Florida Paleontological Society , Inc.

Newsletter

Volume 9 Number 1 Winter Quarter 1992

FLORIDA PALEONTOLOGICAL SOCIETY, INC.

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INFORMATION, MEMBERSHIP, AND PUBLICATION INFORMATION

Please Address: Secretary, Florida Paleontological Society, Inc.
Florida Museum of Natural History
University of Florida
Gainesville, FL 32611

FLORIDA PALEONTOLOGICAL SOCIETY INC. NEWSLETTER

Volume 9, Number 1 **WinterQuarter1992**

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Message From the Editor

At the start of a new year of FPS newsletters, it is an appropriate time to consider what you, the membership, wish of your newsletter. Traditionally, the newsletter has carried a wide range of material, including such things as articles on specific fossil groups, current Florida paleontology news, new fossil book reviews, and other items of general interest to fossil enthusiasts. These are all relevant items, and as editor, I am open to other ideas as well. I encourage all of you to consider submitting articles on your current work, collecting areas, paleontology books you've read, specific interests, paleo news items or whatever you think might be of interest to our membership. Russ McCarty's column "Prep Talk" is one example of an interesting and useful type of article which goes a long way towards adding credibility and professionalism to the newsletter.

Your newsletter submissions do not need to be scientific works. The only real criteria are that the writing be relevant, unoffensive, and truthful. Of course, the editorial committee reserves the right to edit articles or refuse some material, but the chances of this happening are slim.

We are aiming to get four quarterly newsletters out his year. To this end, I have established the following due dates for newsletter material submission:

	Tentative Deadlines for submissions:
Spring Quarter newsletter:	**May 15, 1992**
Summer Quarter newsletter:	**August 15, 1992**
Fall Quarter newsletter:	**November 15, 1992**

Please send your items to me at the following address:

Frank Rupert
FPS Newsletter Editor
Florida Geological Survey
903 W. Tennessee Street
Tallahassee, FL 32304

It would be of help to me if lengthy articles were provided on floppy disks (any size, in ASCII or word processor format such as Wordperfect, Word, Wordstar,etc.). If this is a problem, send them in readable hardcopy form, and we'll work with it.

Frank Rupert
Editor

News from the FLORIDA MUSEUM OF NATURAL HISTORY

Dr. Douglas Jones will be going on sabbatical for the Fall semester, 1992. He will depart Gainesville in August for the United Kingdom, where he will spend the term at Cambridge University. During his sabbatical, Doug will work on evolutionary patterns in the Jurassic oyster lineage *Gryphaea*, a classic example of evolutionary change. He also plans to visit many natural history museums and deliver lectures at several universities in England and on the continent. Doug will return to Florida in early 1993.

Roger Portell, Kevin Schindler, and **Irv Quitmeyer** are currently curating fossil molluscs from the Thomas L. McGinty Collection, which was assembled between 1926 and 1986 through the full-time efforts of Thomas L. McGinty, assisted to a large degree by his brother Paul. The McGinty Collection, donated to the FMNH in 1988, was the largest private mollusc collection in the southeast and was among the largest private collections in the country. The bulk of the collection consists of Recent specimens (90,000 lots) that were personally collected during dredging excursions around the Florida coast, Cuba, the Bahamas and Mexico. McGinty also collected extensively from Plio-Pleistocene deposits of central and southern Florida. The approximately 20,000 lots (160,000 specimens) of fossil material ranks as one of the most significant collections ever assembled in this region.

Craig Oyen (graduate student) will be presenting a paper entitled *The significance of fossil crinoids from Florida limestones* at the Florida Academy of Sciences 56th Annual Meeting in March. Later that month he will present another paper, *Comatulid crinoids from the Eocene of Florida: Biostratigraphic occurrence and implications for paleobiogeographic interpretations*, at the 41st Annual Geological Society of America Southeastern Section Meeting. Doug Jones, Roger Portell, and Kevin Schlindler, will also attend the S.E.G.S.A. meeting and participate in a two-day pre-meeting field trip to collect several classic Eocene, Oligocene, and Miocene localities in eastern North Carolina.

Of Fossil Horses...

Bruce MacFadden and others at the FMNH are in the process of starting a Florida fossil horse newsletter. The purpose of this newsletter is to communicate information about research, exhibit, and educational activities related to fossil horses, particularily in Florida, and to develop a state-wide constituency and support group for these endeavors. In addition to feature articles and book reviews, the newsletter will also contain pertinent news notes and announcements of upcoming events. This newsletter is planned to be issued quarterly. The first issue will be sent out in early March, 1992. All FPS members will receive a complimentary first issue.

and Dinosaur Eggs...

Curators at the FMNH have recently received inquiries about supposed fossilized dinosaur eggs from Florida. Some of these have even been described in recent newspaper articles, During the month of February, two such specimens were brought to the Museum for identification, verification, and valuation. In both of these cases (and several others before them) the specimens were not dinosaur eggs at all. Examination revealed that they both were beautifully egg-shaped, but inorganic, chert nodules that commonly occur in Florida limestones! (from Dr. Bruce MacFadden).

Upcoming Events...

March 10 **Southwest Florida Conchologist Society, Shelling Trip,** to Round Island and nearby islands (Ft. Myers area). Contact Gene Herbert, (813) 731-2405 for info.

March 12-14 **Florida Academy of Sciences, 56th Annual Meeting,** Valencia Community College, Orlando, Florida. Contact Ms. Betty Preece (407) 723-6835 for information.

March 18-20 **Geological Society of America, Southeastern Section, 41st Annual Meeting,** Stouffer Winston Plaza Hotel, Winston-Salem, North Carolina. Contact Paul Fullagar or Geoffrey Feiss (919) 966-4516 for information.

March 21-22 **Tampa Bay Fossil Club, 5th Annual Fossil Fair,** see ad in this issue for information.

March 21-22 **Gem and Mineral Show**, at the athletic center, Warner Southern College, Lake Wales. Call (813) 676-5443 for information.

March 28 **Florida Paleontological Society, Spring Meeting**, see schedule and registration form in this issue.

May 9-10 **Central Florida Mineral and Gem Society**, gem, mineral and jewelry show. Call (407) 295-3247 for info.

June 28-July 1 **Fifth North American Paleontological Convention,** Field Museum of Natural History, Chicago, Ill. Contact UIC Conferences and Institutes (312) 996-5225 for info.

July 26-Aug. 1 **Conchologists of America, Annual Meeting,** Jacksonville, Fla. Contact Charlotte Lloyd, P.O. Box 332, Mayport, FL, for information.

August 2-7 **American Malacological Union, Annual Meeting,** Sarasota, FL; Contact Richard Petit (803) 249-1651 for information.

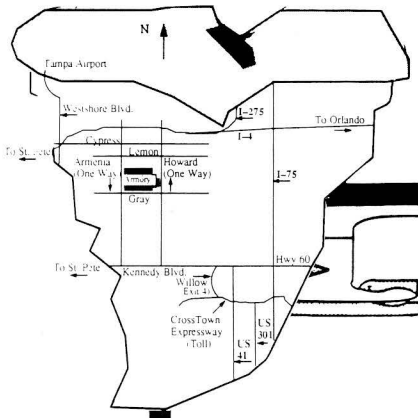
Jan. 11-May 10 **Robotic Dinosaur Exhibit,** Great Explorations Museum, St. Petersburg, FL. Features 11 robotic dinosaurs, including nests and eggs. Contact museum at (813) 821-8992 for information.

Attention FPS Members!

Now is the time to start sending in your nominations for 1992-93 FPS officers and board members. It's also a good time to submit any ideas on changes to the Society's bylaws.

Send your nominations/bylaw changes to:

Eric Taylor, Secretary
Florida Paleontological Society
Florida Museum of Natural History
Gainesville, FL 32611
(or give to any committee member)

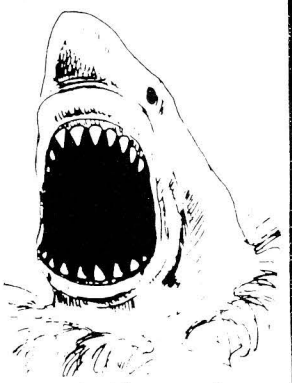


Tampa Bay Fossil Club

Presents
its 5th Annual

Florida Fossil Fair

March 21-22, 1992



Featuring...

- World-Class Fossil Displays
- Fossils
- Artifacts
- Minerals
- Raffle
- Door Prizes
- Color Slide Presentations by Frank Garcia and Other Noted Paleontologists
- Silent Auction
- Kid's Games
- Dealers

WIN

Once In A Lifetime Adventure!!!

WIN A One Week All Expense Paid Fossil Hunting Trip to Nebraska Badlands With Frank Garcia

Raffle tickets $1.00 each or 6 for $5.00 available at the Fossil Fair.*

Ft. Hesterly Armory
504 N. Howard Ave., Tampa

Saturday March 21 9:00am - 7:00pm
Sunday March 22 9:00am - 5:00pm

Admission:
Adults $3.00
Children (5-15) $1.00
(Children Under 5 Free)

* Raffle ticket sales prohibited to anyone under 18 years of age

For Information Write:
Tampa Bay Fossil Club
P.O. Box 290561
Tampa, Fl. 33687-0561
or call: Rudi Johnson
(813) 839-2291

1992 Florida Paleontological Society Membership List

ACREE, STEVE
AHERN, BRIAN P.
AHERN, THOMAS R.
ALBURY, SHIRLEY FAYE
ALEXSON, ROGER C.
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ALLEN, STEVEN N.
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BATES, G. W.
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BICKNER, HENRY C.
BLANCHARD, BETTY J.
BLANCHARD, BETTY J.
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BRINEY, DEAN A.
BRINEY, PAUL D.
BROWN, ANITA W.
BROWN, DONALD
BROWN, MARY E.
BROWN, ROBIN C.
BUCKNER, LORIN W.
BURMEISTER, ROBERT W.
BURMEISTER, ROBERT W.
CALIGIURI, NIKI
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CASSADY, TIMOTHY J.
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COOK, LENDA
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COZZINI, HELEN
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CRING, F. DANIEL
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DUMAS, RUTH S.
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ESCOFFIER, JIM
ETHERIDGE, WANDA JOAN
FEDELE, ADRIAN
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FLORIDA GEOLOGICAL SURVEY
FLORIDA KEYS SHELL CLUB
FLORIDA MUSEUM OF NATURAL HISTORY
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GARLETS, MARIAN L.
GATHANY, LEON B.
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GRAVES, GYPSY
GREATER MIAMI SHELL CLUB
GREATER TAMPA SHELL CLUB
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HANAUER, GARY G.
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HARRIS, MARY M.
HARRISON, H. CLIFF
HARRISON, HOLLY REED
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HAYEK, CHARLES
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HOFFMANN, WALTER
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HUTCHENS, STEVE
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JOHNSON, ROZALINE K.
JONES, RICHARD
JONES, ROBERT E.
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KILROY, WILLIAM PAUL
KINDT, EUGENE A.
KING, M. G.
KNIGHT, ANITA
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LANGHAM, MARK
LAMONT, ROBERT F.
LARNED, JOE
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LEVY, PHILLIP
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MACKIL, JOSEPH W.
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MARION, GAIL E.
MARSH, ROBERT G.
MASTER, GEORGE
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MATRISIAN, DAVID
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MATTHIESEN, DIANA G.
MCALPINE, MARY ELLEN
MCDOWELL, MR. C.G.
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MILLER, ROBYN R.
MOORE, MICHAEL
MORGAN, ROBERT N.
MOSS, DOROTHY
MULBERRY PHOSPHATE MUSEUM
MYRTLE BEACH FOSSIL CLUB
N. C. FOSSIL CLUB
N.W. FLORIDA SHELL CLUB
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OCHS, DIANE
OCHS, JARED
PALM BEACH SHELL CLUB
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PETERSON, GREGG
PEZZULICH, WILLIAM
PORTELL, ROGER
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PUIGNAU, MARIO
QUINA, CHARLOTTE K.
RANSON, JAMES E., JR.
RIEGEL, JEFFREY
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ROBINSON, NELLY
ROBINSON, RAY C.
RUPERT, FRANK
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SANIBEL/CAPTIVA SHELL CLUB
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SCHELLING, ED
SCHERBAUM, PEGGY A.
SCHMIDT, WALT
SCHULTZ, CORINNE M.
SELLARI, TERRY J.
SHAAK, LESTER M.
SHAMBAUGH, RONALD B.
SIEGERT, DAVID O.
SKOG, JUDITH E.
SMALL, ARTHUR T.
SMELTZER, BERNARD L.
SMITH, WARREN A.
SMITH, WESLEY
SMITHSONIAN INSTITUTION
SOBH, DR. ATTA Y.
SOUTH FL.WTR. MGMT DIST.
SQUIRES, DR. RICHARD L.
ST. PETE SHELL CLUB
STEINKER, DON C.
STEPHENS, GEORGE J.
STEPHENS, SUSAN B.
STOCKING, BRIAN
SULLIVAN, MARTHA
SULLIVAN, MARY K.
SUMMERFIELD, DONALD C.
SUNCOAST ARCH.& PALEO. SOC.
SWANSON, C. GAIL
TAYLOR, CRAIG C.
TAYLOR, ERIC, G.
TATUM, JIM
THAYER, BILL
THAYER, LAURA
THOMAS, ALICE L.
THOMAS, MARGARET C.
THOMAS, RICHARD
THURMAN, PAUL
TILLIS, ROLLIN H.
TIME SIFTERS
TOOMEY, BARBARA K.
TOOMEY, JAMES K.
TOOMEY, REED
U.S. GEOLOGICAL SURVEY
VALADE, JAMES A.
VALADE, VICKY G.
VANCE, ROBERT R.
WAGNER, RON
WALKUSKI, THOMAS
WALLER, BEN
WARNER, RICHARD A.
WATSON, THOMAS C.
WEBER, ERIC PAUL
WEILAND, DR. ALAN
WHETZEL, MARILYN
WHISLER, PHILLIP M.
WILDER, MISS RUTH H.
WILDFONG, CHERYL
WILLIAMS, FRED
WINNER, MARGARET J.
WINTERBOTTOM, MARK
WISENBAKER, MICHAEL
WOLFF, RONALD G.
WOODWORTH, LEWIS A.
YOUNG, NORMAN C.
ZACK, RICHARD T.
ZOTTI, SANDRA

Announcing the

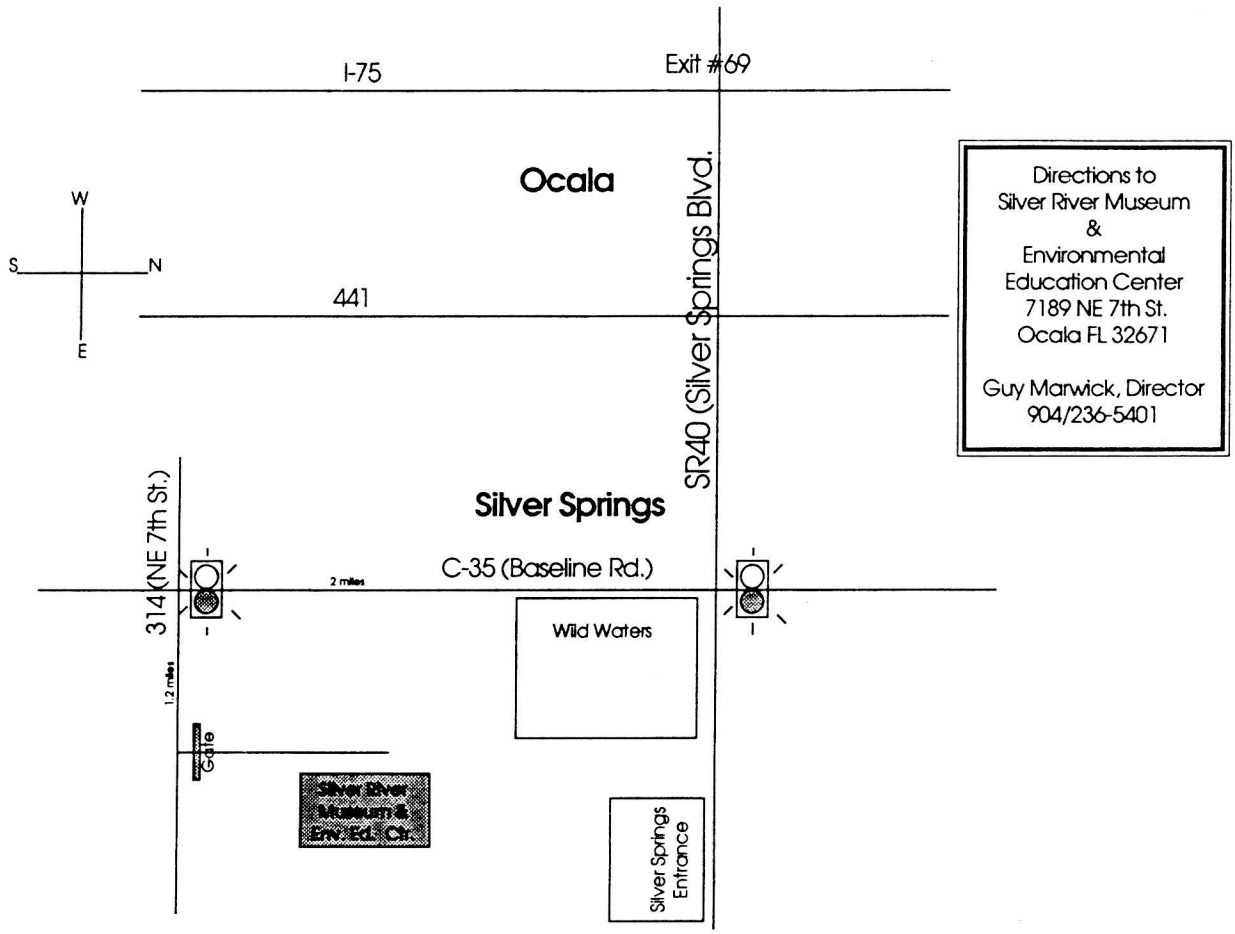
Florida Paleontological Society

SPRING MEETING

March 28, 1992

Silver River Museum
and Environmental Education Center
7189 NE 7th Street
Ocala, FL 32671
Guy Marwick, Director: ph.: (904) 236-5401

Come visit the brand new Silver River Education and Environmental Center, located within the Ocala National Forest. This facility has a wonderful collection of Florida archeology, paleontology, historical and environmental exhibits.



SPRING MEETING
SCHEDULE OF EVENTS
Saturday, March 28, 1992

Morning Session:

9:00-10:00 **Explore the Museum and visit with other collectors.**
Bring any fossils or artifacts that you would like to display or have identified. A classroom with tables will be provided. **Gary Morgan**, from the Florida Museum of Natural History, will be available to identify fossils.

10:00-12:30 **Attend the following classroom demonstrations of your choice:**

CLASSROOM 1:

10:30-11:45 **Frank Garcia** will present ***Plaster Jacket Extraction Techniques***, which will explore various types of materials used to make jackets. This demonstration will also feature a video of jackets being prepared in the field.

11:45-12:30 **Tony Estevez** will present ***Fossil Repair Techniques.*** Tony will demonstrate how to remove fossils from the jacket and how to correctly prepare your specimens.

CLASSROOM 2:

10:00-10:30 **Dave Letasi** will present ***Fossil Carnivores of Florida,*** how to identify the big cats.

11:30-12:00 **Don Serbousek** will present ***Florida Fossil Reproduction Techniques.*** Don will show how large molds and fossil casts are constructed.

12:00-1:15 **LUNCH** on your own. There are numerous restaurants nearby.

Afternoon Session:

1:15-2:30 Outside the front door of the museum, **Claude Van Otter** will demonstrate ***Florida Indian point and pottery reproduction techniques.*** Claude is Florida's finest flint knapper...make sure to see him demonstrate the actual point-making methods used by Florida's prehistoric natives.

PRESENTATIONS IN CLASSROOM 1:

2:30-3:15 **Frank Rupert** of the Florida Geological Survey will present ***The Geology of the Silver River Basin.***

3:15-4:30 **Dr. Bruce MacFadden** of the Florida Museum of Natural History will present ***The Evolution of the Fossil Horse.***

4:30 **FPS Board of Directors' Meeting.** This meeting is open to all who wish to attend.

*The cost of this day-long event will support paleontological and archeological educational activities. The FPS and the Silver River Museum will split the proceeds from this meeting. The cost is **$7.00** for FPS members and **$10.00** for non-members. Please remember that the proceeds will benefit two excellent non-profit organizations.*

Florida Paleontological Society
SPRING MEETING

March 28, 1992

Silver River Education and Environmental Center, Ocala, Florida

Registration Form:

Name_____

Address_____

Phone _____ **FPS Member?** ____**YES** ____ **NO**

Number of Members attending ____ **X $7.00 =** _____

Number of Non-members attending ____ **X $10.00 =** _____

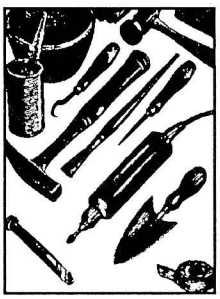
Total: _____

Make checks payable to: **Florida Paleontological Society,** *and return by* **March 21, 1992.**

Mail completed registration form with check to:

Susan Pendergraft
17 Jeff Road
Largo, FL 33464-2038
Phone: (813) 595-2661

cut out and return form



Prep Talk

by Russ McCarty

Greetings from the FMNH prep lab. **Kenyon Sayler**, an FPS member from Minnesota (2366 Top Hill Circle, Roseville, MN 55113) sent in several questions which I will answer in this issue of the bulletin. His first question was: ***Should fossils be coated with anything to help strengthen them for storage***?.....Anyone who collects fossils will have observed that some specimens are highly mineralized, quite hard and strong and appear to require little if any consolidation. Other specimens are extremely soft and punky, and of a generally poor quality that will require some degree of consolidation.

The ideal consolidant should have the qualities of strength, low shrinkage, durability over time, and permanent transparency It is tempting to use materials such as varnishes, natural shellacs, clear polyurethane coatings and Elmer's Glue as consolidants. However, these materials are only partially effective. Varnishes and shellacs do not penetrate the specimen, and frequently turn yellow with age. Polyurethanes can leave a hard shiny film on the surface of a specimen and affect negligible consolidation. Elmer's Glue and other white glues contain weak acids that can damage specimens. The best policy concerning consolidants is to use those with a good record. The most effective consolidants are those which will penetrate the bone to the greatest possible depth, thereby consolidating not only the surface of the bone, but the interior cancellous component as well.

Modern consolidants are generally plastics which are dissolved in solvents such as acetone, alcohol, or xylene. Polyvinyl butyrals, (BUTVAR), are considered among the best adhesives and consolidants for dry specimens. Although Butvar comes in several grades, B-76 is the grade most often used in the paleontology laboratory. B-76 is soluble in alcohol or acetone. The only advantage of acetone over alcohol is that the acetone based adhesive and consolidant dries much quicker. Bedacryl, an English product is a similar consolidant, as are Acryloid acrylic resins. For wet specimens which need consolidating, Rhoplex, an acrylic emulsion or polyvinyl alcohol (PVA) are suitable. Both Rhoplex and PVA are soluble in water. PEG (polyethylene glycol) known by the trade name CARBOWAX is used by archaeologists for preserving waterlogged wood. PEG has been used with varying degrees of success on fossil specimens and probably works best on specimens which have internal honeycomb structure exposed so that PEG can fill these tiny spaces.

Since consolidants are plastics dissolved in solvents, the more viscous or thick the consolidant liquid, the more plastic (thus strengthening material) one can get into the specimen. But if the consolidant is too viscous, it will not penetrate deep into the specimen, but instead form a shiny skin on the surface of the bone. Thus the viscosity of the consolidant must be determined by the nature of the bone which is to be hardened. If the bone is very soft and porous, a thicker consolidant can be used.

On harder, less porous bone, the consolidant will have to be thinned. Consolidants may be brushed on the specimen in several successive coats, or the specimen may be placed in a wire cradle and immersed in a bath of consolidant.

All the consolidants mentioned above are available from: Conservation Materials, Ltd., 240 Freeport Blvd., P.O. Box 2884, Sparks, NV 89432, (702) 331-0582. Butvar is also available through the FPS by mail for $7.50 / lb.

Along these same lines, Mr. Sayler asks about preserving thin carbon fossil imprints of plants or similar fossils. Carbon fossil imprints are commonly found on coals, shales, and clays. Nitrocellulose lacquer thinned with acetone can be used on wet or frozen clays as well as coals and shales. BUTVAR and PVA, both described above will work on dry coals and shales. Krylon, a clear acrylic spray sold in art supply stores will protect fragile carbon imprints also, but will give a rather glossy finish to the specimen.

Mr. Sayler's last question dealt with the mounting and display of microfossils. Bifocal wearers like myself would probably miss any display of microfossils. This is not to say that very small specimens are not displayed in museums. However, they are usually incorporated into a display which has a built in magnifying glass, or one in which the specimen is mounted on a slide and viewed through a microscope. The actual mounting of microfossils at this museum is accomplished by affixing the specimen with a tiny bit of sticky wax (micro-crystalline wax is one kind) to a straight pin whose pointed end is embedded in a cork (or something similar). The head of the pin serves as a tiny platform to support the specimen. Any sticky wax, such as paraffin or beeswax will do. One might also use a drop of a meltable wax such as jeweler's wax or sealing wax. Glues are not advisable since removal of the specimen from the pin might cause damage to the fossil. Once the specimen is mounted on the pin, it can be easily placed under a microscope for viewing. Another system is used for storing microfossils here. Individual specimens are placed in gelatin capsules such as those used in pharmaceutical manufacture. Pens using India ink are used to write on the outside of the capsule. Gelatin capsules may be obtained in different sizes as required and are stored in special holders which we make. In a one inch thick piece of pine plank, 3" X 8", three or four rows of 1\2 " deep holes are drilled. Drill bits are used which are slightly larger in diameter than the gelatin capsules.

I hope to hear from more of you out there by next issue. I need your questions, your comments, and your tips to keep this column going.

Russ McCarty
VP Prep Lab
Florida Museum of
Natural History
University of Florida
Gainesville, FL 32611

Stratagraphics, a fossil supplier in New York since 1979, is offering a ***free*** (regularily $1.00) catalog to any FPS members who request one. Simply write to the address below and mention that you are a member of the FPS. The catalog contains some 2,500 listings, representing 18,000 fossils in stock. Items may be purchased with a 10 day money-back guarantee. Stratigraphics is also looking for suppliers; samples may be forwarded with asking price for evaluation. For a catalog or further information, write to:

Richard D. Hamell
63 Knoll Top Drive
Rochester, NY 14610
(716) 385-4542

Foraminifera:

Florida's Miniature Fossils

by Frank Rupert

As fossil enthusiasts casually wash the gritty matrix sediments from their latest fossil treasures, most are likely unaware of the myriad of tiny fossil marine shells of another kind being flushed away with the sand and mud. Some of Florida's most delicate and intricately-shelled fossils, the foraminifera, may only be viewed with the aid of a microscope or hand lens. These unique fossils occur statewide in a variety of marine sediments, ranging from hard limestone to unconsolidated sand. This article will provide an overview of this interesting group of microfossils, and hopefully it will snare the interests of some otherwise strict macropaleontologists.

The Nature of the Beasts...

Foraminifera are a class of single-celled, predominantly marine organisms belonging to the primitive phylum Protista. They construct a shell, or ***test*** as it is properly known, in which the animal resides. Usually, the tests have one or more hole-like apertures through which the protoplasm of animal extrudes to move or capture its microscopic prey. The name foraminifera comes from the Latin "foramen" (small opening) and "ferre" (to bear). Most species are microscopic in size, but some attain a diameter of nearly an inch.

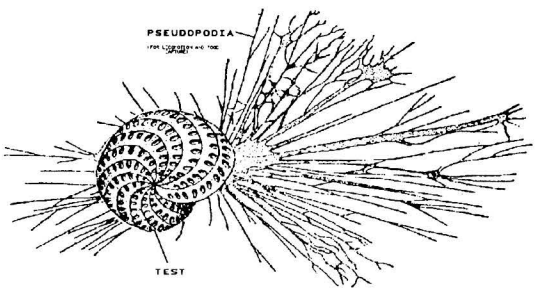
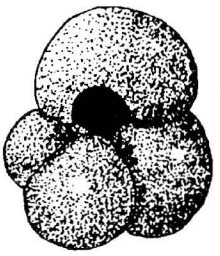


Figure 1: A typical living benthic foraminifera.

Foraminifera grow by adding successively larger chambers to the test. The tests of different species may assume a wide variety of shapes. Some are tubular or disk-shaped. Others may resemble potato chips or popcorn. A few even look like miniature chambered-nautilus' or ammonites. Some early micropaleontologists thought that the nautilus-shaped foraminifera species where just small fossil nautiloids, and classified them in the genus *Nautilus*. The tests are generally constructed of calcium carbonate or chitin-like material secreted by the foraminifera animal.

There are two broad types of foraminifera, ***benthic*** and ***planktonic***. The benthic species live on or very near the sea floor. Some attach to seagrass stalks or to other bottom-dwelling organisms. As the foraminifera died, their tiny tests became part of the seafloor sediment. Benthic species are the commonest variety in Florida, and often comprise a large percentage of the limestone making up the backbone of our state. Besides their fascinating array of shapes, benthic foraminifera are important as indicators of the ancient environments in which the host rock formed. Certain distinct benthic species inhabited narrow water depth ranges. By comparing these with similar modern foraminiferal assemblages, paleontologists can often determine the water depth or type of water body in which foraminifera-laden rocks formed. In some cases, certain paleoenvironments are indicative of potential economic deposits. The modern oil companies did much to advance the science of foraminiferal micropaleontology when they discovered the usefulness of these fossil creatures in the finding and correlation of petroleum-rich sediments during drilling.

The second group of foraminifera, the planktonic foraminifera, lived near the ocean's surface. They were typically globose, thin-shelled creatures which were able to float freely with the ocean's plankton. Here they were at the mercy of winds and currents, and were distributed in many different marine sediments throughout the world. As they died, their tiny tests rained to the seafloor, and became part of sediments.



Planktonic foraminifera
Globigerinoides. X45

Unlike the benthic species, planktonic foraminifera were much less environment-dependent. A given fossil planktonic species may be found in a variety of marine paleoenvironments, depending only on where the seas carried it. Thus a single species may be found in both shallow paleo-beach type sediments and in the deep mid-ocean deposits. In addition, many very distinct, easily recognizable species of planktonic foraminifera lived for very short periods of geologic time...perhaps only one or two million years. This characteristic makes them valuable as sediment age indicators. The presence of a short-lived species in a rock can allow paleontologists to age-date the rock to the known lifetime of that species.

Florida's Foraminifera...

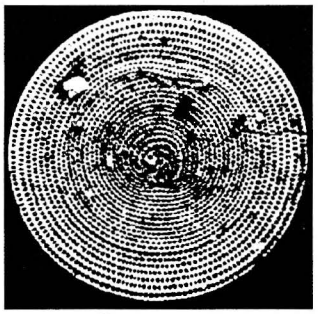
Florida was covered by shallow seas for much of the last 200 million years, during which time it served as a haven for multitudes of tiny foraminifera. Most Florida species are benthic, having lived on or in the sea floor sediments now comprising the bedrock of the state. While planktonic forms are found, they are generally uncommon due either to the shallow, possibly restricted paleoenvironments or else to lack of preservation in the rocks.

The exposed rocks in Florida, ranging back some 45 million years ago (mya), provide an interesting succession of fossil foraminiferal faunas, in part documenting the transistion of paleoenvironments through time. Nearly all these rocks formed from seafloor sediments. The vast majority of fossil foraminifera in the rocks older than Miocene (20 to 5 mya) in age are shallow reef and carbonate platform dwellers. Some of the most interesting shapes occur in the Eocene and Oligocene age limestones. These species take a variety of forms, from that of miniature space capsules (*Dictyoconus*) and the lens-shaped *Nummulites*, to the potato chip-shaped *Lepidocyclina*. The disk-like *Sorites* became common in the early Miocene carbonates, and is also often seen in the Miocene and Pliocene mollusk-rich sediments of the panhandle. By the Middle Miocene (about 15 mya), terrestrial sands and clays were pouring into the state, blanketing the earlier limestones and creating yet another series of environments for new assemblages of tiny foraminifera. In the shallow, muddy Miocene lagoons and bays, *Elphidium* flourished, alongside the elegantly coiled *Buliminella*, and the abundant *Rotalia*. During sea level highstands, planktic species such as the ubiquitous *Globigerinoides* were incorporated into the sea floor sediments. The majority of well-preserved planktonic foraminifera species in Florida are generally found in Miocene and younger rocks.

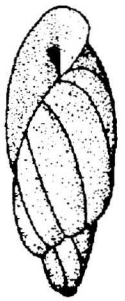
Many of the foraminiferal species which were established during the Miocene survived through the Pleistocene, as the seas alternately advanced and retreated over the state. Some species are still living in the Gulf of Mexico today.

A variety of shallow water benthonic foraminifera lived side by side with the fossil mollusks now collected in the southern Florida shell pits. Foraminifera are often common constituents of the matrix material packed in the apertures of large gastropods. This apertural material is an excellent source of fossil foraminifera for the casual observer.

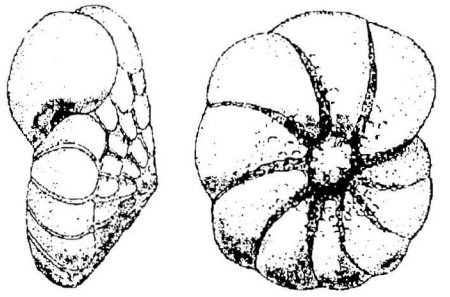
A SAMPLING OF FLORIDA BENTHIC FORAMINIFERA



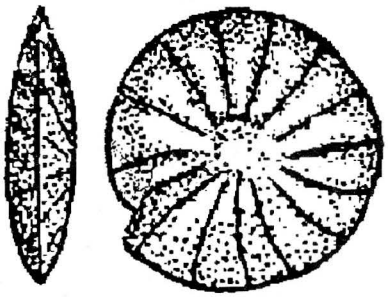
Sorites sp.
Miocene
X 15



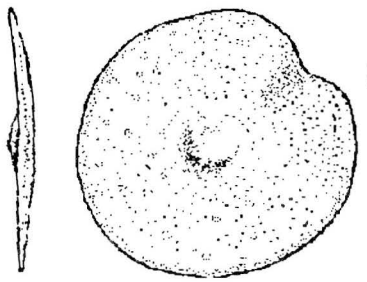
Buliminella elegantissima
Miocene-Pliocene
X 40



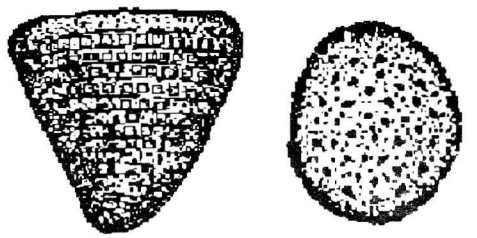
Rotalia beccarii
Miocene-Recent
X 50



Nummulites
Eocene-Oligocene
X 15



Lepidocyclina
Eocene-Oligocene
X 10

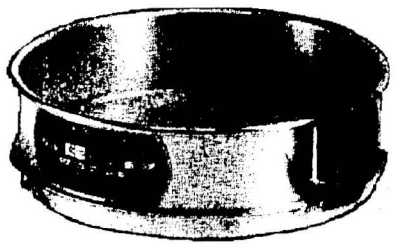


Dictyoconus
Eocene-Oiligocene
X 20

Micropaleontology for beginners...

While some foraminiferal species are big enough to see with the naked eye, a 10 to 20 power hand lens is usually needed to observe most foraminifera. A reflected-light stereomicroscope is by far the best way to observe the minute features of their tests. Unfortunately, these microscopes are expensive, ranging from about $600-$1,500 for a new, decent quality version. Therefore, those of you who have read this far will undoubtedly try the hand lens method before progressing to the "serious amatuer" level signified by the purchase of a microscope.

Viewing foraminifera can be as simple as spreading out a thin layer of the loose sediment in a shallow pan, allowing it to dry, and examining carefully with your lens. This works fine with coarse sediments, particularily if abundant foraminifera are present. You should be able to recognize some of the shapes illustrated in this article. For best results, especially in clayey sediments, a small screen sieve, capable of retaining the foraminifera and larger particles while allowing clays and other fine sediments to wash through, is required. Window screen is too large to capture the smaller species. In professional labs, a 62 micron, or No. 230 sieve is generally used. These may be purchased through a scientific supply house such as Ward's or Fisher (see address's at end of article). To use a sieve, place a

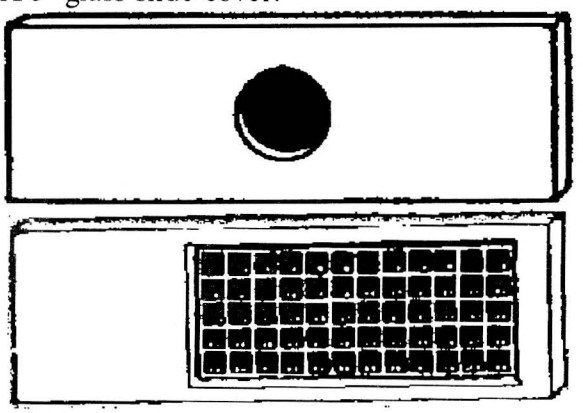


Micropaleontology sieve.

tablespoonful or so of sediment in to sieve and wash under a faucet until the water runs out the bottom clear. You can gently swirl

the sediments around in the sieve with your finger, but try not to apply excessive pressure. This may break the fragile foraminifera. After the sample is clean (water running out the bottom is clear), carefully wash the sediment out of the sieve (upside down) into a small pyrex beaker or a shallow pan using a fine stream of tap water. This may require a little practice, but it's easy after a couple tries. Once the sediment has settled to the bottom of the receiving vessel, gently pour off the excess water. Heat the pan or beaker on low on the stove or hotplate, or in the oven to dry the sample thoroughly (avoid boiling). Once dry, spread the material out in a flat, shallow viewing container, and examine with a lens.

If you really get into foraminifera, professional slides are available from Curtin Matheson Scientific Co. (see address at end of article) for mounting your specimens. These consist of cardboard well slides with either a built-in acetate cover slide or an aluminum holder for the well slide and a conventional 1" X 3" glass slide cover.



Cardboard micropaleontology slides for mounting specimens.

Individual specimens may be carefully "picked" from the surrounding sediment with a triple-0 or finer artist's brush moistened with water. The foraminifera readily stick to the damp bristles, and may be moved to a permanent slide in this fashion.

Professionals mix up a solution of powdered gum tragacanth and water, often with a little oil of clove to prevent mold, and paint the cardboard slide with it. When dry, you can't see it on the slide, but when you place your foraminifera specimen on with a damp paintbrush, the water activates the gum and allows the foraminifer to stick in place on the slide. Paleontologists on a budget have been known to paint the slide with Elmer's glue instead of gum tragacanth. This works, but not as well and takes longer for the water to reactivate the dried glue.

For those of you who are interested in exploring the subject further, numerous books and articles are available which cover all facets of the science. Topics range from complex methods of extracting foraminifera from the sediment, to studies of foraminiferal faunas, to monologues on a particular species. Listed below are a few references for further reading as well as sources of micropaleontology supplies.

For Further Reading

Cole, W.S., 1931, *The Pliocene and Pleistocene foraminifera of Florida*: Florida Geological Survey Bulletin 6, 79 p.

Cushman, J.A., 1930, *The foraminifera of the Choctawhatchee Formation of Florida*: Florida Geological Survey Bulletin 4, 93 p.

_____, 1948, *Foraminifera: Their classification and Economic use*: Cambridge, Harvard University Press, 605 p.

Puri, H.S., 1953, *Contribution to the study of the Miocene of the Florida panhandle*: Florida Geological Survey Bulletin 36, 345 p.

_____, 1957, *Stratigraphy and zonation of the Ocala Group*: Florida Geological Survey Bulletin 38, 248 p.

Sources of Micropaleontology Supplies

Curtin Matheson Scientific, Inc.
P.O. Box 1546, Houston, TX
(713) 820-9898 (*slides, sieves*).

Ward's Natural Science Establishment, Inc.
5100 West Henrietta Rd.
P.O. Box 92912
Rochester, NY 14692-9012
(716) 359-2502 (*slides, sieves*)

Fisher Scientific
711 Forbes ave.
Pittsburgh, PA 15219
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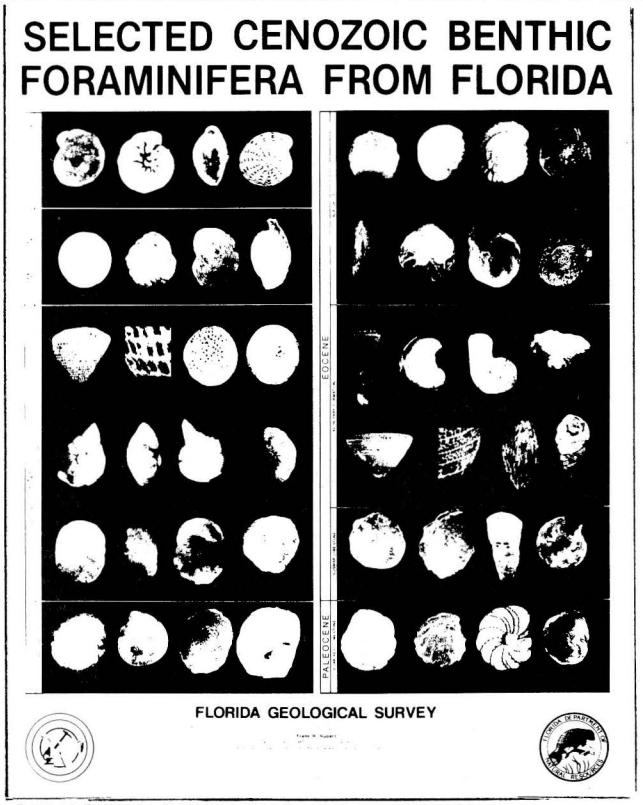

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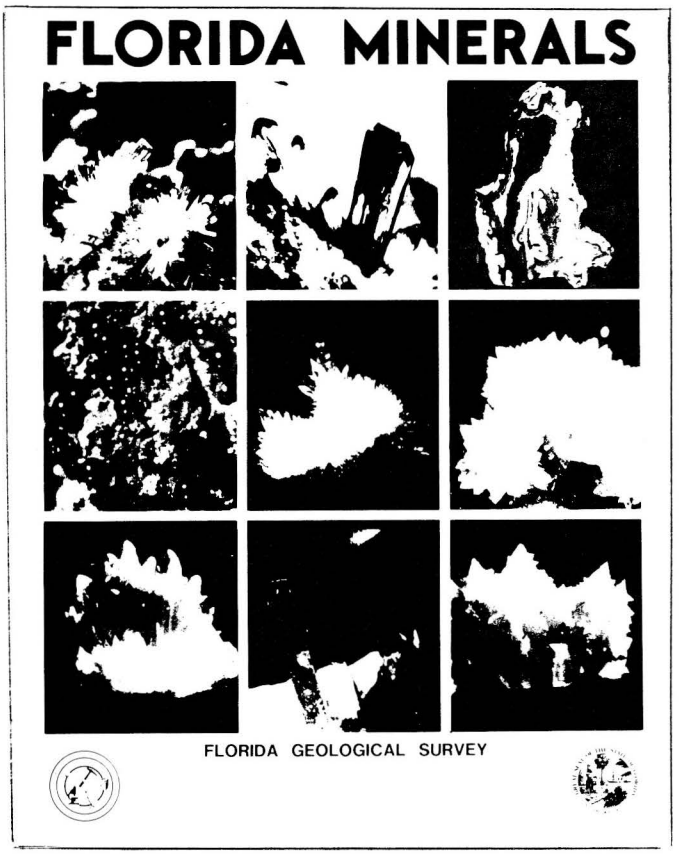

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ARTICLE IX

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

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