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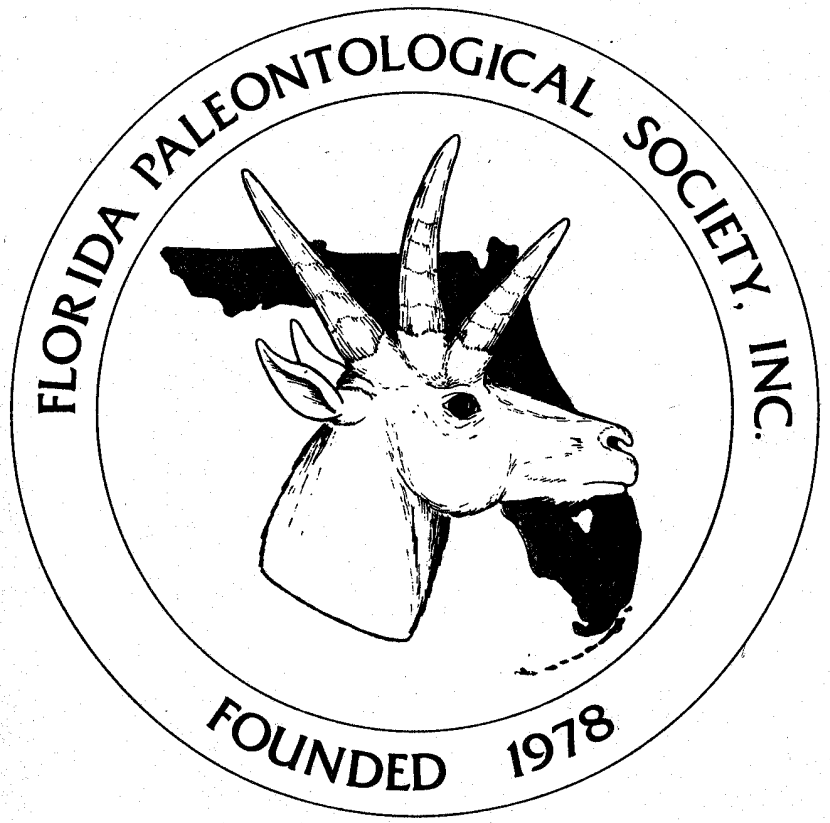
THE PLASTER JACKET

NUMBER 37 JULY 1981

The Thomas Farm Fossil Site
S. David Webb



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FLORIDA PALEONTOLOGICAL SOCIETY, INC.

Official News

FPS 6th ANNUAL MEETING

The 6th annual meeting of the Florida Paleontological Society, Inc. will be at the University of Florida in Gainesville on October 10th.

Members will assemble at 8:00 a.m. in the Reitz Union auditorium for registration. At 9:00 a.m. scientific papers will begin. Coffee and donuts will be served during midmorning break. At 11:00 a.m. the business meeting will be called to order. Any member wishing to present a paper should contact the secretary by September 1st. The afternoon session will take place at the Florida State Museum and will feature a fossil identification clinic. Members are invited to bring their collections for display and discussion.

NOMINATIONS OF OFFICERS

The nominating committee, consisting of Past President David Webb and President Ben Waller, has presented the following slate for the annual meeting in October:

President-Elect	Clifford J. Jeremiah
Vice President	Thomas C. Watson
Board of Directors	Guy Selander, Jacksonville
	Ray C. Robinson, St. Petersburg
	William Brayfield, El Jobean
Secretary-Treasurer	Howard H. Converse

Other nominations may be submitted by members to the Secretary no later than September 1st.

SPRING MEETING

The Spring meeting of the Florida Paleontological Society, Inc., was held on May 16th at the beautiful campus of Jacksonville University. Drs. Jesse Robertson

Cliff Jeremiah, and Guy Selander were excellent hosts. The program included some excellent fossil collection exhibits and the following talks:

DAVID WEBB, A Giraffe Camel and the extinction problem.
MIKE JEREMIAH, the evolutionary history of Isurus sharks.
DON SERBOUSEK, a paleo-indian site from the Aucilla River.
CLIFF JEREMIAH, fiberglass casting techniques.

The meeting concluded with a visit to Dr. Jeremiah's wonderful workshop on the St. Johns River.

The Board of Directors met at noon on May 16th at the Jeremiahs' residence with President Ben Waller presiding. Official business transacted included selecting by lot two directors to resign. They were Guy Selander and Ray Robinson. This brings the rotation of directors into a regular pattern. Dr. Cliff Jeremiah was appointed as Historian of the FPS. The board expressed its dismay that the June Field Camp did not receive enough paid subscriptions this year, and its determination to boost it more aggressively for next year.

PROPOSED BY-LAWS AMENDMENTS

At the annual meeting of November, 1978, FPS members adopted the official By-Laws, as then published, except that a majority voted not to approve Article II, section 6, which would have permitted the Board of Directors "to suspend or expel a Member or Associate Member for cause". Since then, two society committees have given extensive consideration to the By-Laws: they are the By-Laws Committee, chaired by Ray Robinson, and ably supported by Guy Selander and Cliff Jeremiah; and the Ethics Committee, chaired by Ben Waller and ably supported by Frank Garcia and Roger Alexon.

The work of these committees, reviewed by the Board of Directors at its 1980 Fall Meeting, has resulted in several proposed ammendments to the By-Laws. As stated in Article IX of the By-Laws, such amendments may be made by a majority of the members at an annual meeting when written notice of such intended action has been given in advance of that meeting. Accordingly, the following amendments are proposed for consideration at the annual meeting on October 10th. Written comments may be submitted in advance to the Secretary for circulation at the annual meeting.

ARTICLE I Name and Title of the Society

The name and title of this corporation shall be the Florida Paleontological Society, Inc., and shall be located at the Florida State Museum, University of Florida, Gainesville, Florida 32611. The Corporation may have such other offices as the Board of Directors may determine, or as the affairs of the corporation may require.

ARTICLE II Membership

Section 1. (About regular membership) At the end add the sentence: "Regular members may hold office in the corporation and may exercise all voting rights, and shall enjoy all other benefits conferred upon regular members by the by-laws."

Section 2. (About associate membership) At the end add the sentence: "Associate members shall have all the benefits of Regular Membership except the right to vote and the right to hold office."

Section 3. delete
Section 4. delete
Section 5. delete

(These three merely assign voting rights to regular members but not associate members.)

Section 6. would become Section 3. In conjunction with the proposed Code of Ethics (below), it should read as follows:

The Board of Directors, by affirmative vote of two-thirds of their members, may, after an appropriate hearing, suspend or expel a Member of Associate Member for cause. Cause is to mean violation of the Purpose of the Articles of Incorporation, By-Laws, or Code of Ethics of the Corporation.

Old Sections 7 and 8 become Sections 4 and 5 respectively.

ARTICLE IV Meetings

Add to existing section 6

Ballots will be mailed to all eligible members with an enclosed self-addressed envelope marked "BALLOT" forty-five (45) days prior to the Annual Meeting. All ballots must be in the hands of the Secretary prior to 9:00 a.m. on the day of the Annual Meeting with the signature and return address of the member in the upper left hand corner of the ballot envelope in order to be counted.

Section 9. Matters which require urgency and approval by the general membership may be voted upon by the membership through the mail, provided each eligible member is mailed a copy of the items to be voted upon and a ballot for voting such items. A deadline of at least one month shall be set for the return of said ballots.

Number present Sections 9 through 14 [become 10 through 15].

ARTICLE V Board of Directors

Section 3. The Board of Directors shall consist of the President, President-Elect, Vice President, Secretary, Treasurer, Immediate Past President, and a current curator of the Florida State Museum (appointed by the Director of the Museum). Additionally, there shall be elected from the membership at large no less than three nor more than ten other directors who shall serve staggered three year terms.

ARTICLE VII

Section 1. The President shall appoint all committees and designate their chairpersons. (Delete "except as otherwise provided in these By-Laws".)

Section 6. (Insert as new) The President shall appoint an Election Committee of at least three (3) members present at the Annual Meeting for the purpose of counting election ballots. No member who has been

nominated for office in that election will be a member of this committee.

ARTICLE IX (New) Code of Ethics

Section 1. Members of the Florida Paleontological Society, Inc., are expected to respect all private and public properties.

Section 2. No member shall collect without appropriate permission on private or public properties.

Section 3. Members should make a sincere effort to keep themselves informed on laws, regulations and rules on collecting in private and public properties.

Section 4. Members shall not use firearms, blasting equipment, or dredging apparatuses without appropriate licenses and permits.

Section 5. Members shall dispose of litter properly.

Section 6. Members shall report to proper state offices any seemingly important paleontological or archaeological sites.

Section 7. Members shall respect and cooperate with field trip leaders or designated authorities in all collecting areas.

Section 8. Members shall appreciate and protect our heritage of natural resources.

Section 9. Members shall conduct themselves in a manner that best represents the Florida Paleontological Society, Inc.

Former ARTICLE IX becomes
New ARTICLE X

In addition, President Waller has appointed a committee to study constitutional means of recognizing local chapters and bringing them into the functions of the FPS. This committee, consisting of David Webb and Ray Robinson, will prepare some suggestions for informal consideration at the annual meeting this fall.

NUMBER 37 JULY 1981

THE THOMAS FARM

FOSSIL VERTEBRATE SITE

S. David Webb[1]

The Thomas Farm Local Fauna in north-central Florida has yielded one of the two richest samples of Tertiary vertebrate life in eastern North America.* This site still holds untapped wealth in the form of unknown species and better material of little-known species. The site has been known for 50 years, but during the past 25 years has been worked on only a limited basis. During this time screen-washing techniques have been developed to produce microvertebrates but have been applied only during one season at Thomas Farm. Thus, much more work needs to be done at Thomas Farm.

*The other sample, richer in number of species, is the Love Bone Bed, recently described by Webb, MacFadden and Baskin (1981).

[1]S. David Webb is Curator of Fossil Vertebrates at the Florida State Museum and Professor of Zoology at the University of Florida. He served as President of the Society of Vertebrate Paleontology in 1978 and 1979 and has been editor of the PLASTER JACKET for most of its 15 years of publication. Most of his paleontological studies have dealt with large mammals in North and South America.

This issue of the PLASTER JACKET is devoted to the Thomas Farm Site for two reasons, one general and one rather specific. The general reason, as already implied, is thatthis site uniquely represents a major chapter in our knowledge of vertebrate life in half a continent. The more specific reason, related to the immediate concerns of the Florida Paleontological Society, Inc., is that the Florida State Museum has geared up for a series of major excavations at this site in the 1980's. Plans for the Thomas Farm campaign include field camps in which FPS members will participate. This brief review of the site and its vertebrate fauna is intended to serve as an introduction for those who will extend our knowledge of Thomas Farm.

Previous Studies

Fossil vertebrates were discovered on the farm of Raeford Thomas in 1931 by Clarence Simpson of the Florida Geological Survey. Members of the Thomas family still own and farm much of the land in this area. The site was worked on by the FGS and in 1932 G.G. Simpson and A.E. Wood (see references) each described parts of the Thomas Farm Local Fauna. In 1939, Dr. Thomas Barbour, then Director of the Museum of Comparative Zoology at Harvard, visited Thomas Farm on one of his Florida natural history trips. He was so impressed by the concentration of diverse vertebrates that he purchased the forty-acre tract surrounding the "bone hole". From then until 1956 (excepting the war years), Harvard crews under Romer, White, and Patterson worked at Thomas Farm. Meanwhile the property was deeded via Professor Archie Carr to the University of Florida in 1942. The Florida Geological Survey under Olsen and the University of Florida under Bader, Auffenberg and Brodkorb, also worked there. These Florida collections all now are curated into the Florida State Museum.

Stratigraphy and Deposition

Most paleontologists visiting "the dig" at Thomas Farm are astonished by how compact it is. The worked

area is no more than fifty feet square, and hardly seems deep enough to account for the large collections in Cambridge and Gainesville. This soon becomes clear, however, when they realize how concentrated the bone can be. Figure 1 presents a plan view of the site after 25 years of digging. The west-flowing channel was dug by the Harvard crew to facilitate drainage. Unworked parts of the site extend southward some distance.

In the site, three distinct facies of fossiliferous sediments are evident:

1) sandy to silty clay, variously bluish or dark orange brown in color, massively bedded and widely distributed in the northeast sector of the site;
2) the "boulder bar", masses of limestone cobbles, in a sparse and variable sandy or clayey matrix, located in the central part of the site; and
3) coarse and fine sands, thin beds, often cross bedded, often steeply-dipping in various directions, located in the western sector of the site.

Two hypotheses have developed regarding the accumulation of fossil vertebrates at Thomas Farm. G.G. Simpson (1932) mentioned that the fossiliferous sediments might have been sinkhole filling deposits, but he did not visit the site until 1980 (Simpson, personal communication, at the site). Ted White (1942), based on extensive experience at the site, presented in some detail the view that these fossiliferous sediments were stream deposits. This was widely accepted in most early work on Thomas Farm vertebrates. Walt Auffenberg (1963), however, presented the following discussion in support of the sinkhole or fissure-fill hypothesis:

> "A number of paleontologists have expressed the opinion that, since most of the bones are not water-worn and since many delicate structures are still intact, a stream, if present, must have been slow moving or very small. Investigators over the course of many

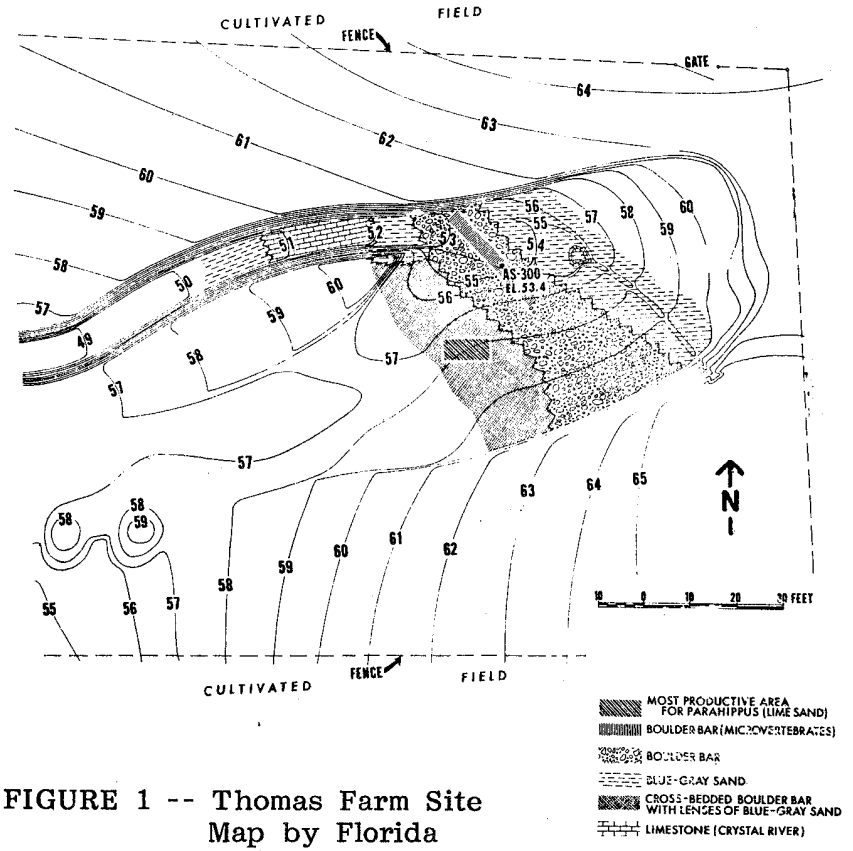

FIGURE 1 -- Thomas Farm Site Map by Florida Geological Survey, 1956 (after Puri and Vernon, 1964). The land surface lies at about 60 feet above the sea; the west-trending trough was dug by Harvard parties to keep the site drained.

years have revealed only one fish vertebra, whereas such vertebrae occur in considerable quantities in most of the known ancient stream deposits of central Florida.

Running diagonally through the fossil deposit is a bed of boulders that had been interpreted as indicative of stream deposition by the early scientists working at the Thomas Farm. On the other hand, other scientists have suggested that this linear accumulation of boulders may be the remnant of material that had fallen into an eroded crevice in the limestone. Although irrefutable evidence is yet to be forthcoming, the sink-hole theory seems to account for the observations better than any of the other hypotheses. Of course the alternatives are not necessarily mutually exclusive--a sink hole may have been fed by small streams, as are existing structures in the area today.

The manner in which the sediments were deposited has obvious biological implications. Since the material accumulated in a sink hole is usually from a rather limited area, the number of ecological niches "sampled" would be small and, in consequence, the number of fossil species represented in the deposit would be but a small sample of the total Lower Miocene fauna of even the northern part of what was then Florida.

A temporary pool was probably present during several stages in the development of the deposit. This is suggested by the presence of an as yet undescribed species of fresh-water turtle, an extinct species of alligator, an extinct shore bird, two species of frogs referred to modern genera that are most commonly found around the

edges of ponds, and a few species of semiaquatic salamanders. The single fish vertebra and a few vertebrae of a completely aquatic type of salamander might be indicative of occasional flooding of nearby streams or ponds. . . . one of the most outstanding features of the Thomas Farm site . . . the large number of fossil . . . bat . . . bones, lends support to the sink-hole theory. . . . bats are common in the small caves and fissures in the crumbling walls of sink holes in Florida at the present time [but it] is difficult to account for bat bones in a stream-channel deposit.

Of a reasonably large number of fossil snakes that have recently been described from the deposit, none seems to be aquatic. In fact, the most common species are related to the boa constrictors and pythons that in many of the limestone areas of the world are found inhabiting caves, where they feed on rodents and bats.

It is not known whether the present surface limestone bedrock contains a depression that conforms to the distribution of the fossil beds. However, it is known that this limestone surface is very irregular. Furthermore, there is no reason to suppose that the present landscape would necessarily reflect the minor details that might have been present during the Lower Miocene. During the geologic history of Florida the peninsula was repeatedly inundated by the surrounding oceans. These seas had a decided planing effect on irregularities in their path as they advanced over the land. Wave action removed much of the overlying material and the bedrock was smoothed. Such a planing effect in the

low-lying region of the Thomas Farm could have easily removed much of the upper portion of what might have been the walls of a deep sink hole or joint fissure in the limestone."

The Simpson-Auffenberg sinkhole-filling hypothesis seems to fit the stratigraphic and faunal evidence at Thomas Farm. Puri and Vernon (1964) present a composite interpretation. (Figure 2 illustrates this sinkhole hypothesis.)

Age

Rejection of the stream hypothesis has an important affect on interpretations of the age of the Thomas Farm Local Fauna. The site generally has been reported as stream sediments included within the Hawthorne Formation, widespread in peninsular Florida and the coastal plain of Georgia. This assignment becomes moot, however, if the site represents local karst fill. It is surrounded by Crystal River limestone of late Eocene age and not traceable laterally into the Hawthorne Formation in any strict sense. The Florida Geological Survey assigned the fossiliferous sediments at Thomas Farm to the Alachua Formation (Puri and Vernon, 1964), but used that term in a loose heterogeneous sense. Thus, the sediments bearing fossil vertebrates at Thomas Farm cannot be clearly assigned to any known lithostratigraphic unit.

The age of the Thomas Farm local fauna can be determined only on biostratigraphic grounds. Recent studies place it as medial Hemingfordian (Patton, 1969; Tedford and Frailey, 1976). The site has "upward mobility", since during the preceding decade it was often regarded as late Arikareean in age. The rich vertebrate fauna now includes some 30 species of herps, a dozen or more birds and over 30 species of mammals. Much more work is needed, especially on the microvertebrates, in the several different facies represented in this "bone hole". A current faunal list is presented as an appendix.

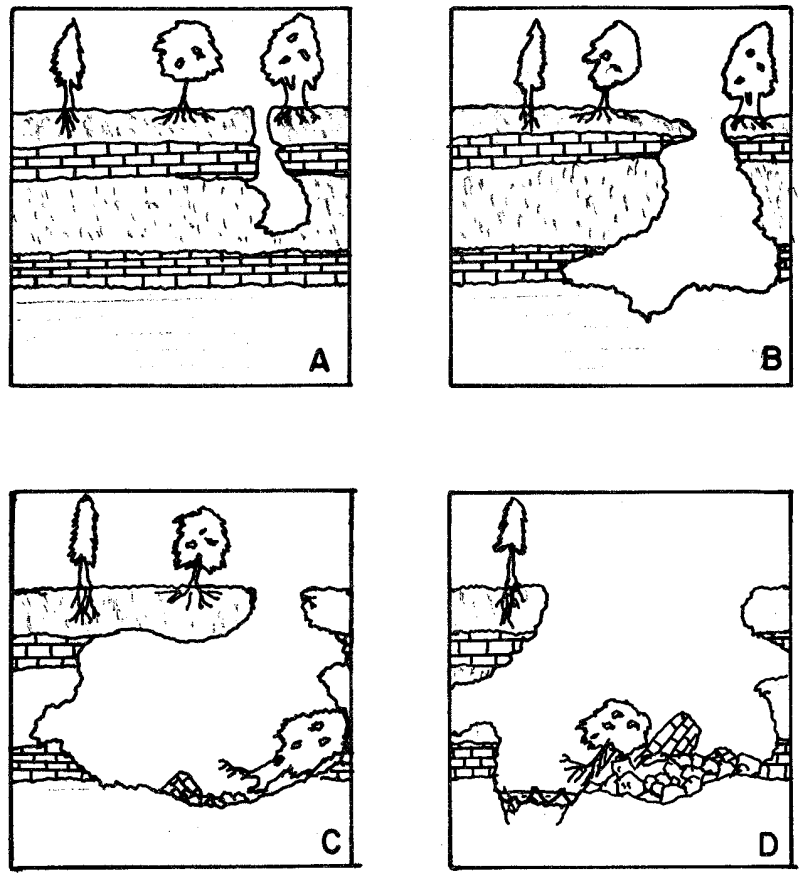

FIGURE 2 -- Origin of the Thomas Farm Site as a sinkhole. In the mid-Miocene water table lowered and limestone eroded. By stage D, major erosion had ceased, and in the lowest parts of the site deposition had begun. Land animals from the surface and cave animals from the sides dropped into the accumulating sediments.

Tedford and Frailey (1976) have shown that three of the carnivora at Thomas Farm, Cynelos caroniavorus, Hemicyon johnhenryi, and the ?Miomustela sp., had very close relatives in European faunas of Burdigalian age, middle Miocene. Within North America, Thomas Farm Local Fauna compares best with, but may be younger than, the Garvin Gully Local Fauna on the Coastal Plain of Texas and the fauna from the Runningwater Formation in Western Nebraska. Characteristic species are, among carnivores, the primitive species of Euoplocyon and the presence of Amphicyon; among horses, the advanced species of Parahippus, and the presence of Anchitherium; among rhinos, an advanced species of Diceratherium; and among ruminants, early species of Prosynthetoceras and Oxydactylus. Such comparisons as these show that the age of the Thomas Farm Local Fauna falls near the middle of the Hemingfordian, about 18 million years ago (Tedford and Frailey, 1976).

Geography and Ecology

A sense of a distinct Gulf Coast faunal province has emerged from comparisons between the Thomas Farm and Garvin Gully local faunas on the one hand and approximately contemporaneous High Plains local faunas on the other. The artiodactyl genera Nothokemas, Floridatragulus, and Prosynthetoceras are characteristic endemics of the Hemingfordian Gulf Coastal Plain fauna (Patton and Taylor, 1973). The rhinocerotid, Floridaceras, appears also to be such an endemic. When they are better known, the small vertebrates from Thomas Farm will provide a fuller definition of this Gulf Coastal faunal province.

Ecologically, the fauna from Thomas Farm is complex but poorly understood. Fishes are remarkably rare, supporting the view that the only aquatic systems were local sinkhole ponds. Frogs, salamanders, turtles, and alligators are only moderately abundant; and among snakes, several terrestrial and arboreal types but no aquatic types, are known. Among birds, the only aquatic type is a cormorant. Thus, the aquatic system seems to consist of ponds not streams.

The remarkably high frequency of bat remains, despite their fragile nature, strongly suggests the presence of cave roost sites at or very near the site. The bats, though little studied, are, for the most part, comparable to living species of Myotis. It is reasonable to assume that the fossil species, like the modern, roosted in caves in large colonies and fed on insects at night. Other species that may have accumulated as cave dwellers are several of the boid snakes (Auffenberg, 1963).

The bulk of the vertebrate fauna preserved at Thomas Farm surely did not live in situ in a pond or a cave. Such animals as horses and camels had normal terrestrial habits and must have fallen in or washed in along with the clastic sediments that also were exogenous to the site of deposition. Two broadly distinct terrestrial habitats, namely grassland and forest, are both well represented. Animals such as the canids, heteromyid, rodents, tortoises, and Parahippus horses probably represent an open grasslands environment. The peccaries, the deer and most of the camels, the non-Parahippus horses, and the rhinoceroses are browsers or mast-eaters suggesting a forest habitat; and several birds including turkeys and chachalacas prefer open woodland. The commonest single animal by far at Thomas Farm, Parahippus leonensis, lies near the roots of the great Miocene diversification of grazing horses, and surely was itself predominantly a grazer (Figure 3). Some other large herbivores that are moderately abundant, were evidently browsers. The simplest satisfactory view of the Thomas Farm setting is a sinkhole in an extensive park savanna.

CONCLUSIONS

Thomas Farm is hardly more than a hole in the ground, resembling many other sinkholes in peninsular Florida. Nevertheless, this hole has the venerable distinction of being nearly 20 million years old and of preserving a rich sample of the bony animals that lived in the area when it was still actively filling.

The sinkhole deposits, and the fossils entombed in them, were drawn mainly from the land surface by falling and by slope wash. Some additional animals lived, or were carried by predators, into caverns in the limestone system and some aquatic species lived in or near ponds or seep springs eroded from the limestone at Thomas Farm.

The Thomas Farm Local Fauna is by far the richest middle Miocene site in eastern North America. It is largely responsible for our view of life in this half of the continent. In comparison with other major sites of this age, Thomas Farm strongly suggests that there were endemic species and even genera, that lived on the Gulf Coastal Plain and not in the High Plains or Pacific Coast provinces.

Much work remains to be done at Thomas Farm. In particular, extensive screenwashing for small vertebrates, which are well preserved in the clays and in the coarser clastic sediments, will yield major additional evidence of the middle Miocene vertebrate fauna. Sediments of the three facies will be washed through screens in the nearby Santa Fe River.

The extraordinary diversity of vertebrates on the present faunal list is somewhat misleading, because many, such as the merycoidodont and the larger rhinocerotid, are known from very few specimens. It is entirely reasonable to expect much fuller samples of many medium and large-sized animals.

Another important question still needing study concerns the frequency of different species in the three major facies in the site. This will require extensive quarrying in surveyed sampling areas. It will also require ecological detective work, known as taphonomy, concerning the depositional history of the fossils, including bone orientations, associations, weathering, chewing, and the like. In short, Thomas Farm has much more still to reveal about life in eastern North America 18 million years ago.

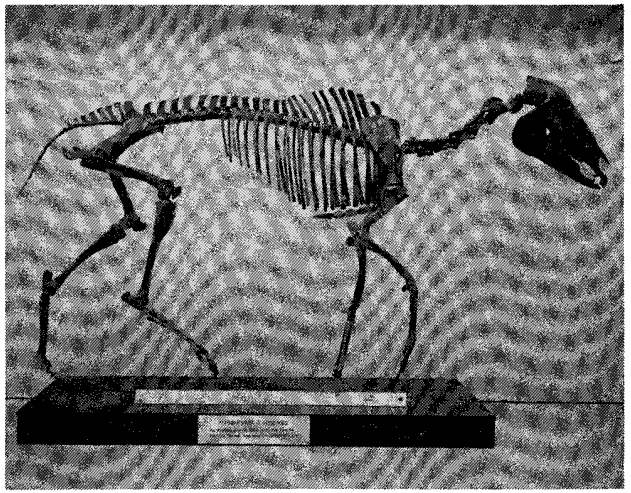

Figure 3
Parahippus leonensis

Appendix: List of Vertebrates from Thomas Farm Local Fauna

CLASS OSTEICHTHYES
rare unidentified bony fishes

CLASS AMPHIBIA

O. Anura
- Scaphiopus cf. holbrooki spadefoot toad
- Leptodactylus abavus robber frog
- Bufo praevius toad
- Hyla goini tree frog
- Gastrophryne cf. carolinensis
- Rana miocenica frog
- Rana bucella frog
- Rana cf. pipiens frog

O. Urodela
- Notopthalmus robustus salamander
- Siren hesternus siren
- Batrachosauroides dissimulans salamander

CLASS REPTILIA

O. Chelonia
- *Chrysemys* sp. freshwater turtle
- *Geochelone tedwhitei* tortoise

O. Lacertilia
- *Leiocephalus* sp. gridiron-tailed lizard
- Iguanidae, 3 indeterminate species
- Gekkonidae, gen. et sp. indet.
- *Eumeces* sp. skink
- *Cnemidophorus* sp. racerunner
- *Peltosaurus* sp. slow worm lizard
- Anguidae, gen. et sp. indet.

O. Serpentes
- *Pseudoepicrates stanolensi* tree boa
- *Ogmophis pauperrimus* ground boa
- *Calamagras floridanus* ground boa
- *Aniliioides minuatus* ground boa
- *Pseudocemophora antiqua* extinct colubrid
- *Paraoxybelis floridanus* vine snake
- Colubridae, gen. et sp. indet.

O. Crocodilia
- *Alligator olseni* alligator

CLASS AVES

O. Pelicaniformes
- *Phalacrocorax subvolans* cormorant

O. Falconiformes
- *Promilio floridanus* kite
- *Promilio epileus* kite
- *Promilio brodkorbi* kite

O. Galliformes
- *Boreortalis laesslei* chachalaca
- *Rhegminornis calobates* turkey

O. Piciformes
- Capitonidae, 1 undescribed species

O. Columbiformes
- Columbidae, 2 undescribed species

O. Coraciiformes
- 2 undescribed species

O. Passeriformes
- cf. *Icteria*
- Compsothylypidae, gen. et sp. indet.
- Other passerine birds present

MAMMALIA

Insectivora
- Soricidae, 1 undescribed species

Chiroptera

Vespertilionidae
- *Suaptenos whitei*
- *Miomyotis floridanus*
- Several undescribed species of bats

O. Rodentia

Sciuridae
- undescribed ground squirrel

- *Proheteromys magnus*
- *Proheteromys floridanus*

Cricetidae
- undescribed species

O. Carnivora

Canidae
- *Cynodesmus iamonensis*
- *Tomarctus canavus*
- *Euoplocyon spissidens*

Amphicyonidae
- *Amphicyon longiramus*
- *Cynelos caroniavorus*

Ursidae
Hemicyon johnhenryi

Mustelidae
Oligobunis floridanus
Leptarctus ancipidens
Miomustela (?) sp.

O. Perissodactyla
Equidae
Anchitherium clarencei
Archaeohippus blackbergi
Parahippus leonensis

Rhinocerotidae
Floridaceras whitei
Diceratherium (Menoceras) barbouri

O. Artiodactyla
Tayassuidae
Desmathyus olseni

Merycoidodontidae
cf. *Merychyus*

Floridatragulidae
Floridatragulus dolichanthereus

Camilidae
Nothokemas floridanus

Protoceratida
Prosynthetoceras australis

Noschidae
Blastomeryx floridanus
Machaeromeryx gilchristensis

THOMAS FARM REFERENCES

Auffenberg, W.A.
1963a — Present problems about the past. BSCS Pamphlets, no. 6, pp. 1-35. Amer. Inst. Biol. Sci., D.C. Heath, Boston.

1963b — The fossil snakes of Florida. Tulane Stud. Zool., 10: 131-216.

Bader, R.S.
1956 — A Quantitative Study of the Thomas Farm Miocene. Bull. Mus. Comp. Zool., 115:49-76.

Black, C.C.
1963 — Miocene Rodents from the Thomas Farm Local Fauna. Bull. Mus. Comp. Zool., 128:483-501.

Brodkorb, P.
1954 — A chachalaca from the Miocene of Florida. Wilson Bull. 66(3): 180-183.

Brodkorb, P.
1956 — Two new birds from the Miocene of Florida. Condor 58(5):367-370.

Brodkorb, P.
1963 — Miocene birds from the Hawthorne Formation. Quart. Jour. Florida Acad. Sci. 26(2):159-167.

Cracraft, J.
1971 — The humerus of the early Miocene cracid, *Boreotalis laesslei* Brodkorb. Wilson Bull. 83:200-201.

Estes, Richard
1963 Early Miocene salamanders and lizards from Florida. Quart. Jour. Florida Acad. Sci. 26(3): 236-256.

Goin, C.J. and W. Auffenberg
1955 The fossil salamanders of the family Sirenidae. Bull. Mus. Comp. Zool. Harvard, v. 113, pp. 497-514.

Holman, J. Alan
1965 Early Miocene anurans from Florida. Quart. Jour. from Florida Acad. Sci. 28(1): 68-82.

Holman, J. Alan
1967 Additional Miocene anurans from Florida. Quart. Jour. from Florida Acad. Sci. 30(2):121-140.

Maglio, V.J.
1966 A Revision of the fossil Selenodont Artiodactyls from the Middle Miocene Thomas Farm, Gilchrist County, Florida., Mus. Comp. Zool. Harvard, 255:1-25.

Olsen, S.J.
1956a A small Mustelid from the Thomas Farm Miocene. Mus. Comp. Zool. Harvard, 51:1-4.

1956b The Caninae of the Thomas Farm Miocene., Mus. Comp. Zool., Harvard, 66:1-11.

1957 Leptarctines from the Florida Miocene (Carnivora, Mustelidae), Am. Mus. Novitates 1861; 1-6.

Olsen, S.J. (cont.)
1958a The skull of Leptarctus ancipidens from the Florida Miocene, Fla. Geol. Survey Special Publ. 2:1-9.

1958b The fossil carnivore Amphicyon intermedius from the Thomas Farm Miocene, Part 1: Skull and Dentition, Bull. Mus. Comp. Zool. Harvard, 118:156-168.

1960 The fossil carnivore Amphicyon longiramus from the Thomas Farm Miocene, Part 2: Postcranial Skeleton 123:1-44.

1962 The Thomas Farm fossil quarry., Quart. Jour. Florida Acad. Sci., 25:142-145,

1964 Vertebrate correlations and Miocene stratigraphy of North Floirda fossil localities, Jour. Paleo. 38:600-604.

1968 Miocene vertebrates and North Florida shorelines Paleogeography, Paleoclimatol., Paleoecol., 1968; 127-134.

Olsen, S.J. and Farrand, J., Jr.
1974 Rhegminornis restudied: a tiny Miocene turkey. Wilson Bull. 86(2):114-120.

Patton, T.H.
1969 Miocene and Pliocene Artiodactyls, Texas Gulf Coastal Plain., Bull. Fla. State Mus., 14:116-220.

Patton, T.H. (Cont.)
1964 The Thomas Farm vertebrate locality, Soc. Vert. Paleo., 1964 field trip, Fla. Geol. Survey, 1964.

Puri, H.S. and R.O. Vernon
1964 Summary of the geology of Florida and a guidebook to the classic exposures: Fla. Geol. Survey Special Publ. no. 5, (Revised edition), 312 pp.

Romer, A.S.
1948 The fossil mammals of Thomas Farm, Gilchrist County, Florida, Quart. Jour. Fla. Acad. Sci., 10:1-11.

Simpson, G.G.
1932 Miocene land mammals from Florida. Florida State Geol. Surv. Bull. 10, pp. 11-41.

Tedford, R.H. and D. Frailey
1976 Review of some carnivora (Mammalia) from the Thomas Farm local fauna (Hemingfordian: Gilchrist County, Florida), Am. Mus. Novitates 2610:1-9.

Tihen, J.A.
1951 Anuran remains from the Miocene of Florida, with the description of a new species of Bufo. Copeia, pp. 230-235.

Webb, S.D., B.J. MacFadden and Jon Baskin
1981 Geology and paleontology of the Love Bone Bed from the Late Miocene of Florida. Amer. Jour. Sci., 281:513-544.

Wetmore, A.
1943 Fossil birds from the Tertiary deposites of Florida. Proc. No. England Zool. Club 32:59-68.

White, T.E.
1940 New Miocene vertebrates from Florida, Proc. New England Zool. Club, 18:31-38.

1941 Additions to the Miocene fauna of Florida, Proc. New England Zool. Club, 18-91-98.

1942 The Lower Miocene mammal fauna of Florida, Bull. Mus. Comp. Zool. Harvard, 92:1-49.

1947 Additions to the Miocene Fauna of North Florida, Bull. Mus. Comp. Zool. Harvard, 99:497-515.

Wood, A.E.
1932 New heteromyid rodents from the Miocene of Florida. Florida Geol. Surv. Bull. 10, pp. 45-51.

Wood, H.E.
1964 Rhinoceroses from the Thomas Farm Miocene of Florida, Bull. Mus. Comp. Zool. Harvard, 130:363-385.