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EXCAVATION OF AN ARCHAEOCETE WHALE, *BASILOSAURUS CETOIDES* (OWEN), FROM MADISON, MISSISSIPPI

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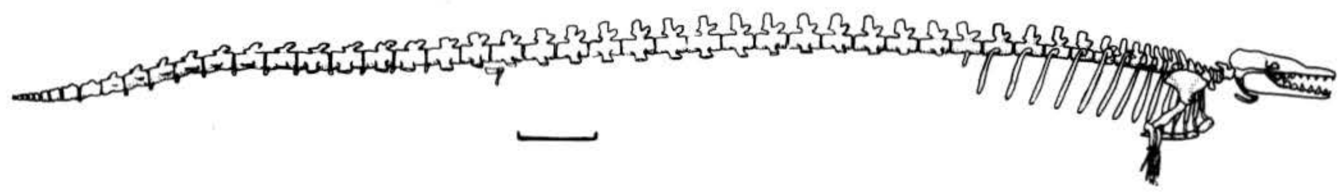
INTRODUCTION

On October 22, 1985, backhoe operator Richard Ivy of Triangle Construction Company encountered some hard objects while excavating for a sewer line in the Yazoo Clay at Hunter's Point subdivision just northeast of Madison, Mississippi (SW/4, NW/4, Sec. 10, T.7N., R.2E.). At first he thought these objects were petrified wood. Bob King, also with Triangle Construction Company, notified the Mississippi Bureau of Geology concerning the find. After examination, the excavated materials were identified as vertebrae, rib, and limb bone fragments of the large archaeocete whale *Basilosaurus cetoides* (Owen).

Richard Ivy reported that the bones were encountered ten feet below the surface while excavating for a six-foot long residential sewer pipe connecting to the main line. According to his observation, he had cut the



Reconstructed skeleton of *Basilosaurus cetoides* (Owen). Scale bar equals 1 meter. From Thurmond and Jones, 1981.

Figure 1. Richard Ivy operating backhoe in search of *Basilosaurus* bones.

animal in half leaving bones in each side of the excavated trench. This observation seemed fanciful at first as it is rare for an archaeocete find to have an articulated skeleton. The bones are usually scattered. Later excavation, however, proved the backhoe operator to be correct.

The excavated bones, though only fragments, were well mineralized, solid, and had an attractive pinkish white patina which dried to a dull white. This patina indicated that the bones rested within the weathered zone of the Yazoo Clay. Triangle Construction Company owner Buck King offered the company's assistance and backhoe to excavate for additional bones at the site. A period of rain followed which delayed further work at the site, and it was not until January of 1986 that the excavation began.

Several staff members with the Mississippi Bureau of Geology met Richard Ivy at the site on January 31, 1986, and the excavation began. The T-connection of the sewer line was uncovered and fragmentary pieces

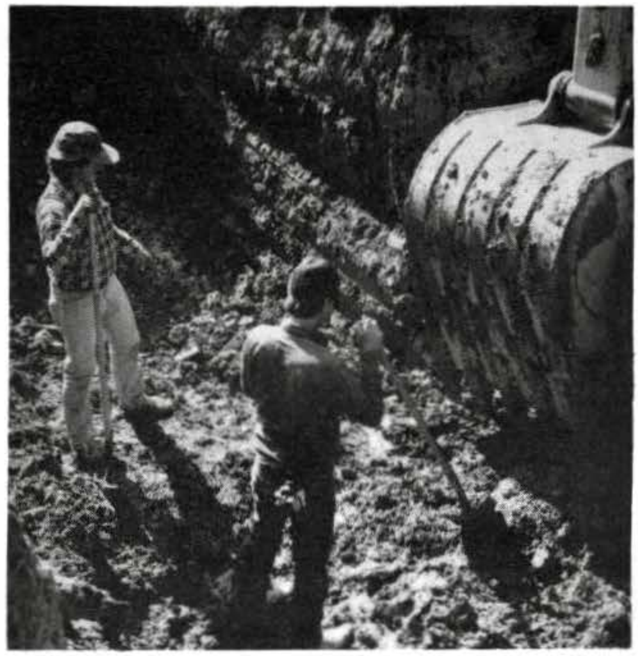


Figure 2. John Johnston and Phillip Higdon watching and listening for the backhoe to encounter bone.

of vertebrae and ribs were eventually exposed (Figures 1 and 2). At the beginning of the excavation, the fragmentary nature of the bones ruled out any necessity for a site survey (Figure 3). The main objective was to find the skull or at least fragments of the skull and jaws. In trying to anticipate the direction in which the bones lay, the backhoe was repositioned several times. Once the course of the bones was determined, a string of connecting vertebrae was uncovered, and the removal of bone material from the site ceased (Figure 4). Vertebrae and associated rib fragments were left *in situ*, resting on a platform of clay as the excavation continued (Figures 5 and 6).

Once a significant part of the *Basilosaurus* skeleton had been uncovered, the developer of the Hunter's Point subdivision, Bill Shanks, contacted newspaper and television personnel concerning the find. The story and film of the excavation appeared on the evening news and made the front page of the State's largest newspaper. Bureau geologist John Johnston and staff member Brad Alsobrooks continued the excavation over the weekend and reported large crowds on hand to watch.

On February 3, the excavation was completed. The vertebral string and presence of ribs indicated the skull to lie under or opposite the main sewer line. A thorough excavation made in this area failed to reveal the skull or any additional bone material. Excavation then resumed toward the posterior end of the skeleton. The vertebral

Figure 3. Fragmentary ribs and vertebra uncovered by backhoe.

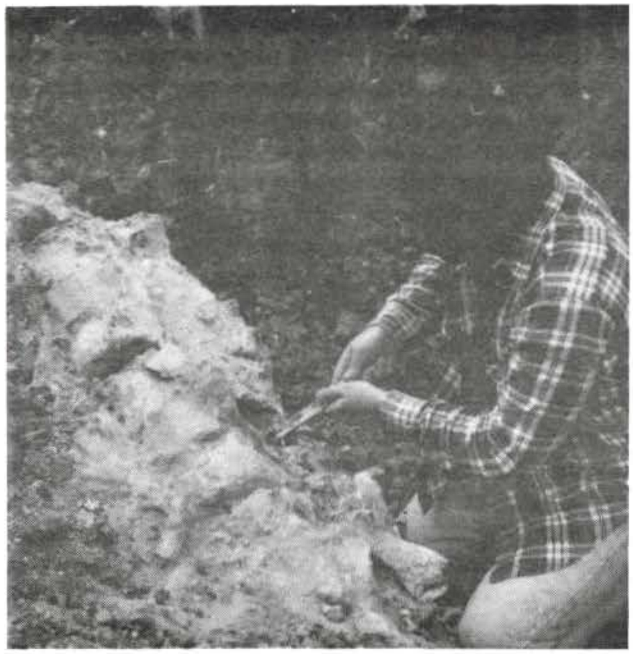


Figure 4. John Johnston carefully removing clay matrix from vertebral column.

column rested on its left side and made a broad, dorsally convex arch (Figure 6). In the posterior direction, vertebrae became increasingly disjunct from the column (Figures 7 and 8). Near the posterior end of the preserved column, vertebrae were scattered and rose two feet or more within the section (Figure 9). Some of these vertebrae were badly shattered by the backhoe as they were encountered in unexpected locations.

A plane table survey was begun on February 3 but, due to rain on the following day, was not finished until February 7. The surveyor for this project was Bureau geologist Chuck Peel. This survey and the *in situ* orientation of the bones is given in Figure 12. Upon completion of the survey, final excavation and removal of the skeleton was turned over to the Mississippi Museum of Natural Science. The museum's vertebrate paleontologist, Eleanor Daly, directed the removal of the bones (Figure 10). The vertebrae were supported by steel pipe splints and then covered with a protective plaster jacket. This phase of the excavation was completed within two weeks following the completion of the survey. The skeleton now resides in the museum's collections and will be used as a research specimen.

BASILOSAURUS FROM THE GULF COASTAL PLAIN

In 1834 Dr. Richard Harlan, a Philadelphia physician and anatomist, described the first archaeocete whale from the United States; it had been found several years earlier along the banks of the Ouachita River in Caldwell Parish, Louisiana (Domning, 1969). He thought the bones belonged to a Tertiary marine reptile and named it *Basilosaurus,* which means "king of the lizards." On his visit to London in 1839, Harlan showed some *Basilosaurus* specimens from Alabama to the famous paleontologist Sir Richard Owen. Owen realized the animal was a mammal and later changed the name to *Zeuglodon cetoides.* However, due to modern rules of taxonomic nomenclature, Harlan's original genus name prevailed so that the correct name of the whale is *Basilosaurus cetoides* (Owen).

The 1840's saw a surge of fossil whale hunting in Louisiana, Mississippi and Alabama. In 1843 B. L. C. Wailes, a prominent Natchez planter and scientist, obtained the partial remains of a *Basilosaurus* found along the banks of the Pearl River (Wailes, 1854). Wailes notes in his report on the geology and agriculture of Mississippi that detached vertebrae had

Figure 5. Two closely connected vertebrae at anterior end of vertebral column and associated rib fragments.

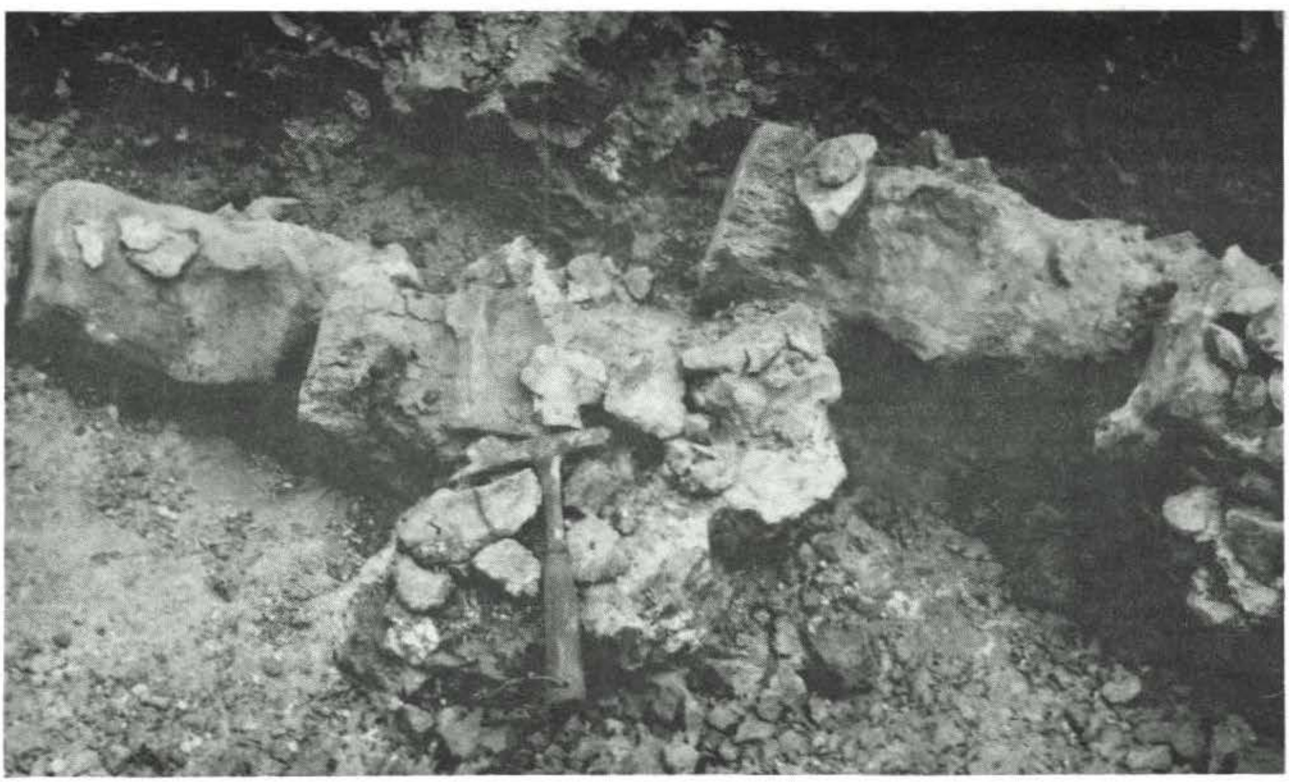


Figure 6. Central region of vertebral column showing a progressive dislocation of vertebrae in the posterior direction. The anterior end is at the left of the picture.

Figure 7. Anterior end of vertebral column with associated rib fragments.

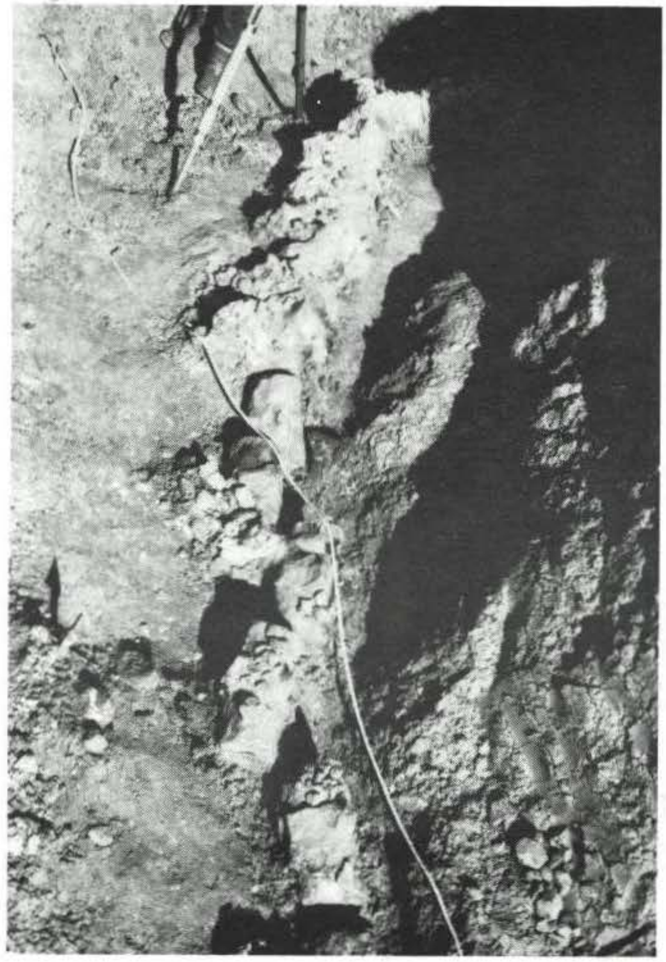


Figure 8. Dislocated vertebrae in the central region of the vertebral column.

been found in Hinds (in the city limits of Jackson), Madison, Scott, Smith, and Clarke counties. The vertebrae were so common in some areas that local residents used them as andirons (Domning, 1969). L. Harper (1857) mentions in his report on the geology of Mississippi that the vertebrae were frequently used as foundation supports for cabins.

Some selected references which further discuss fossil whales from the Gulf Coastal Plain include Kellogg, 1936; Dockery, 1974; Frazier, 1980; Thurmond and Jones, 1981; Lancaster, 1982; and Carpenter and Dockery, 1985.

PRESERVATION

The *Basilosaurus* skeleton was located in the brown weathered zone of the Yazoo Clay just above a less weathered brownish gray zone. As a result of weathering, the bones had a hard pinkish white outer patina. Rib bones at the site had been fragmented prior to burial and generally lay near the vertebral column along the anterior part. Rib fragments were generally hard and solid, though some were fragile.

All vertebrae found were fragile. Each had a fractured hard outer patina which readily, though undesirably,

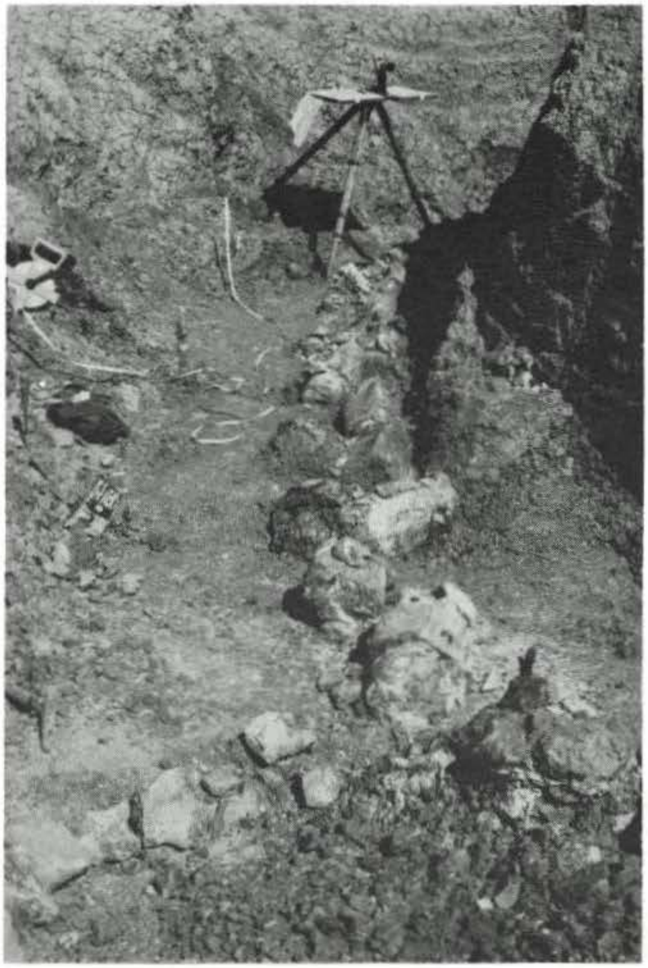


Figure 9. View from the posterior end of the skeleton showing the scattered posterior vertebrae.

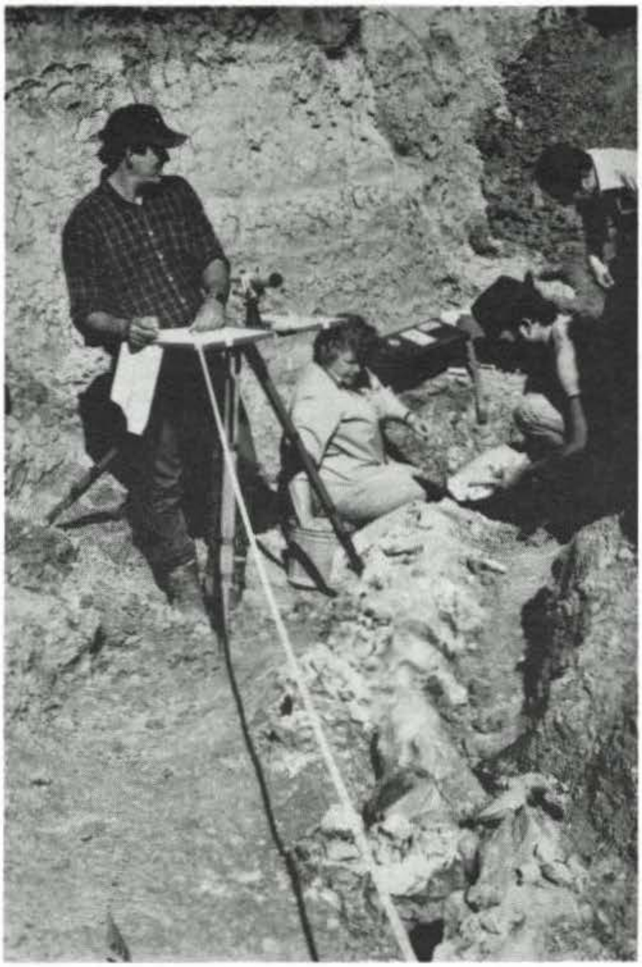


Figure 10. Geologist Chuck Peel watches as Mississippi Museum of Natural Science staff members Eleanor Daly, Paul Hartfield, and Roger Weill collect rib fragments.

separated from the vertebral core during excavation. The core of each vertebra was a black, poorly mineralized, fragile, porous mass. Many vertebrae were readily shattered when encountered by the backhoe. Extreme care was required in their excavation and removal. The neural processes of all anterior vertebrae were fragmented or absent. Despite the fragility of the vertebrae, their size and *in situ* arrangement along the vertebral column was an impressive sight to the visiting public.

A few fragmentary bones found on the initial sewer excavation were from one of the front flippers. Subsequent excavation failed to reveal any additional limb bones.

The lack of a skull or jaws at the anterior end of the vertebral column was a disappointment. A large animal such as the *Basilosaurus* may have floated for days after its death supported by gasses formed as a by-product of decay. The jaws, skull, and perhaps the flippers (in part) could have separated from the trunk during this flotation stage. The same postmortem process could account for the isolated *Metamynodon* skull reported in the December 1985 issue of *Mississippi Geology*. This skull, that of a large land mammal, was found in Lower Oligocene marine beds exposed along the Big Black River in central Mississippi. It was presumably washed out to sea via an ancient river system and then separated from the body.

Another explanation for the skull not being found can be attributed to scavengers. Upon death the head is often the first part of the body attacked by scavengers due to easy access of soft parts such as the brain. Increased feeding activity on the head may result in dislocation and separation from the body since the neck is comprised of small vertebrae that may disarticulate easily. The conical shape of the head would cause it to be rolled away by ocean currents.

As noted previously, the last eight vertebrae were disjointed so that they did not conform to the arched trend of the spine (Figure 12) and were approximately two feet higher than the rest of the skeleton. This configuration of the skeleton suggests that the main body of the whale (possibly excluding the head and front limbs) settled into a small depression on the ocean floor. The presence of oysters attached to one of the anterior vertebrae indicates that the skeleton lay exposed for some time before burial.

An interesting aspect of the excavation of the *Basilosaurus* was the numerous red and pink quartz pebbles (and one gravel-sized rock 53 mm long) found in the Yazoo Clay in the course of the excavation. These rocks were found in stiff brown clay ten feet below the surface and many rested between or under the bones. Due to the position of these pebbles with respect to the bones, it is probable that they were deposited at the same time as the Yazoo Clay. An alternative explanation is that these pebbles were washed down into the weathered clay along desiccation cracks from an overlying fluvial terrace deposit that has since eroded away. This latter explanation eliminates the problem of accounting for the synchronous deposition of pebbles with marine shelf clay, but does not fit well with the field observations. Also the rocks were all of a similar quartz composition and no chert pebbles (a common component of later Tertiary and Quaternary fluvial terraces in the area) were found.

Figure 11. News of the *Basilosaurus* brought a considerable number of interested people to watch the progress of the excavation.

PUBLIC INTEREST

Few aspects of geology generate more public interest than discoveries of vertebrate remains. This was certainly the case with the finding of the *Basilosaurus* skeleton at Madison, Mississippi. Both the major local newspaper and a local television station, as well as the Associated Press, saw it as a newsworthy item. Once publicized, hundreds of visitors came to view the excavation. These visitors represented a diverse cross section of the public, and it was surprising to the writers that many of them made the effort to see the fossil bones (Figure 11).

The excavation was particularly beneficial to science classes in the area's schools. Many groups of students visited the site and were able to question Bureau geologists about the find. The students saw original evidence that the region was once covered by the sea and that this sea contained marine life as do the oceans today.

Regardless of the final disposition, whether on display or in museum drawers, the Madison *Basilosaurus* was a good ambassador on behalf of earth science. A large part of the public sector had a new or awakened awareness of geology and of a phase in the geologic history of their state. Many of those who viewed the excavation were impressed by a realization that the surrounding fields and hills must hold the remains of additional sea creatures. One local resident summed up the thoughts of many when he first viewed the *Basilosaurus* skeleton from the excavation's rim and stated something like: "One of these whale skeletons could be buried under my house, and I wouldn't know it."

ACKNOWLEDGMENTS

The writers express their appreciation to Buck King, owner of Triangle Construction Company, and his son Bob King for announcing the find to the Mississippi Bureau of Geology and for providing both equipment and personnel for the excavation. The developer Bill Shanks gave permission and support for the project,

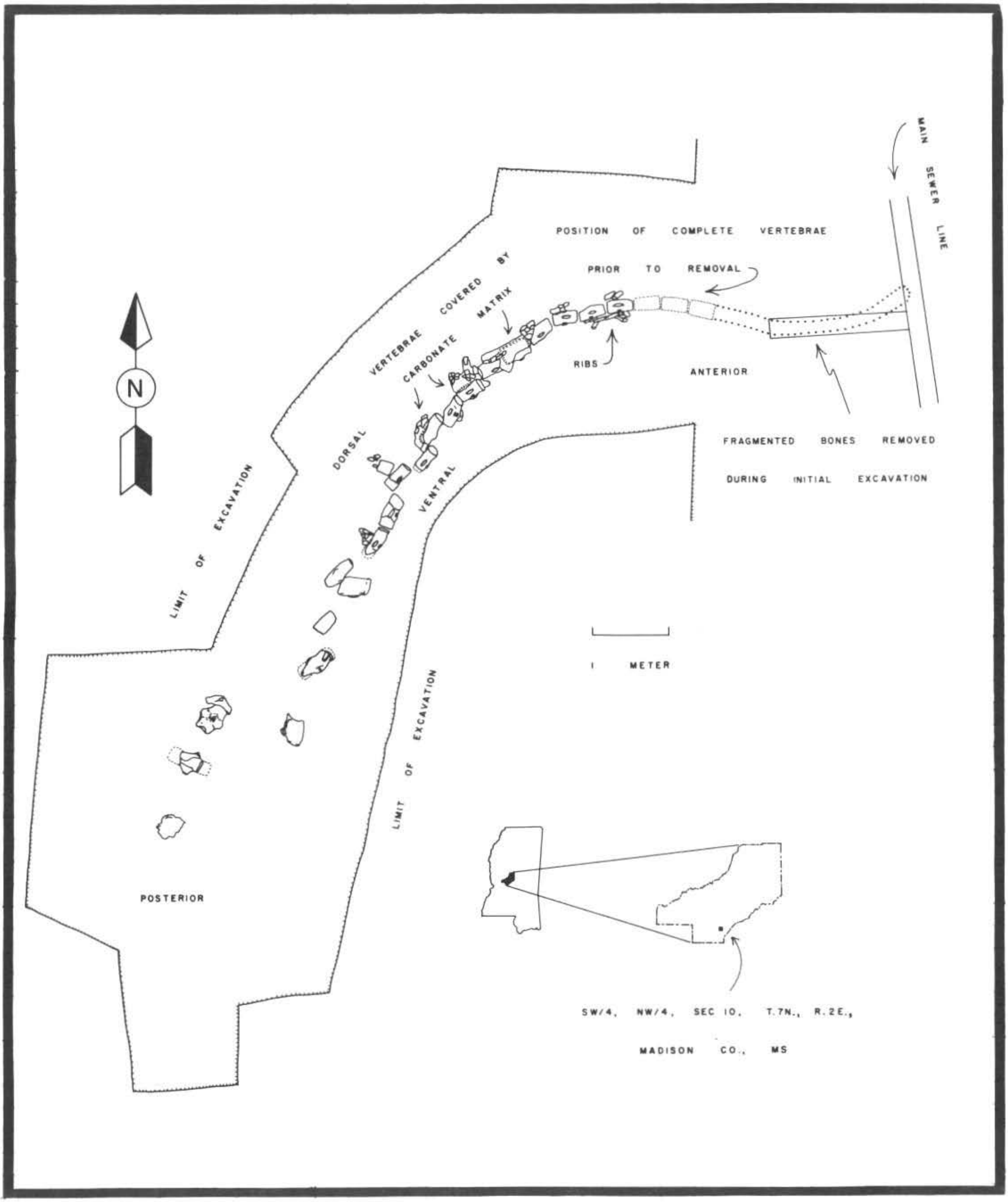


Figure 12. Survey map of the excavation showing *in situ* position of the bones.

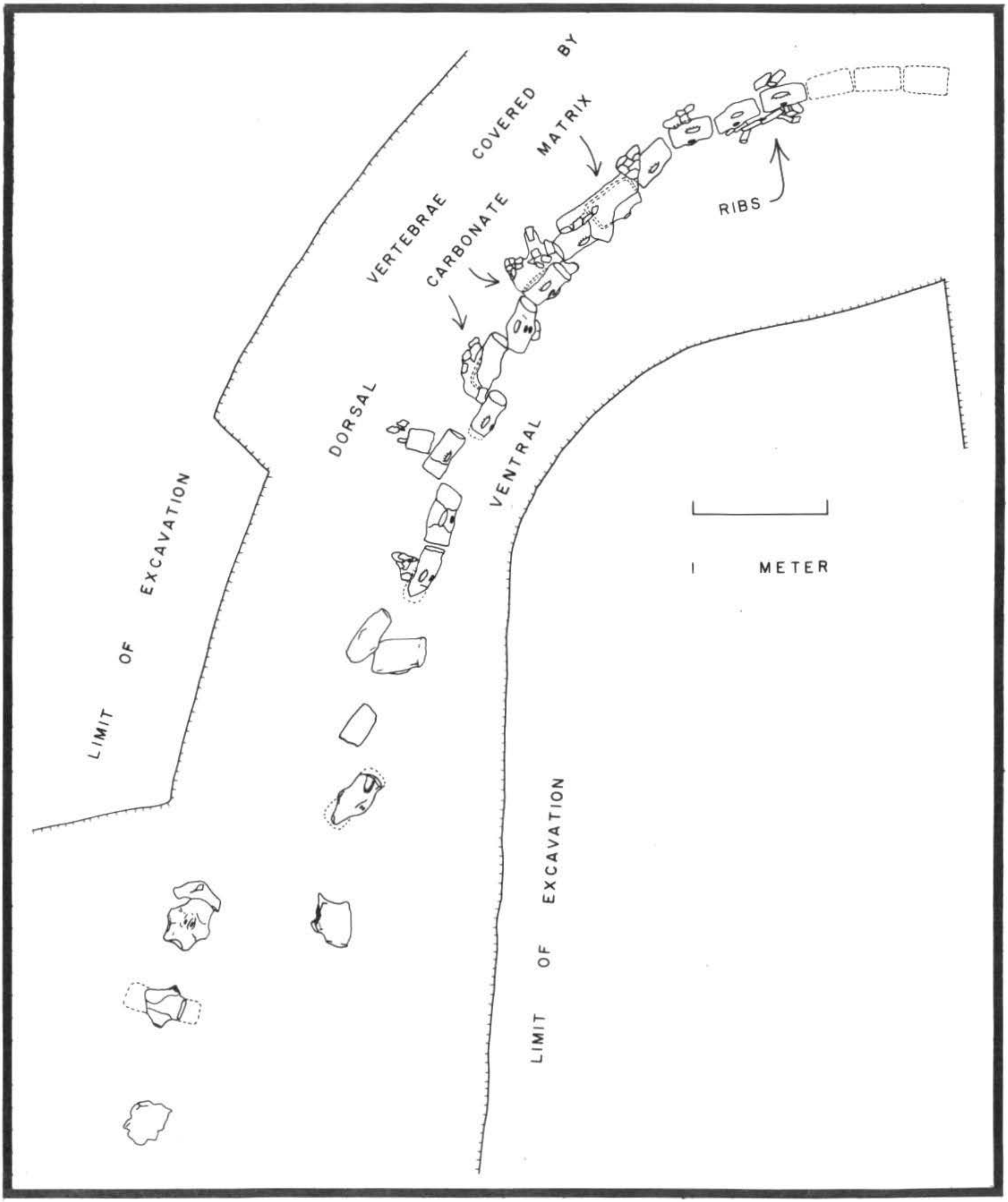


Figure 13. Central portion of Figure 12, showing vertebral column enlarged.

and Richard Ivy did a masterful job in locating the bones with the backhoe. Several Bureau staff members assisted with the excavation, but special contributions were made by Chuck Peel, who surveyed the site, and Brad Alsobrooks, who worked over the weekend.

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"Simplification is the soul of science."

Nelson Goodman
1967

"Science is the search for the simplest applicable theory."

Nelson Goodman
1967

CRETACEOUS CHALKS - A RECOMMENDED SYMPOSIUM[1]

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ABSTRACT

In Mississippi the Selma Chalk on the outcrop in the Black Prairie Belt, and in the subsurface, occupies about 80% of the 47,233 square miles (37,786) to an estimated average thickness of 1000 feet (.19 mile), or about 7,200 cubic miles of marine sediment. The "Selma" and its component chalk units are, in ascending order, the Austin, the Annona, the Saratoga and the Prairie Bluff. Various units of the "Selma" have been important to the economy of Mississippi. With intensive geological, geophysical and geochemical research much greater contributions from the "Selma" sediments can be expected, leading to the "highest and best use" of the resources these rocks offer. Intercontinental correlations of Cretaceous events are desirable in petroleum exploration, and in all other aspects of geology. The studies herein proposed were first outlined to the Geology and Geography Division of the Mississippi Academy of Sciences, Inc., on February 23, 1984. If implemented in full, they will go a long way to substantiation of international correlations, to exploration for and exploitation of our shrinking energy supplies and our "hard mineral" resources, and for non-consuming physical utilization of our various "chalk" units. Participation by world-renowned specialists would lead to publication of comprehensive results, favorable publicity to Mississippi, and a sharp reversal to the continuing decline in economic yields. When adequately understood, evaluated and developed, the "Selma Chalk" of Mississippi can support much more of the State's economy than it now does.

DISCUSSION

In 1868 Thomas Henry Huxley delivered as a lecture to the working men of Norwich, England, his essay "On a Piece of Chalk," called a literary work of enduring excellence. This popular presentation summed up the spectacular scenery and paleontology of the Cretaceous chalks, extending from Ireland, across the English Channel, Europe and into Asia Minor. The chalk's composition, largely of planktonic foraminifers and coccoliths, he likened in origin to the deep sea oozes rained to the floor of the North Atlantic at depths as great as 15,000 feet; he concluded that "chalk itself is the dried mud of an ancient deep sea."

A modern definition of chalk is: "A soft, pure, earthy, fine-textured, usually white to light gray or buff limestone of marine origin, consisting almost wholly (90-99%) of calcite, formed mainly by shallow-water accumulation of calcareous tests of floating microorganisms (chiefly foraminifers) and of comminuted remains of calcareous algae (such as coccoliths and rhabdoliths), set in a structureless matrix of very finely crystalline calcite. The rock is porous, somewhat friable, and only slightly coherent. It may include the remains of bottom-dwelling forms (e.g. ammonites, echinoderms, and pelecypods), and nodules of chert and pyrite. The best known and most widespread chalks are of Cretaceous age, such as those exposed in cliffs on both sides of the English Channel." (A.G.I. Glossary of Geology, 2nd ed., 1980.)

Chalks of the Selma Sea of the Gulf Coast have essentially the same Upper Cretaceous age range as the British-European chalks, are generally about the same overall thickness (800-1200' ±), but, for the most part, do not fit the 90-99% $CaCO_3$ requirement of the definition. The same appears to be true for other chalks of the Western Interior of the United States. Contrary to some early conceptions, the Selma Chalk (and the Western Interior chalks, Niobrara-Smoky Hill, etc.) were deposited in waters largely considered to be less than 1,000 feet in depth.

Extensive drillings and loggings of wells for oil, gas and water, and of core holes, have provided thousands of geophysical logs and hundreds of sets of samples. Study of these data lags far behind their potential use in scientific and economic benefits to the State and Nation.

[1] First presented to Mississippi Academy of Sciences, Inc., February 23, 1984. The writer thanks the Academy for permission to revise and publish this idea.

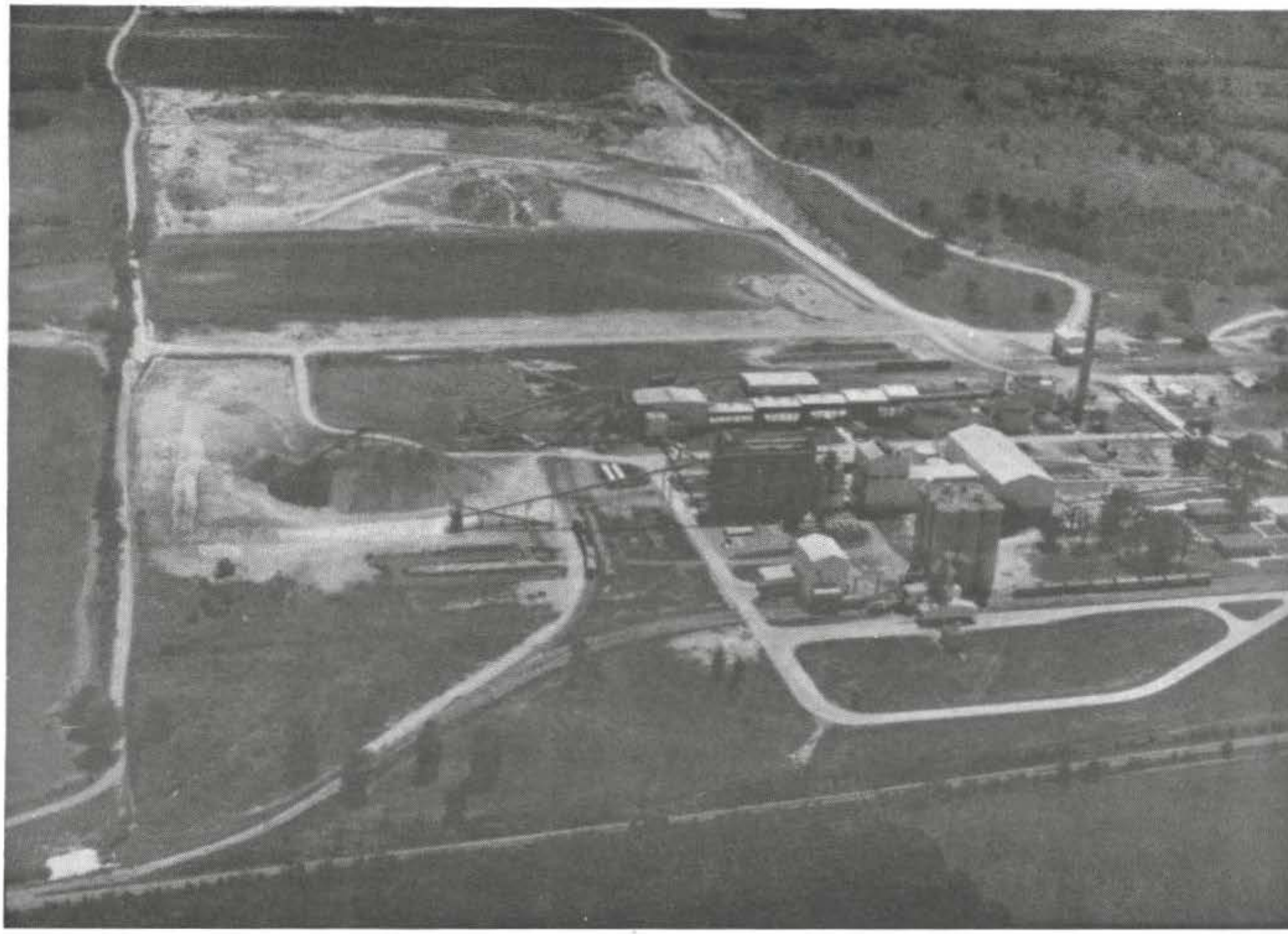

Figure 1. United Cement Company plant and quarry in Annona Chalk in SW/4, Sec. 4, T.17N., R.16E., Lowndes County, Mississippi, 4 miles south of Artesia. Photograph courtesy of United Cement Company.

The "Selma" Chalk of the Black Prairie Belt of northeastern Mississippi and west-central Alabama consists of four higher calcium carbonate units, the Austin (Mooreville, in part), the Annona, the Saratoga and the Prairie Bluff, in ascending order. These are laterally and vertically variable in composition, and they are separated by thicknesses of more arenaceous and argillaceous sediments, generally in landward directions. These highly calcareous and less calcareous sediments are most useful in the service of Man. From the west, in western Mississippi, northern Louisiana, and southern Arkansas, volcanic rocks were extruded before, intruded into, and extruded through the Selma sediments; bentonites and coarser volcanic debris were deposited at intervals through the Selma sediments, and such events can be identified best by insoluble residue analysis and geochemical analysis.

Throughout the Black Prairie, from colonial times until recent years, cisterns dug into the chalk to store rainwater were the principal water supply for plantation and urban residents alike.

The higher calcium carbonate units have been used for Portland cement, agricultural lime, additives for cements and plasters, for temporary flooring, and have been excavated (Emelle, Sumter County, Alabama) for hazardous waste disposal, and for an $8 million industrial park and port on the Tennessee-Tombigbee Waterway at Epes, Sumter County (*National Geographic*, March 1986, p. 380-381). In Marengo County, Alabama, the Mooreville Chalk has provided an excavated underground storage for 15 million gallons of liquified petroleum gases since 1957; 80,000 cubic yards of chalk were removed from the caverns 300 feet below land surface. Underground mining of chalks at other localities might be converted later to economically efficient, safe and desirable warehousing of various commercial and industrial items.

The peripheral and intercalated sediments of the Selma Sea, the sands, the marls, the bentonites and other clays, are also useful, and need much better mapping and analysis. The sands, for fresh water, for possible heavy mineral concentrations, and for special uses. The bentonites, now largely depleted, for addition to reserves of bleaching and bonding clays. The marls and other clays for use in heavy clay products, lightweight aggregates, rock wool, and for Portland cement. Thin zones of phosphatic material should be identified and evaluated.

Oil and gas production in small amounts has come from more than a dozen fields in Mississippi, mostly associated with secondary porosity on fault planes cutting high-calcium facies of the "Selma." In Louisiana, oil production is from Saratoga, Annona and Austin chalks at depths less than 2000 to more than 16,000 feet. In Texas, Kansas, Colorado and Nebraska hydrocarbon production is found in the Austin Chalk and in its Western Interior equivalent, the Smoky Hills member of the Niobrara. Evaluation of the fossil fuel potential of the "Selma" throughout the Gulf Coast and Mississippi Embayment is an important part of this recommended symposium.

Production of oil and gas from "normal" Selma Chalk has never been spectacular and has varied from year to year. Excluding the much better yields from the "Gas Rock" and Woodruff Sand developments in the Selma, the yields from Mississippi wells in December 1985 were reported as in Table 1.

Throughout Mississippi much of the Selma Chalk contains hydrocarbons, but little is known about the organic carbon content, particularly in the shelf area of the "normal" Selma. The shallow gas-producing Niobrara Chalk of eastern Colorado is so rich in kerogen, locally, that *Ideal Cement Factory is presently acquiring one-half of its energy needs from these kerogen rich units.* (*Mississippi Geology*, Sept. 1984, p. 13.)

Increased exploration intensity will reveal subtle traps or signs of subtle traps that doubtlessly are present in the broad expanse of our updip Selma Chalk. Offshore bars of Nacatoch age have been mapped recently in East Texas, and reported in Cretaceous sediments elsewhere. Other offshore bars in the shallow peripheral shelf sediments of Arkansas, Mississippi and Alabama most certainly will be found and recognized. Rudistid reefs and low-relief faulted structural traps are reservoirs that may be discovered by greater drilling density. A great deal of in-filling stratigraphic-structural data is lost by those operators in the Paleozoic producing areas who, for economic or regulatory restraints, set surface casing through the entire Cretaceous without either logging geophysically or catching samples. This should be pointed out, and operators should be encouraged to absorb this small additional expense—which might even result in an unexpected oil or gas discovery.

TABLE 1

BAXTERVILLE	Lamar	54°	5 wells	15bo	1807bw	6203Mcfg
CARMICHAEL	Clarke		1 well	0	0	0
CLARK CREEK*	Wilkinson	44°	2 wells	3638bo	0	0
GWINVILLE	Jefferson Davis	53°	4 wells	13bo	0	1461Mcfg
E. HEIDELBERG	Jasper	61°	1 well	14bo	8bw	18569Mcfg
W. HEIDELBERG	Jasper	46°	5 wells	57bo	140bw	13466Mcfg
JUNCTION CITY	Clarke	17°	7 wells	1653bo	14060bw	0
W. LANGSDALE	Clarke		1 well	0	0	0
PICKENS	Yazoo	38°	8 wells	2308bo	17814bw	372Mcfg
PISTOL RIDGE	Pearl River	50°	7 wells	463bo	2511bw	0
SHARON	Jasper		2 wells	0	0	5896Mcfg
TOTALS			43 wells	8161bo	36340bw	45967Mcfg

*No. 2 Clark Creek through perforations 11911-63 produces from possibly fractured or dolomitic Saratoga? or lower Prairie Bluff? Chalk. No. 8 Clark Creek was flowing over 100bopd water-free through perforations 12658-68 in a 12-foot brown dolomite? development in Austin Chalk.

A current article "Chemostratigraphy of Upper Cretaceous Chalk in the Danish Subbasin" by Niels Oluf Jorgensen (A.A.P.G. Bull., Vol. 70, No. 3, p. 309-317) illustrates the values of scientific studies of cores, and suggests to some of us the real possibility of very precise intracontinental and intercontinental correlation of the sediments and geologic events of the Cretaceous Period.

It is recommended that senior-graduate-level courses for credit be given to study the Selma Chalk by assignment; detailed correlations of well data be made; compilation and analysis of geologic literature and theses; compilation of authoritative information on production of oil, gas and other minerals from the rocks of Selma age; compilation of chemical analyses; listing of all possible mineral products from and utility of the various strata of Selma age; the collection and utilization of geophysical logs; identifications of, and vertical and lateral ranges of plant and animal fossils, and recognition of guide fossils; study of geologic nomenclature, unit by unit throughout the study area, with thought given to priority and adequacy; identification of specialists available for work in these studies; and a plan for at least one large-diameter core hole (possibly 6 inches), cored continuously from the basal part of the Midway (Danian) to the top of the Eutaw (Maastrichtian through Senonian). Sufficient material should be provided for:

1. macrofossil identification
2. microfossil identification
    a. ostracods
    b. foraminifers
    c. coccoliths
3. porosity
4. permeability
5. insoluble residue
6. complete chemical analyses
7. organic carbon content
8. fluid content (gases and liquids), if feasible
9. reserve material

A selection of comprehensive geophysical logs should be made to accompany and supplement the precisely placed cores. These logs might include, but not be limited to:

1. resistivity and spontaneous potential
2. temperature
3. gama ray-neutron
4. caliper

The possible use of the completed core hole, cased or uncased, for other purposes should be considered by geologists, geophysicists and petroleum and hydrologic engineers, who would also aid in the design and execution of the coring program.

Obviously, such an ambitious program initially will require some financial support from alumni and friends of participating universities through the planning stages, with substantially increased assistance during the execution and concluding phases. It is hoped that this proposed Symposium on Cretaceous Chalks would be of such technical quality as to attract geologists and other scientists from throughout the world to share in what we will have learned, and from whom we may benefit from what they already know, or will know.

The logical and essential objective of this program is early preparation and release of papers through one or more volumes of the proceedings of the Symposium. As there are always delays, sometimes running into years, between the release of information and its practical utilization, it is important that cooperative studies of this sort be started as soon as possible. If the program is well organized a great deal of time can be saved along the way. The success of the program will depend in large part on the makeup of the organizing committee.

From 1976 until the present, this idea has been discussed with geologists in Mississippi, Alabama, Arkansas, Kansas, Louisiana, Texas and in England. It is the consensus that the proposal has merit, is timely, and would ultimately be extremely profitable, not only to Mississippi, but to the world. Criticisms and suggestions are welcome.

NECROLOGY

RICHARD RANDALL PRIDDY
August 31, 1906 - April 12, 1986

Richard Randall Priddy, geologist, professor, and educator died April 12th of an apparent heart attack in his Indianapolis, Indiana, home. He was 79.

Richard (Dick) was born in Van Wert, Ohio. He received his Bachelor's degree from Ohio Northern University in 1930, a Master's degree and the Doctor of Philosophy degree in geology from the Ohio State University in 1938. His geological career began with the Kingwood Oil Company in Effingham, Illinois, in 1938-1940.

From 1940 to 1942, he was associated with the Mississippi State Geological Survey, University, Mississippi. In 1942 he became a geologist with the Texas Company (Texaco, Inc.), Shawnee, Oklahoma, and in 1943 was transferred to Jackson, Mississippi, to become district geologist of the Texas Company. He served in this capacity until 1946, when he left the petroleum industry and became Professor of Geology and Chemistry at Millsaps College, Jackson, Mississippi. This marked the beginning of the Department of Geology at the Methodist liberal arts institution. In 1948, he was appointed chairman of the Geology Department and served until 1972 when he took an early retirement and moved to Indianapolis to continue teaching several selected geology courses at Indiana Central College.

During the summers of 1948 to 1963, he engaged in active research in sedimentation at the Gulf Coast Research Laboratory in Ocean Springs, Mississippi. He was a teacher in Marine Geology at the Laboratory during the summers and also conducted National Science Foundation Institutes at the Research Laboratory.

From 1960 to 1964, Dick was Director of the National Science Foundation at Millsaps College involving the loess deposits, Vicksburg, Mississippi, and a combined venture of the Biology, Chemistry, Geology, Mathematics, and Physics departments.

While Dick was with the Mississippi Geological Survey, he was instrumental in writing the geological investigations of three County Surveys—Tallahatchie, Montgomery, and Pontotoc. In the late 1950's and early 1960's he was active in doing summer field work for the Survey, and in 1960 published the County Survey for Madison. He was the first geologist to promote the geologic profiles along the highways of Mississippi. In 1961, such a study was published along Highway 80 (now I-20) from Jackson, Mississippi, to the Alabama line. Under his supervision, other highways' profiles were published, which aided in conducting field trips to different parts of the state.

Dick's wife, Lillian, passed away in 1961 and a scholarship known as the Lillian Emily Benson Priddy scholarship was established to apply the yearly awards toward tuition to help young women interested in training for full-time Christian Service at Millsaps College.

He married Gladys Crafton, Lillian's cousin, and upon retirement in 1972 moved to Indianapolis, Indiana, to be closer to his wife's family. Dick was devoted to his family and was an active worker in the church. He had many social concerns and took a leading role in community responsibilities.

I can attest to the fact that I was fortunate to have been associated with an outstanding scientist for 18 years. Dick was a scholar, a generous and sharing person, and happily contributed to the lives of everyone he knew. For an educator of his stature, it is fitting to note he had finished his last semester of teaching, had enjoyed a farewell dinner with his friends and students, and I even had the opportunity to have a most enjoyable conversation with him on Friday before his passing on to the "Great Beyond" Saturday afternoon. His work had been completed, the books had been closed, and an exceptional and joyous life had come to a close.

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