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May at SWFAS: Boyer Archaeological Survey of Lake Okeechobee



The Preliminary Findings of the Boyer Archaeological Survey of Lake Okeechobee will be the topic at the Wednesday, May 21, SWFAS meeting in Bonita Springs.

Chris Davenport, Archaeologist of Palm Beach County, will discuss the archaeological finds and subsequent analysis of the Boyer Archaeology Survey conducted during drought-induced record low levels of Lake Okeechobee in 2007.

With the discovery by concerned citizens of human bone fragments on the lake bottom in March 2007, Chris Davenport was drawn to the Belle Glade region and expanses of mucky land at the bottom of Lake Okeechobee. A pedestrian survey of open lake bed sought to record artifact locations and delineate site boundaries with a handheld GPS unit.

Three prehistoric sites - Ritta Island (8PB92), Kreamer Island (8PB43) and Pelican Bay (8PB10393) - were already known from the south side of Lake Okeechobee yet approximately 30 additional sites were recorded in this vicinity, ranging from isolated shipwrecks to large ceramic scatters.

Additional testing at certain sites revealed unique and disparate artifact assemblages. At the Kreamer Island site, particularly noteworthy is an abundance of shell ornaments, hammers/adzes, and celts while the Ritta Island

site contained limited shell tools but considerable chert and human bone fragments. Davenport's presentation will address these finds and their implications for trade routes in southern Florida.

Chris Davenport has been involved in archaeological investigations since the age of seven, when a Massachusetts archaeologist took him under his arm. By age 16, Chris was supervising archaeological field schools for a local parks and recreation department. Earning a B.A. from Franklin Pierce College in New Hampshire and M.A. at the University of Tennessee in Knoxville, Chris is a specialist in zooarchaeology and has conducted research on sites from Maine to Oaxaca, Mexico. He has served as Archaeologist for Palm Beach County since 2005.



SWFAS April: Elgart on the Pine Island Ridge (in Broward) and Miami Areas

By James Oswald

On Wednesday, April 16, The Southwest Florida Archaeological Society was pleased to have as our monthly speaker, Alison A. Elgart, Ph.D. Dr. Elgart is an Assistant Professor in the Department of Biological Sciences, College of Arts and Sciences at Florida Gulf Coast University.



Alison Elgart

Alison's talk was titled "Life And Death On The Pine Island Ridge in the Late Archaic." The subject was work that she had done in 2002 and 2003 at the Long Lakes site. This site is in Broward County and has no connection with our west coast Pine Island site.

At 29 feet, the Pine Island Ridge is the highest elevation in Broward County. Evidence points to human occupation from the middle Archaic period to the Seminole period and into the present. Today the site is occupied by a subdivision called "Long Lakes Estates."

Some of the burials in this area are dated to 4020 BP. Most of the burials are located on the south side of the site. The fact that the burials are found at a habitation site points to this as an egalitarian society. Analysis is difficult because there appear to be many secondary burials, and farming activities have disturbed the graves.

Health and dental problems can be inferred from bones

and teeth found in the graves. Healed fractures indicate that some form of health care was practiced. Many teeth exhibit dental enamel hypoplasia. These lines in tooth enamel indicate cessation of growth due to trauma or malnutrition.

Alison also worked in Miami and on the Miami Circle. The second section of her talk concerned burial mounds and cemeteries in the Miami area. These date to 2000 BP. The mounds are from a later period. Changes from the late Archaic period to Glades I to III include the use of charnel houses and more secondary burials.

In the Miami Circle, Alison studied three animal burials, a dolphin, a shark, and a sea turtle. These date from the contact period. It is not certain why these remains are here. Possible explanations include totemism and the ritual burial of ceremonial trash.

SWFAS is indeed fortunate to have such a close relationship with Florida Gulf Coast University and its faculty. Speakers and programs like this one would be difficult to arrange without these close ties.

Thanks very much, Dr. Elgart, for sharing your time and information with us.

SWFAS March: Tykot on Bone Chemistry and Ancient Diets

By Rebecca Austin

Robert Tykot, Professor of Anthropology at the University of South Florida spoke at the SWFAS meeting on March 19. The title of his talk was "BC/AD in the New World: Using Bone Chemistry to Study Ancient Diets." The meeting was held at the Sugden Welcome Center at Florida Gulf Coast University and was co-hosted by the FGCU Anthropology Club. Tykot is an archaeological anthropologist from the University of South Florida, who specializes in analyzing the diets of prehistoric peoples through the use of scientific technology.



Robert Tykot

Tykot conducts isotope analysis to analyze skeletal remains and determine various aspects of the diets of individuals and human populations. Through the use of an instrument called a mass spectrometer, Tykot measures bone "apatite," which reveals most dietary components. Analysis is also conducted on bone collagen, which shows traces of amino acids and proteins that are still present in these bones after hundreds, or thousands of years.

Through these analyses, Tykot can determine certain kinds of foods that were available in terrestrial foodwebs, such as maize, which has a different photosynthetic pathway than other domesticated plants in the New World. But it is not possible to distinguish most other grains and grasses from each other, so other specific parts of the diet must be inferred

(from pre-determined groupings scientists have established), based on location and time period when certain human populations lived.

Another interesting aspect of Tykot's talk was his discussion of tooth enamel. Tooth enamel shows the diet at the time the tooth was formed and therefore much can be learned about certain stresses or conditions people may have lived through, based on growth patterns and other aspects of tooth enamel.

Tykot's studies range from Central and South America to the Southeastern United States and Southwest Florida, as well as other parts of the world. Through his professional networks, Tykot was able to amass large amounts of data from not only sites where he has conducted research, but he also collaborates with other archeologists and physical anthropologists to analyze data they have collected.

At a pre-classic Maya site in Belize, Tykot found that some dogs were fed maize, while there were no traces of maize in the diets of deer. This raised a number of questions regarding diets of people living in the area and the extent to which maize was a staple in the diets of humans, or whether they may have been eating animals, such as dogs, or controlling deer in any way.

At another site called La Milpa, which was occupied during

Continued on Page 6

Mound House Awarded \$726,405 in TDC Funds for Landscape Restoration

The Mound House is regarded as a quiet respite from the crowds that congregate on Fort Myers Beach much of the year. The fifteen-foot high Calusa mound affords beautiful views of Estero Bay with mangrove preserve as far as the eye can see. However, the site, like the historic home that sits on top of the mound, went through many changes through the years, culminating in acres of grass and exotic ornamental plants.



In 2006, the Town of Fort Myers Beach contracted David Sacks, an award-winning landscape architect with a passion for historic preservation. David, with landscape designer Gustavo Santana, held public meetings at the Mound House with a variety of stakeholders and community groups. Through numerous intensive workshops, a conceptual landscape plan emerged that garnered not only community consensus but excitement and anticipation.

The Tourist Development Council (TDC) enthusiastically supported the plan, funding the first phase of the project in 2007-2008 with a grant of \$523,296 to provide pathways, interpretive signage, and significant vegetation restoration. When complete later this year, the site will include an ethnobotanical trail of plants used by the Calusa for food and technology as well as a fruit crop orchard to enhance the early twentieth century ambience of the property. These improvements complement the ongoing restoration of the historic house and the underground



Mound House - early 20th century exhibit within the mound, also due to be completed in 2008.

The second phase of the landscape project includes the construction of an 125-foot long observation deck set over Estero Bay to provide a safe location for school children to learn about the estuary and its use by south Florida peoples through time. The design and permitting for this pier was initiated in January and served as the basis for an application to the TDC for an additional \$726,405. The project was recommended by the TDC to the Board of County Commissioners for inclusion in their budget. Funds will be available in October, allowing for completion of the landscape restoration at the Mound House by September of 2009.

Lee County Designates Pineland Archeological District

The Lee County Historic Preservation Board voted unanimously to designate the Pineland Archeological District encompassing the entire National Register area of the site. This designation followed two workshops and a public hearing held on January 16 at the archaeologically significant site, where the purpose and meaning of an archaeological district was discussed. Without this protection, building permits issued by Lee County on private properties within the National Register area were not necessarily flagged for Historic Preservation review, resulting in significant damage to the site and the possibility of disturbing unmarked human burials. With the designation in place, county officials will work with property owners to properly mitigate and protect Pineland's cultural heritage during the design phase of projects.



RRC Challenge Grant for Gill House Restoration

On March 2, Paul and Warren Miller, and Dwight and Susan Sippelle jointly offered the Randell Research Center a \$50,000 gift toward restoration of the Ruby Gill House, headquarters of RRC in Pineland. This is a challenge grant and will be given as soon as the matching \$50,000 is raised.

The historical Gill House was badly damaged in the hurricanes of 2004. About \$178,000 in labor and donated services have been put into the house so far... Still to be done are structural stabilization work, enhancement of handicap-accessibility, and restoration of the walls, ceilings and floors.

To contribute to the building fund, simply make your check payable to the Randell Research Center, indicate that it is for the building fund and mail it to P.O. Box 608, Pineland, FL 33945.

- from the Friends of the Randell Research Center March 2008 newsletter

Florida Anthropologist Goes Digital

The Florida Anthropologist (vols. 1-58; 1948-2005) has been locally digitized and incorporated into the UF Digital Collections for long term preservation and free public access. The journal is fully searchable and available at:

<http://www.uflib.ufl.edu/UFDC/UFDC.aspx?s=flant&b=UF00027829>

The Florida Anthropologist is the quarterly journal of the Florida Anthropological Society, and was first published in May 1948. The journal publishes on a wide variety of anthropological topics relative to Florida. One of its principle publishing interests is Pre-Columbian societies with articles also documenting colonial establishments and colonization of Florida, early modern Florida, etc. The contents of this collection were digitized with the permission of the Florida Anthropological Society, Inc. from original materials held by the Department of Special and Area Studies Collections at the University of Florida's George A. Smathers Libraries. Copyrighted material. All rights reserved by the Society.

- from UF Anthro updates by Ken Sassaman



45-foot Canoe Found at Weedon

Tampa Bay Online / The Tampa Tribune / May 5, 2008

By KEITH MORELLI of *The Tampa Tribune*

Stuck somewhere in the muck of Weedon Island is a significant piece of history. A 45-foot canoe, buried for more than a thousand years and used by a long-dead culture of Native Americans, worked its way to the surface, and now authorities are trying to figure out how best to preserve it.

The vessel is carved out of a single pine tree, and archaeologists say it was used to paddle over the open waters of the bay -- unlike the other ancient canoes uncovered in Florida over the years, which were used to ply the calmer waters of lakes and rivers.

With the back end of the canoe broken off, it measures 39 feet, 11 inches. If the missing piece was attached, archaeologists estimate 5 more feet would be added to the length. The size of the vessel and configuration of the bow leads archaeologists to think the vessel may have been used to trade with people living some distance away.

"It's the longest prehistoric canoe ever found in the state of Florida," said Weedon Island Preserve Center manager Phyllis Kolianos.

"I think it's fascinating," she said this morning. "I think it's a very important find, and it's very significant. It gives us an understanding that these weren't simple people living here, that they were probably trading with other cultures."

The dugout is the first pre-Columbian seagoing vessel uncovered in Florida. It points to a culture that thrived in what would become the Tampa Bay area and traded with others along the Gulf of Mexico coast and beyond. The influence of the Weedon Island culture stretched to places as far away as Georgia, archaeologists say.

Kolianos said carbon dating of the canoe shows it to be about 1,100 years old.

Long before Sunken Gardens and Tropicana Field and the Don CeSar, there was the Weedon Island culture, she said.

"This was a heavily populated area," she said. The culture blossomed between the third century and 1200.

The canoe first was found seven years ago when a beachcomber searching for old bottles spotted part of the vessel protruding from the ground. Because the preserve didn't have a history center at the time, the discovery went unreported for years, Kolianos said. Finally, it came to light, and a team of state archaeologists including Kolianos mounted a plan to excavate the vessel.

In December, about 10 archaeology students, volunteers and state archaeologists plodded through the mangroves to the site. They quickly built a makeshift dam out of sandbags and plastic to keep the tide out, and they began digging.

They uncovered the rotting gunwales of the vessel and dug beneath it to take measurements. Under the keel, they found a long pole about 3 inches in diameter. The pole could have been used to propel the canoe, or it might have been used to roll it onto the shore.

A sample of the wood from the canoe was taken for carbon dating, and then the preserving muck was replaced, Kolianos said. Covering the artifact with the muck is the best preservation option available.

Ultimately, the goal is to excavate the canoe, chemically preserve it and put it on display. But doing that is difficult and expensive. To be properly treated, the canoe has to sit in a vat of chemical preservative for three years, she said. Nowhere in the state is there a vat that big.

So, for now, the artifact, as significant as it is, lies in an undisclosed location beneath a layer of muck -- actually submerged during high tides -- safe and sound.

"The best place for it right now," she said, "is in the ground."

Welcome to New Members

- Ina and John Kelly of Naples
- Kathryn and Matthew Betz of Naples

Geology Rules: Key Making

By Jack Harvey

“Florida Key” is a bit poetic and not particularly scientific. Some sources say it came from a Spanish word, *cayo* meaning reef or shoal. Others suggest it came from the Old French *kay*, *cai* or *cay*. The term most commonly refers to the chain of small islands extending from about Homestead to Key West, but it’s also used for more northerly Florida islands such as Longboat Key near Sarasota and Key Marco, wherever it may be.

As we look at the land building processes that created South Florida, the Homestead to Key West island chain is a fairly complete demonstration in progress. Actually, the key chain can be extended from Miami Beach south and west through Key West and on to the Dry Tortugas. And as will be seen, another important area of development is between the key chain and the south end of the mainland peninsula in the Everglades.

Island chains are very common on the planet. The eastern end of the Caribbean Sea has the Antilles. The Hawaiian and Aleutian Islands along with many smaller chains in the Pacific and Atlantic Oceans are prominent examples. But nearly all of these are volcanic and most are related to tectonic plate collision. These are definitely not passive margin land such as South Florida.

An important clue to remember is that the main kinds of carbonate rock here are formed in shallow water near but beneath the surface. That also generally means near the shore. The water is pretty shallow between the keys and north of them. But it gets deep fast when you go south. For example, it’s around 300 feet deep just seven miles south of Key West. This is beyond the *euphotic depth* because there is not enough light energy for chlorophyll to work its magic and the bottom of the food chain larder is empty.

Coral and bryozoans can find little food in the water at that depth. Ooids, the common calcite-based spheroids forming much of South Florida as oolite are slow to grow because of the lack of

turbulence at 300 feet, and because the pressure is much higher than near the surface.

Therefore new land forms extremely slowly, if at all, in the deep water south of the Florida peninsula. So how did carbonate rock get there? For that matter, how did carbonate rock, which forms only in shallow water near the shore, get far inland?

The shoreline moves because the ocean depth changes with climate. Without ice ages and warm periods, we wouldn’t have South Florida. Or at least, it would have a much different form. During cold periods, ice piles up on the continents and glaciers thicken in the mountains. Water for this continental ice comes from the ocean, lowering sea level.

This is the solution to the problem that South Florida land forming processes only work well near the shoreline. Continually changing (geologically speaking) sea levels continually shift the shoreline, so that the South Florida permanent land forming processes (ooids, corals and bryozoans) can paint the entire surface of the peninsula, from our “highlands” near Orlando to the submerged land near the Florida Escarpment 400 km (250 mi) west of Naples and Fort Myers.

In the perhaps 100 million years it has taken South Florida to form, this variation in sea level due to climate changes has probably occurred thousands of times. This is the context that makes our extremely slow process of land formation conceivable. When looking at a shore, it helps to also look at the progression from tide water to dry sandy beach, to low grassy dunes, to dry soil trees. Always remember that this progression is a continuous work in progress and almost always moving.

Today’s offshore sandbar becomes a vegetation-anchored “permanent” island with mangroves on the lee side and palms along the center in just a couple of decades. We can see it happening right now within wading distance of Tigertail Beach on Marco



Photo courtesy of NASA
Florida and the Keys from the Space Shuttle

Island. Although this is also a vital part of South Florida land formation, it produces little limestone-based rock for the ages.

Without permanent rock a particularly powerful hurricane can drastically alter such an island in only a few hours. On August 14, 2004 Hurricane Charley dug a quarter-mile wide pass through North Captiva Island west of Fort Myers, breaking it into two smaller islands. Our shoreline is always a work in progress.

The Calusa and other South Florida people must surely have been aware of this. Yet they apparently built their most important civic centers on land subject to hurricane storm surges! Granted, the most important structures and places were atop mounds they constructed. But wouldn’t it have been easier simply to build inland away from the shore?

Perhaps to the aboriginals, the shore was a two-edged sword. It provided bountiful, healthy seafood protein that was virtually drought-proof, year around, year after year. This supported a largely non-agricultural society that could still afford to build and maintain permanent centers. Centuries of experience taught them to prepare for the once-a-generation storms.

Hey, Jack, aren’t you getting way off topic? I thought you were talking about land formation in the Florida Keys. What are you doing on North Captiva Island?

Enjoying the sunset, of course, but in the previous column I said we had to understand the dirty sand we call topsoil. It had a lot to do with the kind of life the aboriginals could lead.

Tykot, from page 2

a later period, it was noted that the elite had higher values of maize in their diet than others. Due to class stratification in complex societies, the wealthiest people had greater choice of food than those of lower status. Some of the other sites Tykot discussed ranged from pre Incan highland Ecuador and Peruvian sites, to coastal Peru, to as far south as Tierra del Fuego.

Tykot closed by discussing the ongoing debate about whether or not native peoples living in pre-contact sites in southwest Florida had domesticated maize. Tykot noted a study by an early anthropologist Sears, who claimed that maize was found in the region near Fort Center as early as 450 B.C. But Tykot's research disputes that finding, noting that his research did not reveal a measurable amount of maize

in southwest Florida at that time period. However, in central Florida, he found that maize did become a staple much earlier than previously thought, becoming approximately 10% of the diet by 600 A.D. or earlier, as compared with 1000 A.D., as archaeologists previously thought.

Tykot's talk was a unique presentation, which was attended by FGCU anthropology students and SWFAS members. Insights into prehistoric diets and the advanced technologies used were new to most of us who attended. We were fortunate to have an esteemed scientist, such as Tykot, who earned his Ph.D. from Harvard University and has authored or co-authored over 100 books and articles.

Don't forget to renew your membership -- all memberships expired in January!

About SWFAS

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address your check to: The Southwest Florida
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*Dues are: Individual - \$20; Sustaining - \$50;
Family - \$35; Student \$15*

Learn more about SWFAS at:

<http://www.explorationsinc.com/swfl-archaeology/index.html>

Board meetings are usually held prior to the regular meeting on the third Wednesday of the month at the Bonita Springs Community Hall at 27381 Old U.S. 41 (by the banyan tree). All are welcome. Board meetings begin at 6 p.m. Regular meetings begin at 7:30 (with coffee served at 7).

May 2008 Newsletter

The Southwest Florida Archaeological Society
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