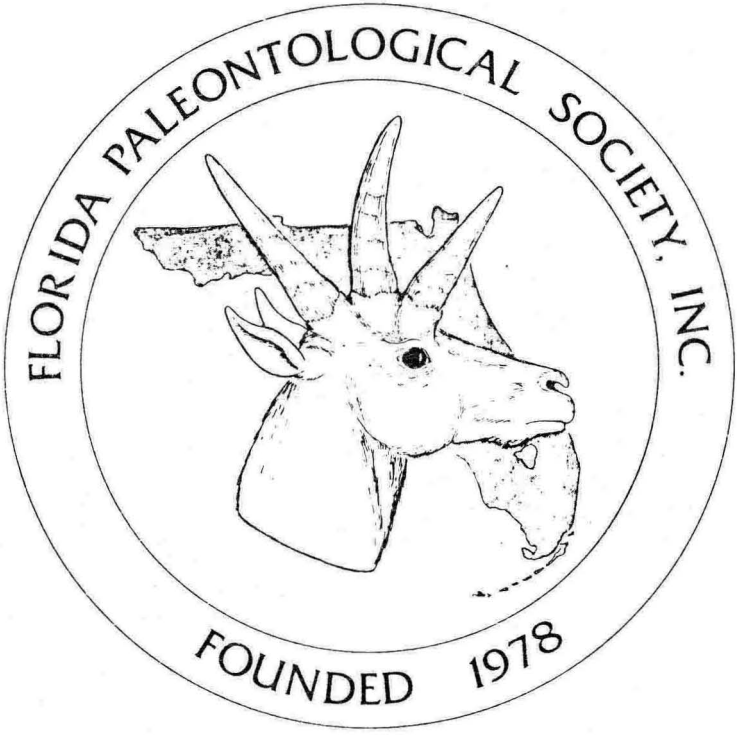
newsletter

florida paleontological society, inc.



Volume 2 No. 1

February 1985

FLORIDA PALEONTOLOGICAL SOCIETY, INC.

OFFICERS

President	Frank Garcia, Tampa, FL
President-Elect	Bessie G. Hall, 2408 Bay Street, Sarasota, FL 33577
Vice President	Don Serbousek, 333 S. Yonge Street, Ormond Beach, FL 32074
Secretary-Treasurer	Howard H. Converse, Jr., Florida State Museum, University of Florida Gainesville, FL 32611
Editor	S. David Webb, Florida State Museum
Museum-Appointed Director	Bruce J. MacFadden, Florida State Museum

BOARD OF DIRECTORS

Thomas Watson, Panama City, FL
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Gordon Hubbell, Key Biscayne, FL
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Jacksonville, FL
Phil Whisler, Venice, FL
William Hall, Sarasota, FL
Ray Robinson, St. Petersburg, FL
Roger Alexon, Ormond Beach, FL

Annual dues for FPS are $3.00 for persons under age 18 and $6.00 for persons over age 18. Persons interested in FPS membership need only send their names, addresses and appropriate dues to Howard H. Converse at the Florida State Museum. Please make checks payable to FPS. Members receive a membership card and the bimonthly FPS Newsletter.

Newsletter Policy: All news items and photographs related to paleontology in Florida are welcome. The deadline for each issue is the 15th of the month before publication. The editor reserves the right not to publish submissions and to edit those which are published.

FLORIDA PALEONTOLOGICAL SOCIETY, INC.

Volume 2 Number 1 N·E·W·S·L·E·T·T·E·R February 1985

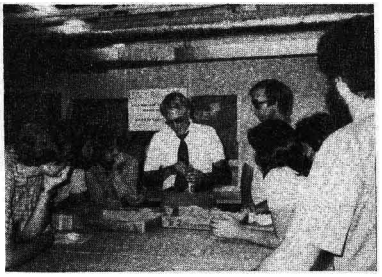
ANNUAL MEETING OF THE FPS

The FPS membership met at 8:00 a.m. on October 6th at the J. Wayne Reitz Union in the second floor auditorium, University of Florida, Gainesville. The scientific program included the following talks:

8:15 AM	Pleistocene Sites in the St. Petersburg Area - Brian Ridgway, Gainesville, FL
8:45 AM	Museum Suitcase Exhibits - Betty Dunckel Camp, Florida State Museum (FSM)
9:00 AM	Fossil Condors of the Grand Canyon - Steve Emslie, University of Florida (UF)
9:30 AM	Stratigraphy and Ecology of the Leisey Bone Bed - Richard Hulbert, UF
10:15 AM	Coffee Break
10:45 AM	The Great American Interchange - S. David Webb, FSM

The minutes of the FPS business meeting at 11:00 AM appear following this program.

After lunch the group proceeded to the museum collections to see progress on the Leisey specimens. The afternoon concluded with a discussion of the Fossil Law Regulations in the museum courtyard.



David Webb, Curator of Fossil Vertebrates, describes fossil specimens from the Leisey Shell Pit, Ruskin, Florida.

Membership Renewal Reminder: If you have not renewed your membership for 1985, please do so on the renewal form provided at the end of this newsletter. All unpaid members will be dropped from the mailing list on March 1, 1985.

Howard Converse explains the use of Friendly Plastic, a new plastic filler used in fossil reconstruction.

MINUTES OF THE SEVENTH ANNUAL BUSINESS MEETING OF THE FLORIDA PALEONTOLOGICAL SOCIETY, INC.

The meeting was called to order by President Hall on October 6, 1984, at 11:10 AM, who extended a greeting to everyone present.

The Board of Directors stood and introduced themselves. Five were present during the opening portion of the meeting. Bessie stated that the Articles of Incorporation needed to be updated along with the Constitution and By-Laws.

The first order of business is the reading of the minutes from the Sixth Annual FPS Business Meeting, published in the Plaster Jacket (#44, Feb. 84). There were no corrections or additions and a motion was made to accept the minutes as printed. The motion was seconded and approved.

Howard Converse gave the Treasurer's Report. Bessie reported that the books were audited and found to be correct.

1984 RECEIPTS

Annual Dues	$1956.00
Fossil Book Sales & Shipping	2257.39
Thomas Farm Camp Receipts	2000.00
Spring Meeting	803.50
Miscellaneous (PJ Purchases, Donations)	121.33
	$7138.22

1984 EXPENSES

Sec. of State (Corp. Report)	10.00
Beechler's Quickprint (PJ)	1495.80
Servomation (Spring Banquet)	736.03
Hickory Printing (Fossil Book)	2723.45
Hickory Printing (Shipping)	110.93
Coffee and Donuts (Meeting)	72.50
Thomas Farm Field Camp	1952.15
	$7100.86

BANK BALANCE TO DATE	$3398.25
UF PRINTING BLANKET	527.23

CONTRIBUTIONS FROM THE FLORIDA STATE MUSEUM

All FPS postage		521.26
Xeroxing		44.30
Memograph Stencils		11.25
Office Supplies		
Stationary	8.85	
Envelopes	21.00	
Bond paper	13.75	
	$43.60	43.60
Museum Supplied Manpower		1250.00
		$1870.41

A member inquired if the bank balance included the Book Fund and Scholarship Fund. Currently there is no Scholarship Fund and sales of M.C. Thomas' book go into the Book Fund. Howard reported that the auditors recommended that the bookkeeping procedures be expanded to handle the growth of the society. It was reported that attempts are being made to computerize the bookkeeping. There were no further questions about the Treasurer's Report.

President Hall asked for a report from Dave Webb, Editor of the Plaster Jacket. He reported that three issues of the PJ were printed in 1984. A summary of the PJ content and future contents were discussed. A book on Florida fossils by redoing all the Plaster Jackets was mentioned and discussed.

Clifford Jeremiah requested giving up the chairmanship of the Book Fund since he has not been very active working on it. President Hall advised that the incoming president would have to handle this.

Ed Borwn reported on the 1984 Thomas Farm Field Camp and said that the original enthusiasm has been exhausted.

Since Ben Waller was not present, there was no Scholarship Fund report.

Historian Cliff Jeremiah said he would also like to give up this job and reported that nothing has been given him for the file. Bessie asked that the membership put together a history of the society and briefly reported on her first fossil find of shark teeth when she was seven years old.

Under unfinished business, Dave Webb reported on publishing a fossil book. All Plaster Jackets will require rewriting and new illustrations. Dave stated that within the next year a substantial amount of the book should be finished. He estimated it would take about two years to complete this project.

Under new business, Harry Miller brought up the amendment changes that were submitted to the society. Bessie stated that the society recognizes Roberts Rules of Order (Revised) and that a change could not be made to the By-Laws if it conflicts with the Constitution and Articles of Incorporation. Miller's amendment changes were ruled out of order since they do conflict with the Constitution and Articles of Incorporation. Persons making the proposals were notified of this ruling.

It was asked if this means FPS can never change the By-Laws; however, Bessie replied that when such a conflict occurs, the Constitution and Articles must be changed first. Miller asked if the society was going to act on the proposed change and Bessie replied no, not until the Constitution and Article were changed. Miller inquired about the procedure for this and Anita Brown suggested that the society appoint a committee to study changes required within the By-Laws, Constitution and Articles of Incorporation. Before discussing formation of a committee, Bessie read Article 7, sec. 1 and sec. 2 of the Constitution; discussion followed.

"The Articles of this Corporation may be amended at any meeting of the members by a 2/3 vote of the members voting provided that this majority is equal to or greater than 1/2 of the membership of the Corporation and provided that a copy of the proposed amendment shall have been mailed to all members at least 60 days prior to the meeting at which said proposed amendment is to be voted on. Amendments may be proposed by the Board of Directors, by a majority vote of a meeting of the members or by written petition signed by no fewer than 100 members of the Corporation.

In response to Brown's committee proposal, Bessie pointed out how lax the society has been in the past complying with rules governing FPS and that the FPS must get back to the basic laws. She explained her decisions.

President Hall asked for additional new business. Harry Miller stated that at the

Gainesville meeting on fossil regulations, it was suggested and agreed upon that a letter be written rejecting the resignation of all members who had submitted them. However, Miller said the letter was never written and the resignations were accepted. He asked why Bessie changed her mind to which she replied that she read the By-Laws, sec. 4, which states that any member or associate member may resign by filing a written resignation with the secretary. Such resignations will not relieve the member or associate member so resigning of the obligation to pay any dues heretofore approved or unpaid. The By-Laws do not address the process of reinstatement. Discussion followed. Bessie stated that the By-Laws require that all members be approved by the Board of Directors.

Bessie reported that Mrs. Thomas had decided to retain the copyright in her own name for her book. This will not affect any dealing with her and will not affect the society.

The South West Chapter of FPS has decided to withdraw its application as a chapter as the group had never completed a Constitution and By-Laws. The group has changed its name to the South West Florida Fossil Club.

Bessie Hall asked for the election of officers if there was no other new business. Harry Miller said that the ballot this year was not prepared in the best manner particularly the requirement that members sign the ballot. He suggested that the 1985 ballot be sent to a CPA firm for processing instead of the museum. He felt it was important to get full member participation. Bessie said she would refer this to next year's Board of Directors. The By-Laws changes should also note this requirement.

While the Secretary summed up the final count of the ballots, Bessie thanked Dave Webb for the Spring Meeting and field trip. Webb in turn thanked the many people involved in planning the meeting. He also asked for suggestions for a 1985 Spring Meeting place. The 1984 spring meeting was cancelled due to Joe Larned's resignation as President.

The Bone Valley Fossil Club has not disbanded. Approximately 40 members meet the third Friday of each month at Sears Town in Lakeland. All FPS members are welcome.

Ray Robinson reported the St. Petersburg society is just getting through the summer season and currently has nothing planned.

Reporting on the South West Fossil Club, Bessie said it had only been a month since this group withdrew from FPS. They met during the summer and had very interesting programs. The largest attendance was for Colonel Royal's talk on Warm Mineral Springs. The club is becoming very active.

Harry Miller asked what happened to printing the address directory in the Plaster Jacket. Bessie said the directory will no longer be printed in the PJ, will not be made public, but will be available through the Secretary.

Cliff Jeremiah asked what directors would be leaving the Board this year. Bessie reported that Guy Selander of Jacksonville and Larry Lawson of Winter Park will retire and Don Serbousek of Ormond Beach resigned since he became Vice President of FPS. With the election of four directors this year, the Board will be at full strength. Discussion followed.

Bruce J. MacFadden has been appointed a board director by F. Wayne King, Florida State Museum Director, in accordance with the FPS Constitution and By-Laws.

Officer for 1985 reported by Howard Converse are:

President Elect	Bessie Hall
Vice President	Don Serbousek
Secretary-Treasurer	Howard Converse, Jr.
Board of Directors	Phil Whisler
	William Hall
	Ray Robinson
	Roger Alexon

The total election count was available to the membership.

Bessie announced that the Board of Directors would meet during lunch and in the absence of the President, the new Vice President would be in charge of the meeting.

The meeting was adjourned at 11:55 a.m.

Cordially submitted,

Howard H. Converse, Jr.

SUMMARY OF THE BOARD OF DIRECTORS MEETING OF THE FLORIDA PALEONTOLOGICAL SOCIETY

The FPS Board of Directors met at a two-hour luncheon meeting following the regular business meeting of FPS last October The Board read a letter of withdrawal from the South West Florida Fossil Society and accepted the termination of that chapter. FPS policy regarding membership resignations was discussed.

It was agreed that the society should continue to distribute M.C. Thomas' book because it is highly informative and creates revenue for the FPS.

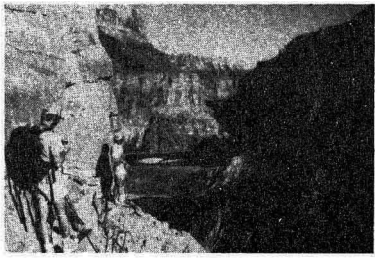
Cliff Jeremiah was nominated to continue in the Past-President position for 1985 since Bessie Hall would serve in the President-Elect slot. Jeremiah accepted and was elected.

Dave Webb introduced the proposal to begin work on the new fossil book. The Board passed the motion to discontinue the Plaster Jacket and to publish a bimonthly newsletter in its place. Ed Brown presented a proposal and motion to hire secretarial help and editorial assistance for the proposed book and newsletter. The motion passed.

Several committees were formed: Bruce J. MacFadden was elected to chair the committee for a state fossil; Bessie Hall will chair the By-Laws Committee with Scottie Brown and Ray Robinson for the purpose of updating the society's governing rules. The By-Laws changes submitted by Harry Miller and Ben Waller were discussed and turned over to Bessie's committee.

Bessie Hall asked that the Code of Ethics be printed on the back of the FPS membership card. All agreed that this was a good idea.

A PICTORAL RECORD OF STEVE EMSLIE'S EXCAVATION OF GRAND CANYON CAVES

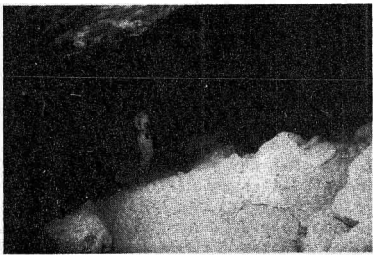


Rock climbing to the caves

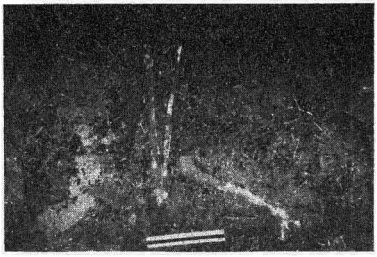
RENEW YOUR MEMBERSHIP FOR 1985

** TODAY **

FILL IN THE RENEWAL FORM AT THE END OF THIS NEWSLETTER AND RETURN WITH YOUR DUES TO THE FLORIDA STATE MUSEUM. DON'T MISS ANY ISSUES OF THE NEWSLETTER.



Exploring a large, dry cave for fossil birds



Fossil wing bones of a condor found in canyon cave

BUTVAR B-76 NOW AVAILABLE FROM HOWARD H. CONVERSE AT THE FLORIDA STATE MUSEUM

Monsanto's Butvar B-76 is available for $3.50 per pound from Howard Converse. There is no limit to the amount you order; however, Howard reminds you that "a little goes a long way". Please send orders with checks to Howard at the museum.

NOW'S YOUR CHANCE TO SEE AN ONGOING RECONSTRUCTION OF *Barbourofelis lovei*

Have you ever wanted to see how a preparator reconstructs a life-size fossil? Well, you'll have ample opportunity to do just that when Daniel Cordier pieces together the bones of *Barbourofelis lovei* (saber cat) from the Love Bone Bed, Archer, Florida. Cordier will be working Thursday through Sunday, February 23 through April 27, inside the Oaks Mall, I-75 and Newberry Road, Gainesville, Florida

Inside a clear dome Cordier will be rebuilding the saber cat using 70-75% original bones with remainder molded and cast by museum preparators Howard H. Converse, Jr., Russell McCarty, Bob Levy and Ron Chesser. *Barbourofelis lovei*

has been chosen because it is the best known fossil from the Love Site. When completed it will be the only one of its genus ever to be mounted. Its nearest fossil relative is *Barbourofelis fricki* in Nebraska.

The reconstruction, sponsored by the Oaks Mall and the Florida State Museum Associates, is the main museum fund-raising event for 1985. There will be a donation box near the dome. On Sunday, February 24, a kickoff cocktail party will be held at 6:30 p.m. in the Oaks Mall. Cost is $15.00 per person and the the event is open to the public. For reservations and information, please call the Florida State Museum, 904-392-1721, Monday-Friday, 8:00 a.m.-5:00 p.m.

Once the saber cat is completed, it will be put on permanent exhibit at the Florida State Museum.

GEORGE GAYLORD SIMPSON, NOTED HONORARY FPS MEMBER, DIES: LEAVES LIBRARY TO THE FLORIDA STATE MUSEUM

On October 6, 1984, George Gaylord Simpson, internationally recognized paleontologist for his popular works on evolution and his travels to remote areas of the world, passed away. Dr. Simpson was a great scholar who wrote several thousand articles and 20 books, the best known of which is "The Meaning of Evolution". This popular book has been translated into many languages.

Dr. Simpson was a curator at the American Museum of Natural History for 30 years and in 1959 joined Harvard's Museum of Comparative Zoology as Agassiz professor of vertebrate paleontology. In 1967, he and his wife moved to Tucson, Arizona where he became a University of Arizona professor.

During his fossil expeditions, Dr. Simpson discovered "dawn horses" in Colorado in 1953 and a complete mammalian skeleton 60 million years old in New Mexico. In '61, he was with Louis and Mary Leakey in Kenya when they discovered the remains of an ancestor of man that reportedly lived 14 million years ago. That find predated by 11 million years the then oldest evolutionary link to mankind.

Simpson's research interests were typically keyed to South American mammal fauna. Therefore, the Florida State Museum will be in a position to carry on the Simpson tradition because Simpson willed the part of his library related to paleontology, mammalian systematics and evolution to the museum. This library is now in place at the museum having been transported from Tucson by David Webb and Howard Converse in early February. The library is not open to the general public; however, qualified researchers are welcome to peruse the library which includes 25,000 reprints or separates, several hundred books and about 15 runs of mostly zoological journals.

PREPARATOR'S TECHNIQUES

Repairing and Restoring Specimens with Filler Materials - Russell McCarty, FSM

The last article on preparator's techniques (FPS December 1984 Newsletter) dealt with glues and the consolidation of specimens. In addition to these simple measures, many specimens found by a collector often require more extensive repair and reinforcement than can be provided by glue. For example, if the collector has recovered both ends of a femur and enough of the shaft to bridge the length of the bone, but the contact between the two ends is so small that no glue, regardless of strength, will hold the two sections together, it is necessary to fill in the missing portions of the shaft with a durable filler material. The filler will provide the strength to hold the specimen together and also add a useful, attractive and scientifically valid specimen to the collection, one from accurate measurements can be taken. Although the femur example will be used in this discussion, the techniques can be modified and applied to repair projects on any skeletal mount.

Filler materials are of various kinds and are readily available to the amateur collector. Common sense will dictate what materials can be used, the only criteria being that the material has strength, durability, and the capability of being molded and shaped easily when wet and of being sanded when it is dry.

At the Florida State Museum, paper mache and plaster of paris mixed in a 50/50 ratio are used for most of our work. It is easy to work, strong, and sets up in 20 minutes. When painted with a thin Butvar solution after it is dry, the mache becomes rock hard, but can still be sanded or even removed if necessary. The mache used at FSM is made from finely ground paper and is available in retail art supply stores and taxidermy shops.

Plaster of paris or common household patching plaster available at art supply, hardware and paint stores can be used alone as a filler, although it is not as easy to work as the mache-plaster mixture. However, on large bones such as those of elephants, rhinos or sloths, it is often advisable to use a straight plaster mixture to fill large voids since mache is the more expensive filler.

Other materials that can be used as fillers are the plastic wood doughs and puttles

used to repair furniture. These are also available at hardware stores. Newer types of materials which work quite well are the two-part epoxy compounds used in automobile body repair. One of these compounds used at the museum consists of two clay-like strips which when kneaded together in equal amounts form a soft putty which can be molded and sculpted. In less than an hour this material sets to a bone-hard consistency. Liquid epoxy glues can also be used as fillers. When a quantity of these glues has been mixed, fine sawdust or powdered fossilized bone can be stirred into the glue to thicken it into a putty which can then be handled and shaped like the body fillers described above.

Now that you know all about filler materials, let's return to that femur that needs repairing - the one with a large section of shaft missing except for one small contact. Your course of action here will depend primarily on the size of the femur. If it is small (a turtle femur one or two inches long), the fragile contact which you glued may hold while you pick up the specimen and apply filler material to the missing area. If it cannot be handled, leave the specimen in a bed of sand, or supported in some other manner while you apply filler. With larger femurs, it may be necessary to fill in the missing area with modeling clay first to hold the two sections of bone together. The clay can then be removed a section at a time and replaced with filler until entirely replaced.

On still larger femurs or on any of which the large portion of the shaft is missing, it is wise to insert a reinforcing rod for added strength. The rod should be glued and inserted into both ends of the shaft and then filler added. When large portions of a big bone are missing, as might be the case with an elephant femur, 1/8 inch mesh screen can be cut and formed into the missing areas and filler built up over this. In this way smaller amounts of filler will be needed.

Plaster and plaster-mache mixtures can be mixed to a soft, putty-like consistency, then applied with a spatula or small trowel. Filler should be built up in missing areas until it blends in with the real bone surfaces and configurations. Before it is set, plaster and mache mixtures can be smoothed out with a moistened spatula or finger. If no more filler is used than is necessary to replace missing areas, there will be less excess filler to sand away. Epoxies and plastic wood fillers may be a little harder to work with so more sanding and grinding are required to arrive at the finished product.

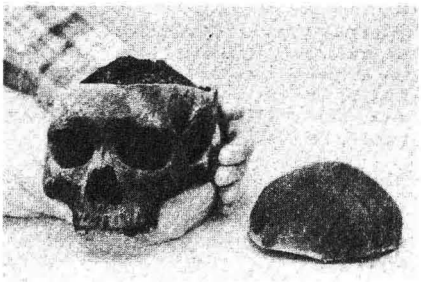
When working with hollow bones such as skulls which have large missing areas, it is helpful to assemble the existing pieces of skull over a clay form molded to the shape of the skull. The clay can be removed to a depth of 1/4 inch and replaced with filler material. Screen mesh can also be used to bridge missing areas when filler is built up over it. Using either or both of these methods as the situation warrants, the skull will still be hollow and lighter than it would be if packed solid with filler material. If a clay form is used, be sure to leave an opening from which to remove excess clay. The nasal areas, or the foramen magnum (the opening at the base of the skull where the spine connects) are both useful openings for clay removal.

EIGHT THOUSAND YEAR OLD HUMAN BRAINS FOUND IN TITUSVILLE SUBDIVISION

Dr. Glen Doran (left), Florida State University anthropology professor, and Dr. William Hauswirth, University of Florida molecular biologist, position the skull of a young man in his twenties and the brain of a 45 year old woman for x-rays. Last December, Doran and David Dickel, a California anthropologist, discovered the 8,000 year old remains buried in the marshy Windover subdivision development, Titusville, Florida. Hauswirth and Dr. Philip Laipis, a University of Florida molecular biologist, isolated samples of DNA, the spiral-shaped molecules that are the genetic blueprint of living creatures, from both brains. *(Photography by Wes McDonell, University of Florida Health Center Communications)*

The photograph on the next page shows the 8,000 year old young man's skull with intact brain exposed before removal. By studying and duplicating the DNA, researchers hope to find information about generic evolution and the diseases

that beset ancient people. Doran expects to find at least 200 skeletons by the time the state-financed project is completed. He believes the Windover Subdivision was used as a burial ground for as long as 500 years. *(Photography by Wes McDonell, University of Florida Health Center Communications)*



Biological aerodynamics

FLIGHT OF FANCY PLANNED FOR THE LARGEST PTEROSAUR *by Kevin Padian*

(Excerpts reprinted from Nature, Vol. 311, 11 October 1984)

At one time, pterosaurs, the 'flying reptiles' of the Mesozoic era, seemed relatively simple to understand. They were considered to be bat-like inferior prototypes of birds, incapable of flapping flight or of efficient locomotion on land, no more than an early experiment in vertebrate flight. The giant *Pteranodon*, with its 7 m wingspan, seemed to be at the upper limit of any flying creature's size. Their replacement by the 'real masters' of the air, the birds and the bats, could easily be explained by a factor as trivial as a change in the average wind speed at the end of the Cretaceous (Bramwell, G.R. & Whitfield, C.D. *Phil. Trans. R. Soc.* B267, 503; 1974).

Recent work has called for a re-evaluation of these bizarre animals; none more so than the discovery of the giant *Quetzalcoatlus northropi* (Lawson, D.A. *Science* 187, 947; 1975) which, with a wingspan currently estimated at 11 m, was 50 per cent larger than *Pteranodon*. This remarkable beast was responsible for a recent gathering [9-10 July 1984] of over 30 engineers, aerodynamicists, palaeontologists and inventors in Pasadena, California, to discuss the possibility of building an accurate radio-controlled flying model of the creature. The purpose of such a venture would be not only to challenge the potential of ornithopter technology, but also to use the problems posed to the aerodynamicist to illuminate the biological limitations of the largest animal ever known to fly.

Before any accurate flying model of a pterosaur can be built, it will be necessary to have as complete a picture of these animals as possible. Much of the conference was therefore devoted to reviewing the most recent findings.

We now know that pterosaurs' wings were attached, not bat-like at the feet, but to the pelvis, to give a much more attenuate planform (Wellnhofer, P. *Abh. bayer. Akad. Wiss.* 141, 1; 1979); the resultant wing loading resembles closely that of modern fliers (Padian, K. *Discovery* 14, 20;1979). All pterosaurs, except the largest ones (like the largest birds) were active fliers; their wings were fully folded when they walked on the ground, which they did bipedally; their forelimbs are functionally homologous to those of their closest relatives, the dinosaurs and birds, not to those of the bats (Padian, K. *Paleobiology* 9, 218; 1983).

Recent models have treated the wing membrane as if it billowed with no internal structure, and ignored the probability that most pterosaurs having a wingspan of less than 3m seldom glided or soared, but flapped continually. Moreover, finely preserved specimens of *Rhamphorhynchus*, from the Late Jurassic of West Germany, show a series of fine, intercalated and stiffened striae permeating the entire wing membrane (Wellnhofer, *op. cit.*). This arrangement resembles the structural elements in the wings of birds (feather shafts) and bats (fingers), and suggests a role in maintaining the shape of the wing. The striae may have helped to determine the camber of the wing, although the details of their muscular control, including the extent to which the wing may have been collapsed without losing its aerodynamic integrity in flight, are not known. . . . .

The practical problems of replicating the flight of such an animal in a radio-controlled soarer-ornithopter are just beginning to be addressed. The first is that *Quetzalcoatlus*, like all pterodactyloid pterosaurs, had no tail, so pitch control will be complicated. Its neck and head were, by contrast, remarkably long, each about 2 m, while its entire torso was much shorter and its legs did not trail far behind the body. How far the neck could have been retracted or bent, if at all, is an important problem for palaeontologists and has implications for engineers for calculating the center of mass. The long neck and head form a powerful lateral moment arm, but also create a large amount of inherent instability; some sort of balancing mechanism up front will be necessary to control this. There are also logistic problems in trying to construct joints that can, for example, trim the wings and adjust

pitch, while also supplying power for climbing flight.

The aim of the project is to launch the model from the Air and Space Museum of the Smithsonian Institution, from where it will fly across the Mall, climbing under its own power, circle the Washington Monument and return. To add realism, it has been suggested the model might pause in its flight, swoop down to snatch a small child from the crowd, carry it aloft, and consume it. For the present, mercifully, that objective seems to be beyond the technological capabilities of the field of Robotics. *(Kevin Padian is Assistant Professor of Paleontology at the University of California, Berkeley, CA 94720)*

MYSTERIOUS PLANET X MAY HAVE CAUSED DINOSAUR EXTINCTION

(Associated Press news release from Gainesville Sun, January 13, 1985)

Tucson, Arizona -- The extinction of the dinosaurs may have been caused by a mysterious Planet X that periodically pulls swarms of comets into a collision course with Earth, a new theory says.

The new theory contends that Planet X circles the sun in a shifting orbit outside the known planets. Every 30 million years, the orbital shifts carry the planet into a belt of comets, said Daniel Whitmire, one of the theory's authors.

When that happens, the planet's gravity pulls a cluster of comets out of the comet belt. Some of those comets strike Earth, spewing up vast dust clouds that can change the weather and even spell death for some species of animals and plants.

The dinosaurs became extinct 65 million years ago, and extinction peaks also occurred 34 million years ago and, to a lesser extent, 11 million years ago.

The Planet X theory is one of many being considered by scientists as explanations of the extinction peaks. Another is the possible presence of Nemesis, a "death star" that would cause the extinctions in a manner similar to Planet X, by causing comets to rain periodically on Earth. Other researchers suggest that huge interstellar dust clouds caused the peaks.

The latest theory, described Friday [January 12, 1985] by Whitmire and co-author John Matese at a Symposium on The Galaxy and The Solar System sponsored by the University of Arizona, was developed to try to solve two mysteries.

The first pattern in fossils that suggests mass extinctions may have occurred regularly on Earth approximately every 26 million years.

The second is the problem of unexplained slight variations in the orbits of Neptune and Uranus, two of the outermost planets.

Astonomers had suspected for more than 50 years that an undiscovered planet was altering those orbits, but they had thought the problem was solved with the discovery of Pluto, the outermost known planet, in 1930.

That explanation fell apart in 1978 when it was found that Pluto's mass was only a thousandth that of Earth - too small to cause the orbital variations, Whitmire said.

VP ACCESSIONS AT THE FLORIDA STATE MUSEUM, ETC.

Larry Martin has donated a large number of fossils in the last several years. One of his most significant donations was a skull of the dwarf three-toed horse, *Nannippus minor* (UF 67000), from the Bone Valley Formation in Polk County. This skull, the only one known for the species, is currently being studied by Bruce MacFadden and UF graduate student Richard Hulbert. Perhaps Larry's most impressive discovery was a partial skeleton, including the skull and both mandibles (UF 60000), of the rare sabrecat *Homotherium* from the Hog Heaven site A cast of this *Homotherium* skull is now on exhibit at the museum. Larry has also given the museum a large sample of mandibles, maxillary fragments and postcranial elements of the extinct peccary, *Platygonus*, from Hog Heaven. (This site is named for the abundance of peccaries or "wild hogs" found there.) These specimens, along with those donated by other collectors (see below), and a large series collected by museum personnel, probably represent the largest single quarry sample of fossil peccaries from the early Pleistocene (Irvingtonian) of North America. The Hog Heaven *Platygonus* is currently being studied by David Wright, a former UF student who is now working on his Ph.D. in fossil peccaries at the University of Massachusetts.

George Heslep donated a partial giant tapir mandible (UF 62602), a large series of peccary postcranials, and many other bones from Hog Heaven. George has also given the museum a nice sample of turtle, bird, and mammal fossils from the nearby Haile 19 site (the "croc hole").

Danny Bryant has donated several important fossils from Hog Heaven including a skull fragment with three teeth of a juvenile individual of the gracile

sabrecat, *Smilodon gracilis* (UF 62600). Other FPS members have also donated fossils from Hog Heaven including Eric Kendrew (the discoverer of the site) and Rick Carter.

Another extremely imporant fossil locality that has generated large donations is the Leisey Shell Pit site in Hillsborough County. Like Hog Heaven, the fossil vertebrates from the Leisey Shell pit are early Pleistocene (Irvingtonian) in age. Frank Garcia has donated a tremendous sample of bones from Leisey (several thousand catalogued specimens-enough to fill six museum cabinets). Ron Shrader has also given the museum a large number of Leisey fossils including a beautiful series of teeth of the ground sloth, *Glossotherium* (UF 67433-67447). A list of the important specimens from Leisey donated by Frank and Ron, and by the Leisey Shell Pit, Inc. personnel are too numerous to list. However, a sampling of these includes skulls, jaws and postcranials of camels, horses, mammoths, giant tapirs, two species of peccaries, two species of ground sloths, giant armadillos, gracile sabrecats, giant short-faced bears, extinct condors, teratorns, etc.

Don Ward has donated two very significant Leisey specimens: a skull of the extinct condor, *Gymnogyps* (UF 63517) and the lower tooth of the primitive three-toed horse, *Merychippus* (UF 53819) from the older Middle Miocene beds. Important samples of bones from earlier excavations in other areas of the Leisey Shell Pit have been donated by Eric Fernandez, Jim Ranson, and Eric Kendrew. At the present time almost every paleontologist at the museum is engaged in research on some aspect of the Leisey fauna.

The UF+five digit numbers are the Florida State Museum vertebrate paleontology catalogue numbers. They are assigned to fossils to provide a permanent record of the specimens in the Museum and to help in record-keeping, especially in our present project which involves the computerization of all information on the fossils in the vertebrate paleontology collection. UF stands for the University of Florida, of course, and is the standard abbreviation for all specimens housed at FSM, fossils and otherwise.

Note: Although the purpose of this column is to recognize amateur paleontologists' donations, there is not enough space to list them all. Therefore, we can acknowledge what we consider the most significant and scientifically important specimens.

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