood is handled by a portable centralized unit operating on 35 acres with two 5-spot patterns. It is yet too early for results.

Of the four established water floods one had yielded 26,294 barrels at a ratio of 46 barrels of water for one of oil, another had given up 270,000 barrels in one year at a 34 to one rate, a third had yielded 22,352 barrels in an 11 to one ratio. The fourth is not yet in production from water flood.

#### OLD ROAD LOGS UNEARTHED

In the June Hopper a list of field guides and road logs was given. Dr. H. D. Miser wrote that he remembered a trip led by Dr. Huffman in 1950. Dr. Huffman then donated copies to our library. The entry should be added on page 70 under Oklahoma Academy of Science.

- 23a. Geologic road log - Camp Gruber area  
May 6, 1950  
Leader--G. G. Huffman  
2 pp. (dittoed), geologic column



Dr. Miser donated his personal copy of another road log. Add on page 80, item 61a under Shreveport Geological Society.

61a. Ouachita Mountains, Oklahoma  
Oct. 5-6, 1935  
Leader---H. D. Miser  
3 dittoed pages

U. R. (Bill) Laves gave us some road logs. Among these was a Shawnee Geological Society road log, our No. 59. It turns out to have been done in cooperation with the Oklahoma Geological Survey and to be 12 mimeographed pages. The full title is "A study of surface rocks from Calvin sandstone to Permian through Townships six north to Township ten north, Hughes, Seminole, and Pottawatomie Counties, Oklahoma."

#### THE FREDERICK CONTROVERSY 28 YEARS LATER

Carl G. Branson

In the files of the Oklahoma Geological Survey is a packet of letters, newspaper clippings, and scientific articles about fossils, artifacts, and estivating amphibians found in a gravel pit at Frederick. It is apparent that there was great difference of opinion between scientists and no little rancor towards some of them. The newspapers and some of the townspeople took sides, and the discussion was heated.

As one who had no part in the affair, and only vaguely recalls having heard of it, the writer finds the past furor interesting. The record is valuable as a lesson to all not to let personalities enter into matters scientific, not to write before the facts are determined, and to report to trained men any finds of possible importance in

order that the site may be studied before evidence is destroyed.

The remains were discovered in 1926 by Mr. A. H. Holloman of Frederick, operator of a sand and gravel pit about one mile north of the city. Dr. F. G. Priestly of Frederick wrote the Editor of Scientific American, who notified J. D. Figgins of the Colorado Museum of Natural History and Harold J. Cook of Agate, Nebraska, to tell them of the finding of human artifacts associated with bones of extinct mammals in the gravels. Cook and Figgins visited the pit in January of 1927 and were given a cordial welcome and courteous assistance in exploring the locality. They described the deposit as a channel filling on Permian red beds. In the basal part of the channel, bones of a horse, of a mammoth, of a mastodont (Trilophodon), of a sloth (Mylodon), and an arrow head were reported. Higher in the basal 9 to 18 foot unit, another arrow head and some metates (Indian corn grinders) were recorded. An advanced type of mammoth (Elephas columbi) occurs in the unit above. Cook and Figgins published their findings and concluded that man lived contemporaneously with the extinct mammals, thus dating back to early Pleistocene (Cook 1927, Figgins 1927).

Dr. Oliver P. Hay of the U.S. National Museum visited the pits and wrote a short account (Science News Letter, Oct. 1, 1927). Hay reported 3 types of elephant, 2 species of camel, 2 kinds of ground sloth, 3 species of horse, and a glyptodont from beds in which artifacts occur.

In October, 1928, a party from Norman consisting of C. N. Gould, C. E. Decker, Leslie Spier, and Miss Lois Gould visited the pit and were given every assistance by Mr. Holloman. Holloman and

Gould found a part of a carapace of a glyptodont, an extinct relative of the armadillo, and the group collected the specimen. It is about 5 feet long by 3 feet wide and contains more than 300 plates of the carapace. The specimen was cleaned and mounted. It is on display in the J. Willis Stovall Museum at the university. No artifacts were seen in place by the party.

A letter from Gould to Hay (Oct. 10, 1927) states that the two specimens shown the group as artifacts are a concretion and a glyptodont plate.

Dr. Spier published a brief note on the site in which he suggested that the reported metates were not true artifacts (1928) and sounded a note of caution as to the age of the other artifacts. He later saw the specimens in the Colorado Museum and testified that at least two were genuine (1928). He, however, doubted the validity of the evidence for association with the extinct mammals. He and Dr. F. A. Melton visited the pit and found chips of artifacts in the surface gravels, but none in the material of the pit. Dr. Hay and Mr. Cook took exception to Spier's view that the artifacts dropped down from a shallow zone.

In September, 1928, an arrowhead was found deep in the Holloman pit. Mr. Holloman wisely protected the find and Mr. A. N. Krause, a friend of Dr. Gould, photographed the specimen, then it was removed and sent to Gould. Gould and Spier visited the undisturbed site and testified to the authenticity of the specimen and the horizon (1929).

Dr. O. F. Evans of the University of Oklahoma wrote a description of the deposit in which he accepted the idea of association of the bones and artifacts, but stated that all had been redeposited

by a stream and brought into association by the process of reworking (1930).

In 1930 Cook and Hay together presented their views. Cook further wrote in 1931 disagreeing with Evans' views, a paper marked more by emotion than evidence.

With the publication of an extended abstract by Dr. Evans (1930) and with some parting shots from Cook, the controversy disappeared from current scientific literature. The so-called human bones reported from the pit were not accepted as such by any scientist.

The gravel pit had already contributed a further curiosity, known in the press as "live frogs". These were found encased in hardened balls of rock buried in the gravel pit. The press speculated on their possible age of 500,000 years, and there were many lurid newspaper articles. The animals proved to be specimens of the common toad and the spadefoot toad. These species commonly estivate in mud, and the specimens found seem to have become encased by mineral matter so as to remain past one season.

One enterprising reporter described a freak with a "body like a bass; head resembling a catfish and its tail has no fins, has four legs, each with five paws and six growths extend from an eight to three-quarters of an inch in length from directly behind its eyes. It swims in water and crawls like an alligator on the ground." These were captured in a farm tank. They are recognizable as salamanders altered by journalistic license, vivid imagination, and faulty observation.

The newspapers wrote extensively on all phases of Frederick's freaks; the artifacts, the mammals



and the "live frogs". The scientists involved were quoted, misquoted, and made parties of a controversy. The Tulsa Tribune carried a series of five articles by Dal Dalrymple (May 20-24, 1929). Enid got into the act with a "live frog".

Perhaps the wisest attitude taken was that of a columnist who wrote under the pseudonym of Dr. B. U. L. Conner in the Oklahoma City News. He assumed a credulous, humorous viewpoint and wrote at least 14 columns on the glyptodont. He discussed methods of defending oneself from the beast, organized a hunt for a living glyptodont, and received advice from Dr. Gould and Dr. Irving Perrine. He "disappeared" from home (the columns were then headed "Mrs. B. U. L. Conner") and turned up days later with a story of being attacked by a glyptodont in Pauls Valley and coming to in St. Louis.

Looking back at the controversy it would appear that:

artifacts occur in gravels from the surface to a depth of about 18 feet near Frederick

early Pleistocene mammals occur as dissociated bones and teeth below and with some of the artifacts

early Pleistocene sediments and contained bones were eroded and the materials redeposited with Recent bones and artifacts in certain parts of the pit.

the "living frogs" are entrapped estivating toads of a few years ago

It is a scientific tragedy that the disagreement among observers and scientists caused all to cease collecting and observing the pit. The facts are of scientific importance and more data are needed to arrive at proven conclusions. Mr.

Holloman and his friends did science a real service. They should be praised and encouraged, and it is to be regretted that they were not honored as contributors to science without being placed in a position of partisans in a controversy.

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1930. Evans, O. F., Probable history of the Holloman gravel pit at Frederick, Oklahoma. Okla. Acad. Sci., Proc., vol. 10, pp. 77-79.
1930. Decker, C. E., Age of the toads in the A. H. Holloman sand pit at Frederick, Oklahoma, Okla. Acad. Sci., Proc., vol. 10, pp. 82-84.

Manuscript Materials in  
Oklahoma Geological Survey files

Manuscript Map and cross-section of Holloman gravel pit showing position of glyptodont specimen in site.

Copy of letter from Gould to Hay, Oct. 10, 1927.. Report on findings of university group on trip to Frederick.

Letter from J. D. Figgins to C. N. Gould, dated Oct. 14th, 1927 in reply to Gould's letter of Oct. 11. Contains results of interviews with Mr. Holloman and his foreman, all confirming original statements as to original positions of finds. 2 pp.

Letter from Harold J. Cook to C. N. Gould, dated Oct. 22, 1927 in reply to letters of Oct. 11 and 13. States that 2 artifacts found by him were at surface. Live frog story mentioned. 2 closely spaced pp.

Letter from Figgins to Gould, Oct. 17, 1927. 1 p.

Copy of letter from Hay to Gould, Oct. 18, 1927. States he found only one glyptodont plate. 1 p.



Copy of letter from O. P. Hay to Dr. Spier, Oct. 26, 1927. Data on artifacts. Age of deposit placed at first interglacial. 2 pp.

Letter from Hay to Gould, Oct. 31, 1927. Notes on glyptodont and a list of other species found. 1 p.

Copy of letter from Gould to Hay, Nov. 4, 1927. Data on glyptodont specimen. 1 p.

Letter from A. H. Krause to Gould, April 7, 1928. Notes on "live frogs".

Letter from A. H. Krause to Gould, April 24, 1928. States belief in "live frogs". 1 p.

Copy of letter from Gould to Figgins, Oct. 30, 1929.

Copy of letter from Leslie Spier to Harold J. Cook, dated April 26, 1928, written in reply to Cooks' article in Science, restating his published position. 3 pp.

Letter from Figgins to Gould, Nov. 2, 1929. 1 p.

Letter from Cook to Gould, Nov. 2, 1929. Objects to Evans' theory. 1 p.

Copy of letter from Gould to Cook, Nov. 4, 1929. 1 p.

Copy of letter from Gould to Figgins, Nov. 4, 1929.

Letter from O. P. Hay to Gould, Nov. 6, 1929. States nonacceptance of Evans' theory. 1 p., script.

Copy of letter from Gould to Hay, Nov. 14, 1929. 1 p.

Copy of letter from Evans to Hay, Nov. 20, 1929.  
States reasons for stream fill theory. 1 p.

Copy of letter from Hay to Evans, Feb. 26, 1930.  
1 p.

Letter from H. D. Miser to Gould, Mar. 13, 1930.  
Notes on clay balls in support of Decker's  
conclusions. 1 p.

Copy of letter from Evans to Cook, May 25, 1931.  
Gives reasons for not writing further on the  
subject.

#### Circular 33 Released

A circular entitled "General and economic geology of the Baum limestone, Ravia-Mannsville area, Oklahoma" was placed on sale on July 21, 1955. The general geology and colored map are by John Rex Wayland, the section on economic geology by W. E. Ham. The circular consists of 44 pages of text, nine plates, and a colored geologic map. It is obtainable for \$1.75 at the Survey office (\$2.25 bound in blue cloth). The circular calls attention to an area of high calcium limestone, gives analyses and estimates reserves.

#### Report on Grady County. Now Available

Oklahoma Geological Survey Bulletin 73, "Geology and Ground Water Resources of Grady and Northern Stephens Counties, Oklahoma" is now on sale at the Survey office. The bulletin contains 184 pages of text, many tables and figures and a colored geologic map. The author is Leon Davis of the U. S. Geological Survey, Ground Water Branch, who worked on a cooperative basis with the Oklahoma Geological Survey. Water supplies in alluvium and terrace, and artesian supply in the Rush Springs

sandstone and Duncan sandstone are described, their flow measured, and analyses given.

The bulletin is priced at \$3.40 (\$4.00 bound in blue cloth).