Southwest Florida Archaeological Society (SWFAS)
OUR 42nd YEAR
October 2022 Newsletter

https://swflarchaeology.org/

PRESIDENT'S CORNER *By John F. Furey M.A., RPA*

The catastrophic destruction in southwest Florida caused by Hurricane Ian, has not altered our plans to resume our in-person presentations in November 2022, however the December field trip is cancelled. It is our sincere hope that you safely weathered this immense storm, that our infrastructure will be quickly rebuilt and, that we can eventually return to our wonderful way of life in southwest Florida. The SWFAS Newsletter will continue to provide you with interesting articles on various topics and we hope that you find them educational and a welcome distraction. We welcome your feedback and are willing to publish original articles written by our members in the SWFAS Newsletter and urge you to submit them to me.

For a number of years, we have had discussions on the impact that rising sea levels would cause to our many coastal archaeological sites here in Florida. Hurricane Ian has certainly upped the ante on the potential destructive power that these storms, coupled with rising sea levels, could wreck upon these sites. Even sites inland could be severely impacted by flood waters from these major storms. The National Park Service and FPAN have been leaders in establishing a baseline on the condition many of our coastal sites, and we need to support their continued research in this area by volunteering and supporting financial aid for these projects before many of these sites are destroyed. Ian is a wake-up call and one can only imagine what Native Americans must have experienced when hurricanes battered the Florida peninsula in the past.

ARTICLES IN THIS NEWSLETTER

When was the last time you even heard the word dendrochronology used? For many, the study of tree rings is old and confined to studying trees in the forests; but where did the study of tree rings begin and who was it? It began in 1891 with the establishment of an observatory in Flagstaff, Arizona. Astronomer Andrew E. Douglass was hired as an assistant and, in his spare time, he studied Pondarosa Pine trees and their tree rings. In the early 1920's Douglas gave a talk about dendrochronology, and a few archaeologists were in attendance That was the beginning of its application in archaeology. Today innovative dendrochronologists are still at work, even in New York City, looking at old wood beams from buildings being torn down. Read about its history and new developments below. Also, if the name sounds familiar, it is! A. E. Douglass wintered in Florida and investigated archaeological sites along the southwest Florida coast.

Dendrochronology was also used to date an excavation of a Roman city site begun in 1993 in the Lahn Valley near Frankfort, and the interpretation of this site is quite different than what we have read about the Roman settlements in Germania after their conquest of Gaul. The site was abandoned and destroyed about AD 9 after the slaughter of the Roman legions by the German Tribes in the Teutoburg Forest. Settlements in Germania were no longer considered safe. This changes history, see below.

Ever wonder how prehistoric engineers/builders managed to not only perfectly align ancient structures and monuments but also managed to make the same measurements on or between structures? Did they have an ancient tape measure of sorts? That question has recently been asked regarding the distances between the Stonehenge stones and newly discovered concentric rings around the site itself. English archaeologists A Chamberlin, M. P. Pearson, and A. Teather believe that they may have answered this question. See below.

Learn about the recently discovered Casarabe culture in the southwestern Bolivian Amazon through the use of Lidar. These were large habitation and ceremonial centers with flat topped pyramids, canals, fresh water

reservoirs, causeways, and a system of roads that connected these centers. Dated at AD 500 - AD 1400, the inhabitants farmed maize in the rich local soils that were seasonally inundated and renewed. See Below.

SWFAS 2023 DUES
Just a reminder to pay your 2023 SWFAS dues to continue supporting archaeology, historic preservation, and our presentations in Southwest Florida. Your dues are our only source of income to continue these programs. We thank you for your continued support.

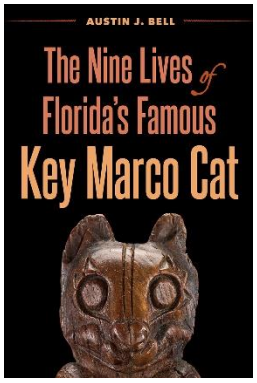
IN MEMORIUM
Glenn H. Dorian 1950-2021
On August 7, 2021, Glenn passed away on a fishing trip to Utah. Glenn joined FSU in 1980 and specialized in wet site archaeology. In 1982, Glenn and David Dickel, oversaw the excavation of 168 human internments from the peat at the bottom of Windover Pond, at the Archaic Windover Site in Brevard County, near Titusville. The site was dated at 6000-5000 BC and contained many artifacts, fabric, and the preservation of the burials due to the peat even contained preserved brain matter.

Glenn was a lifelong conservationist and in the 1980's helped draft the unmarked Human Burial law (Florida Statute Chapter 872). He worked to get the state to purchase the Governor Martin Site in Tallahassee which was the native site of Anhaica and the 1539-1540 winter encampment of DeSoto. Glenn was active in many sites in Florida over his many years at FSU and will be greatly missed.

UPCOMING 2022 SWFAS EVENTS

NEWSLETTERS: November and December 2022

PRESENTATION: NOVEMBER 16, 2022, 7:00 pm
NAPLES, COLLIER COUNTY MUSEUM AT GOVERNMENT CENTER
Homeward Bound: The Incredible Journey of Key Marco's Artifacts, by Austin Bell



Excavated from a waterlogged archaeological site on the shores of subtropical Florida by legendary anthropologist Frank Hamilton Cushing in 1896, the Key Marco Cat has become a modern icon of heritage, history, and local identity. Preserved in the muck for centuries on Marco Island and discovered in pristine condition due to its oxygen-free environment, the Cat has since traveled more than 12,000 miles and has been viewed by millions of people. In this presentation, Bell explores nine periods in the life of the small wooden carving, beginning with how it was sculpted, what it may have represented to the ancient Calusa, and clues to the Cat's mysterious origins that have emerged in its later lives. Bell's award-winning book, The Nine Lives of Florida's Famous Key Marco Cat will be available for purchase ($26.95) Debit and credit cards are accepted.

Austin Bell, M.A. is the Curator of Collections for the Marco Island Historical Society and a Consulting Scholar at the University of Pennsylvania Museum of Archaeology and Anthropology. He is the author of four books, including Marco Island (2018) and The Nine Lives of Florida's Famous Key Marco Cat (2021), winner of a 2021 Florida Book Award and a 2022 Meritorious Achievement Award from the Florida Trust for Historic Preservation. Bell currently serves on the Florida Anthropological Society's Board of Directors and is the Vice-Chair of the Collier County Historic Archaeological Preservation Board. A Florida native, Bell lives in Marco Island with his wife Erin and daughter Chloe.

DECEMBER 2022 FIELD TRIP has been cancelled.

SWFAS 2023 PRESENTATION SCHEDULE

JANUARY 18, 2023, FT. MYERS, IMAG MUSEUM
Dr. Uzi Baram, Professor of Anthropology and the Director of the New College Public Archaeology Laboratory, Sarasota, Florida. Dr. Baram will speak regarding his excavations, *The Excavation of Angola: A Maroon Settlement on the Manatee River in Bradenton, FL*.

FEBRUARY 15, 2023, FT. MYERS, IMAG MUSEUM
Dr. Maranda Kles, RPA, Vice President of Archaeological Consultants in Sarasota, FL, specialized in Southeastern Archaeology, Physical Anthropology, and Bioarchaeology. Dr. Kles will speak on the prehistory of the SW FL natives, the Calusa, and their known relations with their historical native neighbors. The usage of the region by Cuban fishermen that set up fishing camps called 'rancheros' after the Calusa abandoned the region, the eventual settlement by whites, the historical military settlement of Ft. Myers, that gave the city its name, and its relationship to the military network of Florida.

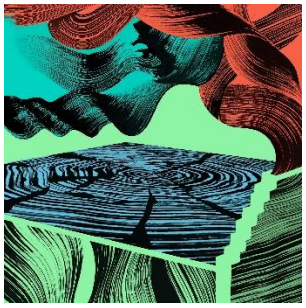
MARCH 15, 2023, FT. MYERS, IMAG MUSEUM
Tina Marie Osceola, Director, Seminole Tribe of Florida (STOF), Tribal Historic Preservation Office (THPO); Dominique DeBeaubien, Collections Manager/NAGPRA Coordinator, STOF THPO; Samantha Wade, Sr. Bioarchaeologist, STOF THPO
#NoMoreStolenAncestors: The Seminole Tribe of Florida's Repatriation Efforts. Repatriation of Native American artifacts from archaeological sites and current archaeological projects that are being investigated.

APRIL 19, 2023, NAPLES, COLLIER COUNTY MUSEUM AT GOVERNMENT CENTER
Steve Bertone, Research Biologist with the Rookery Bay National Estuarine Research Reserve (NERR) in Naples, FL. Steve has conducted biological research and worked on several archaeological projects in the Reserve and the 10,000 Islands. He will be speaking about the early settlers in the NERR.

Note that all presentations are on a Wednesday evening and begin at 7:00 pm.

ARTICLES

MAKING NEW CLIMATE DATA FROM OLD TIMBER
By Rivka Galchen, the New Yorker
May 6, 2022
From the New Yorker at https://www.newyorker.com/science/elements/making-new-climate-data-from-old-timber



In the nineteenth and twentieth centuries, the Eastern Seaboard's old-growth forests were cut down almost in their entirety. Today, trying to find a tree in this area that is more than two hundred years old is like looking for a button that you lost a few years back. But New York City—unlike the surrounding forests—is host to a great crowd of old wood. It's just that it exists in the form of beams and joists within buildings. "Whenever we get the call, we try to go to the demolition," Mukund Rao, an NOAA postdoctoral research scientist at the Lamont-Doherty Earth Observatory Tree Ring Laboratory, at Columbia University, told me. Some of Rao's research focusses on the interactions between climate and ecosystems, such as Mongolia's boreal forests; his work with timbers from demolition sites happens closer to home. "As long as it's an old enough building, we know this is a gold mine for finding this very limited resource," Rao said.

By being creative and flexible in searching for samples, scientists at the Tree Ring Lab (and other such labs) have stitched together climate records for the region going back as far as four hundred years. This has been accomplished in part through looking at crossbeams and joists made of trees that may have been cut down a

century or two ago but have retained a detailed record of how sweet their springs were, how harsh their winters, how clean their sources of water.

In 1891, construction was begun on the Terminal Warehouse, in what is now far west Chelsea. A block-long building with a tunnel at its core, it could take in shipping crates off the Hudson River and load them onto one of several train lines running nearby. By the nineteen-eighties, the building was the site of the Tunnel night club; now it's being revamped into an office-and-retail space. The architecture firm cookfox—Cook has a house not far from the Tree Ring Lab—called up the researchers to invite them to see the wood at the site. On a recent visit, Rao and his colleagues selected twenty-eight joist samples. "They chainsawed about an inch off for us," he said. Each of the samples was then repeatedly polished, with sandpaper of increasingly fine grain. Once the wood was smooth, each growth ring was analyzed in detail. Then the work of interpreting the language of the wood got going in earnest, using dendrochronology, a range of scientific techniques developed in the course of a century.

Around the same time that the Terminal Warehouse was going up, the Boston Brahmin Percival Lowell wanted to establish an astronomical observatory under the dark, clear skies of the Arizona territory. He hired a young astronomer, A. E. Douglass, to help out. Douglass had experience; he'd spent three years helping to set up an observatory in the mountain town of Arequipa, in Peru. He set out with a horse-drawn wagon, a telescope, and a pile of Western Union telegraph paper, so that he could keep Lowell updated on any progress. Eventually they decided on a hill just outside Flagstaff. While Douglass designed the observatory and oversaw its construction, Lowell devoted his time to studying the surface of Mars, where he was convinced that he could see canals, which he believed indicated the presence of an intelligent alien civilization short on water.

Douglass had obsessions, too. He wanted to study solar cycles and sunspots. He thought that they might explain cycles of drought in arid regions like those around Flagstaff. Although Douglass had excellent techniques for making solar observations, climate data for the relevant bits of the Earth near where he was staying went back not more than a dozen years or so. How could he connect the sun and the Earth with so little documentation of when droughts had happened and how severe they had been?

Ponderosa pines are the perfect-posture trees of the pine family, with recognizable scaly reddish-brown trunks. They smell like a fresh-painted house, can live as long as seven hundred years, and can grow as tall as a hundred feet. As it happens, the nation's largest forest of ponderosa pine passes through Flagstaff. Douglass realized that there was, after all, a detailed record of climate to which he could refer. The record was in the trees.

Although it was already known that certain trees grew a ring each year, Douglass brought a new level of rigor and detail to the field. He became familiar with distinctive years—years when there was a severe drought, or a year such as 1815, when Mount Tambora erupted, causing the "year without a summer." One afternoon, in the early nineteen-twenties, Douglass gave a talk about dendrochronology. Some archeologists were in attendance. They disagreed with one another about the age of Ancestral Pueblo settlements. They asked Douglass if his methods could help date some of the sites more precisely, by looking at wood found in ancient structures. Douglass spent a number of years looking at samples from different sites; he devised a way to date them in relation to one another—which sites were older, which younger—but it remained to tie these relative dates to a fixed date in relation to the present. Gaps in the record prevented this. Then, in July of 1929, Douglass went to a new excavation at Whipple Ruin, an ancient settlement in eastern Arizona. A new and fragile beam sample was collected. By late that night, using his memory of plots of drought years from other settlement samples, Douglass had figured out the precise settlement dates for not only Whipple Ruin but also New Mexico's Chaco Canyon and Pueblo Bonito, and Colorado's Mesa Verde. It helped that he had an exceptional memory. Once, he realized that a cutting from Chaco Canyon had been mislabelled by the American Museum of Natural History as coming from Pueblo Bonito. His theory about sunspots turned out, after much examination, not to be true. But it has had an unexpected afterlife. It gets cited by climate-science skeptics, who falsely claim that sunspots play a significant role in climate change.

The Lamont-Doherty Earth Observatory Tree Ring Laboratory is about an hour's drive north of New York City, in a forest dense with oak, pine, hickory, and maple. Caroline Leland, a postdoctoral research scientist, met me there, inside the cathedral-ceilinged research laboratory, which used to be a hangar for repairing ships. "This is one of my very favorite trees," she said, setting a polished cutting on the conference table. "It's a bristlecone pine. Do you know about them? These are some of the oldest trees in the world." Bristlecones are the short and gnarled guardians often seen growing seemingly out of rocks. Some bristlecones in California and Nevada are nearly five thousand years old. "This core dates back to 563," Leland said.

"It's not just counting," she said, of dendrochronology. There's more information in a cross-section of a tree trunk than just age. "Each ring here has a band of early wood, which correlates to the spring, and late wood, which is summer." And trees don't have to be cut down for their rings to be seen; samples can be taken from living trees with an increment borer, a long, thin instrument that extracts a dowel-like cutting without harming a tree. Leland showed me a sample from a longleaf pine, a species that has "prominent late-wood banding." It looked like wafers of alternating vanilla and hazelnut, with the pale early wood being characterized microscopically by cell walls that are less thick and dense, and the dark late wood by cell walls that are thicker, from the end of the growing season.

In order to try to assess what the climate was like at various points in the past, dendrochronologists look at the width and density of rings, at variations between early and late wood bands, and also at the chemical composition of rings. Leland explained how the ratio of heavy to light stable carbon isotopes can serve as a particularly good indicator of how efficiently a tree is using water: "When a tree opens its pores to take in carbon dioxide, it also loses water through those same pores." In a dry year, some trees are more likely to have more of those pores, known as stomata, closed. This means that it ends up using more of the heavier carbon, which is not what it prefers to use in photosynthesis; in a wetter year, more of the lighter carbon would be available for the tree to use. Thus, a higher ratio of heavy carbon in a band means that it likely was a drier season. "It's a similar story with oxygen—there's a special signature," Leland explained, which can carry information about source water, temperature, or how humid the region is. "The tree is recording everything about its environment."

One tree, in isolation, can't speak too authoritatively. But studying many trees together can tell a reliable story about the past. "Trees are great proxies for climate, and they offer information on individual years which other proxies can't always provide," Leland said. She showed me a storage room that she called the library, which smelled intensely of forest. It had boxes crowded with wood samples, with labels such as "Winch Pond White Pine," "Son of Look Rock Tenn. White Oak," and "Bidoup National Park Fokenia hodginsii."

"Each tree is like a singer in a chorus," Leland said. She sees it as her job to listen for the forest's song. "There are high notes and low notes. Big rings and small rings. Any individual singer might be off pitch, but you look for that common melody." Leland then showed me the microscope station, where she says she is at her happiest. She says that when she's looking at a prepared wood sample under the lens she feels like "a historian studying an ancient text that's written in the 'language of trees'—a language that we can know a lot about but we can never fully learn."

The Tree Ring Lab's dendroarcheological work helped to assign a date and provenance to a sunken ship discovered in 2010 some twenty feet below street level during the excavation for the World Trade Center. "We always like to tell this story when schoolkids come to the lab," she said. The ship, made mostly of oak, was identified as having been built with timbers cut down a few years before the Revolutionary War.

Rao and Leland inherited their dendroarcheological projects from Ed Cook, who was one of the co-founders of the Tree Ring Lab, in 1975, and who still works there today. Cook trained at the University of Arizona, in Tucson, where Douglass did his foundational work.

Cook's earlier work focussed on building a climate history of the Eastern Seaboard, but he now has many projects across the globe: "I'm still working on a complete Northern Hemisphere drought atlas, and I like to

think I can get that done in a few months if I can keep from getting distracted." Cook is seventy-four and says that he'd like to keep working at least until 2025, when the Tree Ring Lab will celebrate its fiftieth anniversary. "But right now I'm distracted by reconstructions of drought over sub-Saharan Africa." No tree-ring series are available from West Africa, so Cook had to find other ways to extract local climate details. He explained that there are climate connections to tree growth in the Mediterranean area, and he's developing methods to use that distant data to map more areas. He added, "I'm also obsessed—scientists tend to be a bit on the O.C.D. side—with trying to finish up a benchmark of tropical sea temperatures that can be used to make a history of the El Niño–Southern Oscillation, since El Niño is the single most important force on climate." I asked him what methods he was using for that project, and he said that, although it can be done with data from coral and tree rings, he was using his own method, which, he said, with a small smile, was magic. He then mentioned a circum-Pacific network of tree-ring chronologies.

Cook grew up in Trenton, New Jersey. His father worked in nearby Fort Dix as a civil servant, and also played and taught trombone. "That I never played an instrument is one of the great regrets of my life, but I was out chasing butterflies and searching for fossils," he said. His hero is also by chance his namesake, James Cook—Captain Cook—who he feels was a true scientist, keeping precise records of everything and contributing advances to navigation. "It wasn't just plunder with him," he said. Cook—the contemporary one—did note that, once, when he was staying at a hotel in Hawaii, the concierge told him that he knew about his relative, and that he wasn't very popular in the state. It has been said that Captain Cook took wood from a Hawaiian burial ground; the locals then took his cutter; Cook tried to kidnap the tribal chief, so that he could offer him in exchange for the cutter. In the end, Cook was clubbed and stabbed to death. "I looked," Cook told me of Cook, "but as far as I know he didn't have any children who survived, so he has no known descendants."

THE ROAD ALMOST TAKEN: AN ANCIENT CITY IN GERMANY TELL A DIFFERENT STORY OF THE ROMAN CONQUEST

By Andrew Curry, Archaeological Institute of America
March/April 2017
From Archaeology Magazine at https://www.archaeology.org/issues/249-1703/features/5298-germany-roman-town-waldgirmes

(© Courtesy Gabriele Rasbach, DAI)A gilded bronze horse head formed part of a life-size statue of a mounted emperor that once overlooked the forum at the center of Waldgirmes, a Roman settlement near Frankfurt.

The oft-told tale of the Roman Empire's expansion is one of violent conquest—its ever-widening borders pushed forward at sword point by Roman legions. Some of the bloodiest military engagements pitted Rome against the inhabitants of Germania, who are described by contemporary sources of the time as a loose confederation of uncivilized, quarrelsome, warlike, ferocious tribes to the north. The conventional wisdom goes that after a decades-long attempt to conquer the region east of the Rhine River finally failed in A.D. 9, Rome gave up on the Germans entirely. But what if there's more to it than that?

In the 1980s, the chance discovery of sherds of Roman-style pottery on a farm in the Lahn Valley near Frankfurt led archaeologists and historians at the German Archaeological Institute's Romano-Germanic Commission to begin excavations. What they uncovered was a Roman site they call Waldgirmes, after a nearby modern town. The ancient name is unknown. When German Archaeological Institute archaeologist Gabriele Rasbach started working at the site in 1993, she and her colleagues assumed they had found a military installation. Ground-penetrating radar surveys revealed carefully planned streets, the foundations of wooden buildings, and postholes that are evidence of 10-foot-tall timber walls. "It was clearly just like a Roman military camp," says archaeologist Siegmar von Schnurbein, who was the director of the commission during the Waldgirmes excavation.

Although the discoveries were exciting, they were not necessarily surprising. The Roman army, fresh from its conquest of Gaul and bent on further dominion, had been active all across Germany, and the distinctive straight lines of Roman military camps are familiar to German archaeologists. “The military interpretation here is so strong that at first we didn’t think it could be anything else,” Rasbach says. As the Waldgirmes excavations progressed, though, archaeologists began to question their initial assumptions. “We found buildings that had nothing to do with the military,” says von Schnurbein, “and we still haven’t found anything resembling a barracks.” The excavators began to realize that the site might be something else entirely. As they dug over the course of nearly 15 years, they uncovered specialty workshops for ceramics and smithing, and administrative buildings made of local stone and timber from the thick forests nearby. They found evidence of some Roman-style residences with open porticos in front, unlike the longhouse-style buildings preferred by the locals, as well as other hallmarks of a typical Roman town, including a central public space, or forum, and a large administrative building called a basilica. “There’s actually not a single military building inside the walls,” says Rasbach. What they had uncovered was a carefully planned civilian settlement.

Artifacts from the site further reinforced the identification of Waldgirmes as a town. Of the hundreds of objects archaeologists have excavated, just five are military in nature, including a few broken spear points and shield nails that could be associated with the army. When taken together, the artifacts and structures persuaded researchers that they were dealing with an entirely novel phenomenon: a new Roman city established from scratch in the middle of a potential province. From the forum to workshops, houses, and water and sewage systems—from which sections of lead pipe have been recovered—to its sturdy outer walls enclosing 20 acres, Waldgirmes had everything a provincial capital needed. “It’s the first time we can see how Rome founded a city,” says von Schnurbein. “You can’t see that anywhere else.”

Because the site was built predominantly of wood, archaeologists have been able to establish precise dates using dendrochronology, which uses tree rings as a time stamp. They determined that construction at Waldgirmes began around 4 B.C., not long after Roman troops reached the Elbe River, pushing the empire’s range deep into Germany. Waldgirmes’ architecture and the absence of a military presence suggest a relationship between Romans and Germans that runs against both the ancient and modern versions of the accepted story. “The fact that a city was founded in the Lahn Valley without a major military presence means there was a different political situation in the region,” von Schnurbein says—that is, different from what most historians have assumed. He concludes, “The Romans thought the Germans were loyal enough that they could build a civilian settlement here.”

The Romans’ motivation in establishing Waldgirmes, at least at first, may have been trade. Ample pottery fragments provide evidence of relationships with provinces of the Roman Empire. The majority of the pottery is turned on potter’s wheels in the Roman style, and was probably imported from Gaul or Roman settlements north of the Alps. But 18 percent of the broken pots were local German ware, suggesting that Waldgirmes’ residents also traded with their barbarian neighbors. Ordinarily, at Roman military sites in Germany, local pottery makes up a mere tenth of a percent of the total. In addition to ceramics, silver pins and glass beads uncovered at the site might have been sold by Roman merchants who brought them from home. But von Schnurbein believes relations might have encompassed more than trade. “There’s plenty of evidence Germans might have lived in Waldgirmes,” he says, citing typical German jewelry found there and variations in house foundation styles at the site, reflecting both Roman and German styles. “It’s not just trade goods and ceramics, but signs the locals were at home there, or lived right nearby and had intensive contact.”

According to Rasbach, the most intriguing finds were fragments of bronze that turned up as excavators dug deeper into the field. The first, just half an inch long, was discovered in 1994. Over the years, dozens more followed—some tiny and some big enough to be recognizable as belonging to a large sculpture. “At first, we thought it was bronze recycled from somewhere else,” Rasbach says, “but we kept finding parts of a statue—a fragment of a human foot, and then a section of horse armor.” Eventually they had more than 160 pieces of metal, weighing 48.5 pounds in all. Most were tiny splinters, but the largest was the size of a small paperback book. As the team excavated the settlement’s forum, where the majority of the bronze was recovered, the truth

behind the fragments began to become clearer. In the middle of this public square, they found the shattered remnants of five limestone pediments in corresponding nine-by-six-foot pits. The pediments' dimensions made them large enough to showcase life-size statues of mounted riders, and the stone had been prepared with the holes and sockets Romans sculptors usually used to mount such statuary. The pediments were a logistical accomplishment in and of themselves. "The limestone was from France, brought to Wald-girmes by river," Rasbach says. Rasbach and her team thought the chances of recovering one of the statues intact were extremely slim. In the ancient world, metal was an especially valuable commodity. A large bronze statue would most likely have been smashed and recycled into weapons or armor.

In 2009, the team decided to excavate a well that had been discovered in the center of the settlement. It was to be the project's last major phase. The well's shaft was an estimated 20 feet deep, and, in order to prevent it from collapsing as they dug, they came at the structure from the side by creating a downward-slanting pit. When they reached what they thought was the bottom, it turned out the well was significantly deeper than they had envisaged. Working far into autumn, the team kept digging until, finally, nearly 33 feet below the surface, they found a 265-gallon, 63-by-39-inch wooden wine cask, placed there two millennia ago to hold the bottom of the well open. The barrel's wooden slats had been preserved by the cold, wet, anaerobic conditions below the surface. The cask was packed like a junk shop, its contents a reflection of the settlement's last days. At the top was a bronze shoe, apparently a fragment of one of the mounted statues. Fence posts, a shovel, an ox yoke, a well cover, wooden buckets, tool handles, and sticks had also been tossed into the well, along with eight heavy millstones. They, like the limestone pediments, had been imported from hundreds of miles away, this time from near modern-day Aachen to the northwest. "The millstones were virtually unused," says Rasbach, evidence of the settlement's short lifespan. Rasbach and her team were astounded to find a life-size bronze horse's head wedged underneath the millstones. As excavators worked, the copper salts in the bronze reacted with air for the first time in nearly 2,000 years and briefly turned the metal purple. The head was barely dented, despite the millstones that had sat on top of it. "The well must have had water in it that let the millstones float down gently," Rasbach says. The head had probably been part of a life-size sculpture of a mounted emperor that stood as the centerpiece of the settlement's forum on top of one of the five limestone pedestals.

Based on the horse head's weight, archaeologists estimate the complete statue weighed nearly 900 pounds. Subsequent restoration work revealed that it was entirely covered in gold leaf, which must have made a tremendous impression on anyone who saw it. According to von Schnurbein, the presence of such imposing statues is another clue to the settlement's intended role as a provincial capital. To the Romans, images, particularly imperial ones, were more than symbols. "A picture or image of the emperor meant something very different than it would today. It meant he was actually there, actually present," says von Schnurbein. "It shows Rome was willing to go all out to demonstrate that Rome rules here. Augustus, who was emperor at the time, rules here." The situation in Waldgirmes must have seemed quite stable, says archaeologist Salvatore Ortisi of the University of Osnabrück. "You can see the area was on its way to becoming a regular Roman province," he says. "The Romans must have felt in control of the area to build something like this settlement." Cooperation and diplomacy must have seemed the right road to take.

Whatever sense of security and first steps toward peaceful relations with the German tribes the Romans may have felt they achieved when they settled Waldgirmes, that state of affairs was short-lived, their sense of control badly misplaced. Evidence suggests that something significant happened at Waldgirmes in the fall or winter of A.D. 9, a date that coincides with a German battle fought 155 miles to the north. Now known as the Battle of the Teutoburg Forest, the clash was the Roman Empire's most humiliating defeat. In response to raids by rebellious German tribes, the ambitious and arrogant Roman general Quintilius Varus, fresh from crushing a rebellion in Judea, led three legions north to the forests of Germany. An ambush by well-organized German warriors resulted in the total annihilation of Varus' forces in a swamp near the modern city of Osnabrück. The 15,000-strong army's shocking defeat at the hands of barbarians threw the empire into a crisis of confidence. It also seems to have marked the beginning of the end for Waldgirmes. Tree-ring analysis of a ladder found tossed

in the well, for example, shows that it was made in the fall or winter of A.D. 9. Says Rasbach, “That we can discuss, almost to the month, when all this happened is amazing.”

Rasbach thinks the settlement’s final days might have gone something like this: After word of the Teutoburg slaughter reached Waldgirmes, the hundreds of Romans there, who were mostly craftsmen, traders, and administrators, rather than armed legionaries, realized Germany was no longer friendly territory. What happened next is murky and a number of interpretations are possible. One thing, however, is quite clear—the forum’s magnificent statues were pulled from their pedestals and violently dismantled, the emperor’s image smashed, and the horse’s head tossed into the well. Rasbach and her collaborators think, because bits of bronze statue were found underneath later construction, that the destruction of the statues might have been a dramatic effort to placate Wald-girmes’ German neighbors and allow the settlement to survive deep in suddenly hostile territory. Von Schnurbein, on the other hand, thinks that the horse head may have been spared because of its symbolic importance to the locals. “In Germanic areas, there’s evidence for horse sacrifices, especially in bogs,” he says. “The destruction was a major symbolic act—30 pounds of valuable bronze was tossed in the water, and then covered with millstones.” The golden horse, in other words, may have stood in for a real horse in a ritual water sacrifice.

The Teutoburg slaughter sealed the settlement’s fate. Archaeologists have found no coins dated after A.D. 9, and within a few years after the battle, Waldgirmes’ Roman residents seem to have packed up and left, abandoning the city, its forum, and its shattered statues. “There are no mass graves or signs of fighting in the streets,” says Ortisi. “From what we can tell, the evacuation was planned.” Ultimately, Waldgirmes was put to the torch. Rasbach thinks the departing Romans incinerated the settlement in order to leave nothing behind for vengeful German tribesmen. “In the final fire, everything was wiped out, ground down to the earth,” Rasbach says. “You can see burning along the entire wall.”

The German victory over Varus ended Roman expansion east of the Rhine for good. After the battle, the Romans abandoned the region, pulling troops back to the Rhine and Danube Rivers. The Battle of the Teutoburg Forest and its aftermath are amply documented. Even the reaction of the emperor Augustus, said to have cried “Varus, give me back my legions!” when he received news of the defeat, is recorded in the ancient Roman historian Suetonius’ Lives of the Caesars. Yet there are no direct mentions of Waldgirmes in Roman histories. Perhaps the failure to make Germania a new province was such a political embarrassment that all mention of the settlement was wiped from the history books. Or maybe written records of the outpost were lost, leaving historians a far more martial impression of Rome’s attitude toward its barbarian neighbors to the north.

Von Schnurbein, however, says careful readers of the classics might see a hint of Waldgirmes’ existence in the works of Cassius Dio, a Greek chronicler who wrote around A.D. 200: “The Romans were holding portions of [Germania]...and soldiers of theirs were wintering there and cities were being founded. The barbarians were adapting themselves to Roman ways, were becoming accustomed to hold markets, and were meeting in peaceful assemblages.” As German archaeologists excavated military camp after military camp in the twentieth century, Cassius Dio’s version of events—particularly the idea that cities were being founded—was dismissed as wishful thinking or anti-Varus propaganda designed to place all the blame for the loss of a once-promising province at the general’s feet. “Everyone assumed Cassius Dio was exaggerating,” von Schnurbein says, “but Waldgirmes shows that, despite what the historical sources say, the Romans were building cities in Germania.”

EPIC PROPORTIONS

By Marley Brown, Archaeology Magazine
May/June 2019
From Archaeology Magazine at https://www.archaeology.org/issues/339-1905/trenches/7567-trenches-england-folkton-drums-stonehenge-measurement?unique_ID=636930396211495352

(© Trustees of the British Museum) Folkton Drums

More than a decade ago, archaeologists Andrew Chamberlain of the University of Manchester and Mike Parker Pearson of University College London began taking measurements at Stonehenge as part of their research at the site. They determined that the Neolithic monument's earthwork elements—including a ditch, a bank, and a ring of chalk pits—which form concentric circles around the iconic standing stones, all feature diameters evenly divisible by a single standard measurement, that is to say, with no fractions remaining. They termed this measurement the "long foot," because it is equal to 1.056 modern feet. Chamberlain and Parker Pearson found that the distances between some of Stonehenge's megaliths could also be expressed as whole numbers of long feet. This led them to question how Stonehenge's builders had made the calculations necessary to build such a complex monument intended, at least in part, to track the movements of the sun and moon, and to ask what, exactly, were the builders using to take those measurements. Although they didn't know it at the time, the answer appears to lie in a group of puzzling Neolithic objects.

The four artifacts are known as the Folkton Drums and the Lavant Drum: three intricately carved chalk cylinders found in a child's grave in Folkton, East Yorkshire, in 1889, and one unearthed in a pit in Lavant, West Sussex, in 1993. For more than a century, the Folkton Drums have been regarded as some of the most celebrated examples of Neolithic art in Britain. Although scholars immediately recognized the Lavant Drum's similarity to the Folkton Drums, no one knew what any of the artifacts had been used for 4,500 years ago.

In 2016, archaeologist Anne Teather, also of the University of Manchester, was researching all four drums when she realized that the smallest of the Folkton Drums had a circumference that appeared to equal one long foot. When Teather, together with Chamberlain, considered the circumferences of the other three drums, they noticed a stunning mathematical relationship—the drums' dimensions appeared to advance in a regular progression. To test their theory, they wrapped a cord measuring 10 long feet around a wooden model of the smallest Folkton Drum and found that it wound around exactly 10 times. They then calculated that the same length of cord would wrap around the next largest drum—the Lavant Drum—exactly nine times. Around the remaining two Folkton Drums, the cord would wrap exactly eight and seven times. Thus, they suggested, the drums, which are themselves ancient replicas of objects that would originally have been fashioned of wood, could have been used to make a sort of Neolithic tape measure. Further, they established that at least one standard measure had been used in Neolithic Britain—and even at Stonehenge itself. "We absolutely didn't try to marry some of the most enigmatic artifacts in Britain to its most enigmatic monument," says Teather. "The evidence led us to that."

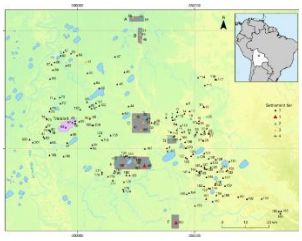
A standard measurement would have also been useful, says Chamberlain, because it is well known that many of Stonehenge's stones were quarried 100 miles away in what is now western Wales. It's possible that Stonehenge's builders or their emissaries communicated specifications to the quarries using this standard measurement. "Anyone who's done any construction will know that if you get a piece of lumber and it's too short, there's not a lot you can do about it," Chamberlain says. Instead of hauling stones to the construction site and trimming them on location, it now seems more likely that the megaliths were cut to order. "The drums show that it was possible to take that standard to the place where you're quarrying to make sure the stones you're getting are the right size," Chamberlain explains. "That standard could then be shared with the community."

LIDAR REVEALS PRE-HISPANIC URBANISM IN THE BOLIVIAN AMAZON

By Heiko Prumers, Carta James Betancourt, Jose Iriarte, Mark Robinson, and Martin Schaich

May 25, 2022

From Nature Magazine at https://www.nature.com/articles/s41586-022-04780-4



Archaeological remains of agrarian-based, low-density urbananism have been reported to exist beneath the tropical forests of Southeast Asia, Sri Lanka and Central America. However, beyond some large interconnected settlements in southern Amazonia, there has been no such evidence for pre-Hispanic Amazonia. Here we present lidar data of sites belonging to the Casarabe culture (around AD 500 to AD 1400) in the Llanos de Mojos savannah–forest mosaic, southwest Amazonia, revealing the presence of two remarkably large sites in a dense four-tiered settlement system. The Casarabe culture area, as far as known today, spans approximately 4,500 km^2, with one of the large settlement sites controlling an area of approximately 500 km^2. The civic-ceremonial architecture of these large settlement sites includes stepped platforms, on top of which lie U-shaped structures, rectangular platform mounds and conical pyramids (which are up to 22 m tall). The large settlement sites are surrounded by ranked concentric polygonal banks and represent central nodes that are connected to lower-ranked sites by straight, raised causeways that stretch over several kilometres. Massive water-management infrastructure, composed of canals and reservoirs, complete the settlement system in an anthropogenically modified landscape. Our results indicate that the Casarabe-culture settlement pattern represents a type of tropical low-density urbanism that has not previously been described in Amazonia.

During the Late Holocene epoch, pre-Hispanic agriculturalists in the Llanos de Mojos, Bolivia, transformed the most-extensive, seasonally flooded, Amazonian savannahs (120,000 km^2—roughly the size of England) into productive agricultural and aquacultural landscapes with an apparent diversity in sociopolitical organization, water-control systems and economic bases. The southeast sector of the Llanos de Mojos (our study region) benefits from soils that have advantageous agricultural properties because of the deposition of a mid-Holocene sedimentary lobe that creates a slightly more elevated topography than the surrounding Llanos de Mojos, which in turn, provides base-rich, Andean-derived, well-drained soils. The Casarabe culture developed here between around AD 500 and AD 1400, spreading over an area of 4,500 km^2. Previous remote-sensing and field-reconnaissance analyses have revealed the presence of 189 large monumental sites (locally known as ‘lomas’), 273 smaller sites and 957 km of canals and causeways. Excavations and bioarchaeology indicate that monumental sites were not unoccupied ceremonial centres but inhabited throughout the year by agriculturalists who cultivated a diversity of crops, with maize (Zea mays) as the primary staple, and who met their protein needs by hunting and fishing.

Despite these important advances in the archaeology of the Casarabe culture, until now, we knew the extent and details of mounded architecture only from less than a handful of isolated sites because of the logistical difficulties of mapping sites in tropical forested settings. As a result, our understanding of the civic-ceremonial architecture of the major sites and the regional organization of the Casarabe-culture settlements has remained poorly understood. To remedy this situation, we conducted airborne laser mapping for six areas (10–85 km^2) that have known concentrations of major settlements, totalling 204 km^2. Lidar (light detection and ranging) documented in detail the two large settlement sites and 24 smaller sites, of which only 15 were previously known to exist. The new data allowed us to define a four-tiered hierarchy classification of sites on the basis of (1) the dimensions of human-made base platforms; (2) the elaboration of the civic-ceremonial architecture on top of them; (3) the presence, number and total area enclosed by the outermost polygonal enclosures; (4) the number of constructed, straight causeways leading to the site; and (5) the scale of investment in water-management infrastructure, including systems of canals and water reservoirs.

This is a very interesting article; however, it is 17 pages long with maps, tables, notes and photos. If you are interested in further reading about this discovery and the little known Casarabe culture, please go to the website above.

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The Southwest Florida Archaeological Society

http://swflarchaeology.org/

The Southwest Florida Archaeological Society (SWFAS) was founded in 1980 as a not-for profit corporation to provide a meeting place for people interested in the area's past.

Our goals are to:

- Learn more of the area's history
- Create a place for sharing of this information
- Advocate for preservation of cultural resources

Its members include professional and amateur archaeologists and interested members of the general public. Members come from all walks of life and age groups. They share a lively curiosity, a respect for the people who preceded them here, and a feeling of responsibility for the conservation of the places and objects they left behind.

The Society holds monthly meetings between October and April, attracting speakers who are in the forefront of archaeological and historical research. Occasionally members join in trips to historical and archaeological sites.

A monthly newsletter, Facebook page, and website keep members abreast of our events and happenings.

The organization is a chapter of the Florida Anthropological Society, a statewide organization that publishes quarterly newsletters and a journal, *The Florida Anthropologist,* and holds an annual conference.

I want to help The Southwest Florida Archaeology Society preserve and interpret Florida's heritage!

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