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Steve Koski on the Latest Work at Little Salt Spring in October

Archaeologist Steve Koski of Little Salt Spring will be the speaker at the Wednesday, October 17 meeting.

He will present the findings of two seasons of archaeological fieldwork on land surrounding Little Salt Spring. For three weeks in June and July 2006, and four weeks in April and May 2007, Steve -- with a crew of three field archaeologists from New South Associates -- conducted an archaeological survey of the 112-acre parcel surrounding Little Salt Spring and a five-acre adjoining parcel.

The larger tract is owned by the University of Miami and operates as a research facility and environmental preserve. The five-acre tract was recently acquired by Sarasota County, with assistance from the City of North Port, for a passive five-acre archaeological and environmental park. The archaeological project was funded in part by the Florida Department of State, Division of Historical Resources and the University of Miami.

The terrestrial component of the underwater Little Salt Spring site, originally called the Hazeltine Site (8SO79) after its discoverer, the late Sonny Hazeltine, was found during the construction of Price Boulevard in 1973 when a burial and artifacts were uncovered in a wetland north of the spring. A short time later, the habitation component of the site was discovered and briefly investigated; however, no systematic archaeological survey of the entire property had ever been conducted.

The survey included 425 hand-dug shovel tests up to 140 cm deep and 88 deep auger tests up to 200 cm deep, dug with a Bobcat and four-person gas-powered auger. Evidence of past hunting activities and campsites was identified surrounding the spring and slough, represented by a variable density of artifacts, consisting of mostly small stone flakes from tool maintenance and dietary bone elements.

Analysis suggsts that the artifacts are from the Middle Archaic component of the site and date from about 7,000 to 5,000 years ago.

If you are interested in learning more about the Little Salt Spring site, come to the October 17 meeting!

Geology Rules: Chains of Time

By Jack Harvey

Galileo's heart was a clock. While watching a swinging chandelier in the cathedral of Pisa during a boring sermon, he counted his heart beats to time the swings, thus inventing the cuckoo clock. (Hey, can't I embellish the legend too?)

Whatever the serious facts of Galileo's work with pendulums were, the human pulse was frequently used to time short intervals. But heartbeats are useless for timing crop planting. For that, you count full moons from the winter solstice, so the kind of timer depends very much on the time interval.

Historians built time chains out of written documents by finding where they referred to selfsame events. Document chains became pharaoh chains that disclosed true ages for Egyptian pyramids and the sediments around them. Writing was invented for accounting records, such as taxes, but document chains required *chronicles,* a relatively recent civilization device, and much of archaeological interest was in older/deeper times/sediments that tax

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records couldn't date.

Baron Gerard De Geer was a Swedish geologist who noticed that laminated sediments he was studying resembled tree rings. These laminations were called *varves* and his were typically caused by winter/summer changes in glacial lakes, one varve per year. Varve thickness varied, depending on climate, and De Geer found he could relate varve thickness variations between widely separated deposits. This permitted building varve chains far longer than individual deposits. So when an absolute date could be fixed for one varve, the entire chain was dated. The Swedish varve chain has been extended back 13,200 years.

It's well known that the age of a tree can be found simply by counting the rings, but unless the tree is a bristlecone pine (4,700 years) or giant redwood (2,200 years), the oldest a large tree gets is perhaps 500 years. However, like varves, tree rings show climate variation. The thickness (amount of growth) is quite sensitive to drought. So by correlating drought years in the ring patterns, tree date chains can be built, yielding the science of *dendrochronology* (tree-time).

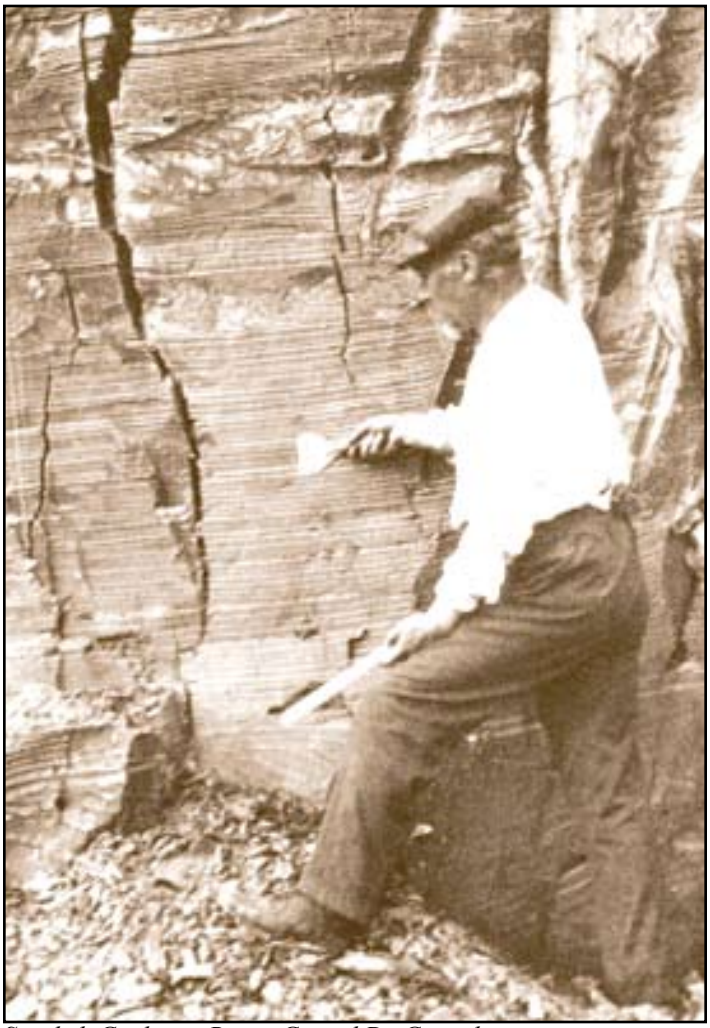
The figure "Tree Ring or Varve Time Chain" shows how four different layer sequences of about 100 years each can be linked to produce a much longer sequence of about 300 years. If an absolute date can be established for the youngest link (Link 1), we know the absolute dates for the older links.

Tree rings in a Home Depot 4x4. Even untrained eyes can see variations in ring thickness.

In practice, establishing the linkage is much more difficult than this idealized example implies and more characteristics than simple ring/layer thickness are also measured.

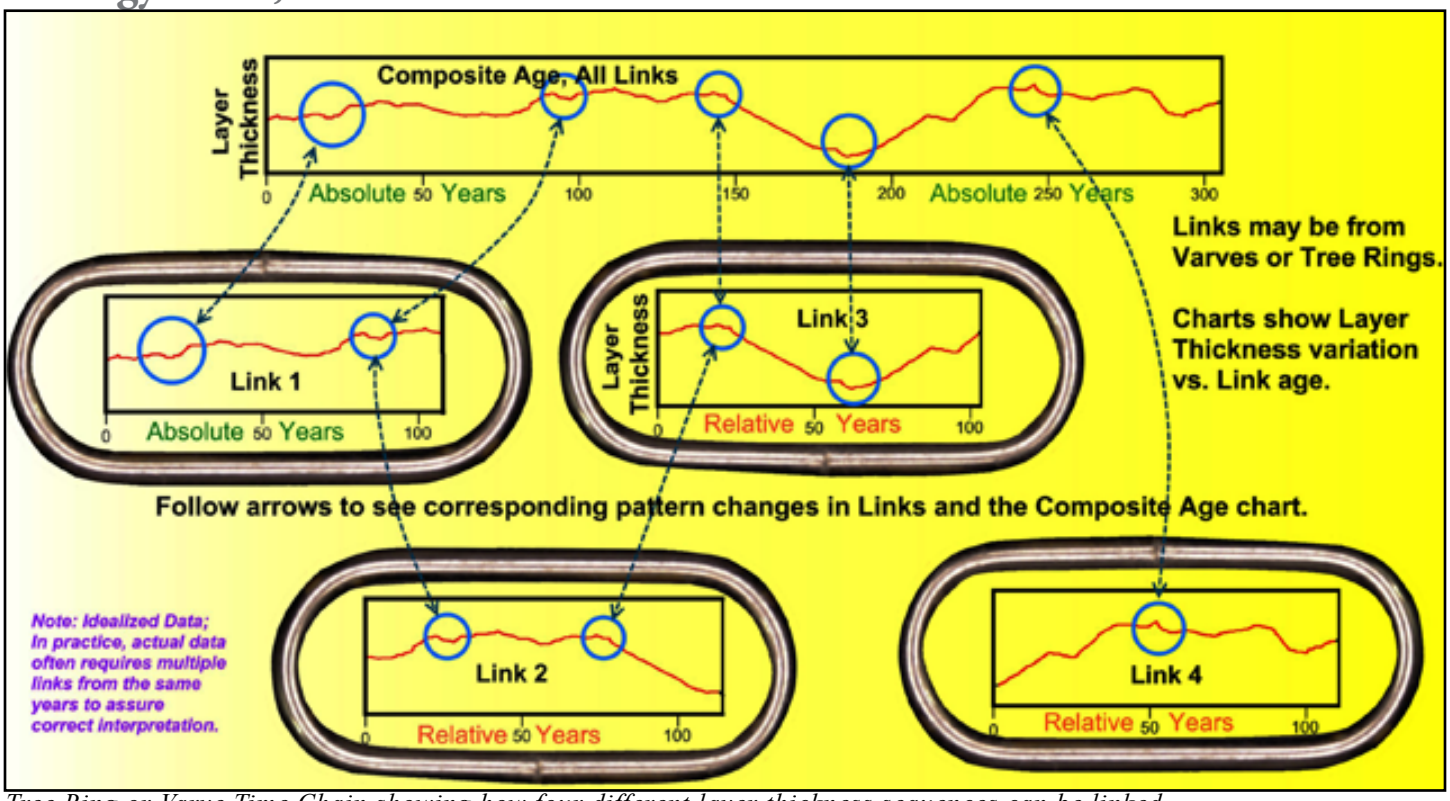
Archaeologists in New Mexico and Arizona found a happy combination of circumstances that allowed them to use dendrochronology to fix exact years to the time of construction of many ancient stone structures. The first thing was that these ancient people didn't have the arch so they needed a horizontal beam at the top of doorways and windows in their stone structures. Stones long enough for this were difficult to find and lift, so they frequently used wooden beams. Next, the dry climate of the area greatly reduced decay and many of those ancient wooden beams still exist. The dry climate also means that many very old tree stumps and logs are lying around.

So by examining currently live trees and comparing their ring patterns with successively older logs, a continuous linked time chain dating back millennia can be built, as the figure shows. This is a painstaking job and only applies to a particular climate region. But once the chain is built for a region, dating a doorway beam is a



Swedish Geologist Baron Gerard De Geer showing varves in a rock wall.

Geology Rules, from left



Tree Ring or Varve Time Chain showing how four different layer thickness sequences can be linked.

simple matter of drilling into it with a hollow bit to extract a core. The wood core is examined with a magnifier and the ring thicknesses compared with a master time chain for the region. The outermost (bark) ring of the doorway beam can then be given an exact year of growth showing when the doorway itself was built.

Because of the dry climate, dendrochronology has been very useful in Arizona and New Mexico for studies of the Anasazi and related cultures in the region. But our South Florida wet climate means quick decay of dead tree stumps and logs. Finding sufficient samples to construct a meaningful time chain for our area is difficult.

Varves apparently have never been useful in South Florida either. A clue for why they haven't is Baron De Geer's nationality: Swedish. Sweden doesn't have our subtropical climate but has lots of glacier lakes with ideal conditions for varve formation. And new varves can be destroyed by *bioturbation,* stirring or displacing sediments by organisms. Florida is overrun by organisms year-round but subarctic Sweden has few.

So both tree rings and varves seem to be bad bets for archaeological dating in South Florida. Cushing couldn't use pharaoh chains for dating and applicable documents didn't extend back before Ponce De Leon's 1513 arrival. Many bio-decay schemes were tried but found grossly undependable because of variations in soil chemistry and climate. The chains of time were short.

Meanwhile, 19th century geologists weren't much better off. They were trying to get at absolute dates by looking at the big picture. How old are continents? How old are oceans? The earth? Our sun? Stars? Over the centuries, many estimates of absolute ages have been universally far too young.

But two physicists who didn't know each other at the time and who were uninvolved in either archaeology or geology, discovered natural laws that changed what we thought we knew about both sciences. We'll see how this activity is related next time.

Regional Roundup

Local Archaeological Events

The ***Marco Island Historical Society*** has a full season lined up:

Nov. 6 - Dr. Mike Russo, Horr's Island History and Prehistory. 7 p.m. at Mackle Park

Dec. 4 - Dr. Robert Carr - Goodland History and Pre-history. 7 p.m. at Mackle Park

Jan. 8, 2008: Robert Macomber, The Civil War Naval Battle of Caxambas Pass. 7 p.m. at Mackle Park

Feb. 8 - Dr. William Marquardt - Culture, Archaeology and the Modern History of Marco. 7 p.m. at Mackle Park.

For more information, contact SWFAS member Betsy Perdichizzi, betsyperd@naples.net or 239/394-6917.

FAS

SWFAS is a chapter of the Florida Anthropological Society. FAS is open to persons interested in anthropology, archaeoloy, preservation and cultural resources and community education.

FAS membership includes a very nice journal, the Florida Anthropologist, covering diverse archaeological and anthropological excavations and events in the state, and the FAS Newsletter. FAS members have the opportunity in May each year to attend the annual meeting, held at a different location through the state each year. Papers are presented on a wide range of topics, tours are available at local sites and workshops are offered each year. At the business meeting, members have the opportunity to express ideas and vote on issues.

Membership dues are as follows: $35 (Regular and Institutional); $35 (Family); $40 (Sustaining); $15 (Student with a valid student ID when applying); $100 (Patron); $500 (Life); $2,500 or more (Benefactor).

Regional Roundup

Local (and not-so-Local) Archaeological Events

The ***Pensacola Archaeological Society*** is offering two boat tours this fall to the Bottle Creek Site, a Mississippian chiefdom, in the Mobile-Tensaw Delta. The tour is led by Dr. Greg Waselkov, USA professor, and the proceeds benefit Blakely State Park. The dates are October 21 and November 11, from 9:30 a.m to 12:30 p.m. The cost is $25. Contact Bonnie Gums for more info at 251/460-6562.

Dr. John Worth, former Randell Research Center Assistant Director and SWFAS Board member must be settling in his new life in the academic realm. He's addressing the Pensacola Archaeological Society in November on "The Importance of Historical Research to the Archaeologoist." Best from your friends here at SWFAS!

About SWFAS

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If you would like to join SWFAS, please address your check to: The Southwest Florida Archaeological Society; P.O. Box 9965; Naples, FL 34101

Dues are: Individual - $20; Sustaining - $50; Family - $35; Student $15

Board meetings are held prior to the regular meeting on the third Wednesday of the month at the Bonita Springs Community Hall on Old 41 (by the banyan tree). All are welcome. Board meetings begin at 6:00; regular meetings begin at 7:30 (with coffee served at 7).

The Southwest Florida Archaeological Society
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