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www.marylandarcheology.org

Some unseen villains in climate change

By Susan Langley

State Underwater Archeologist

Any discussion of the ways in which climate change is affecting cultural heritage resources will invariably include sea level rise, the damage caused by storms increasing in frequency and intensity, coastal erosion resulting from all of these, as well as ocean acidification.

However, there are also more insidious effects transpiring. Two of these are the proliferation of *Vibrio vulnificus* and *Teredo navalis*; both biological impacts.

The latter is also known as shipworm. It is a mollusk which, in its larval, form, lives in and devours wood. Like any living organism it requires oxygen but it also prefers warm, salty, waters. Hence, any wooden shipwreck in the Mediterranean or tropical waters, that did not rapidly sink into the seabed to an anerobic depth was rapidly gobbled up by these voracious "worms."

The loci of most shipwrecks in these waters are often indicated only by nonperishable cargo, such as mounds of amphorae, or found beneath the cargo or by excavating the seabed.

Vessels were known to sink from having their bottoms chewed through and ships had to sail up freshwater rivers or be physically beached and the bottom of the hulls scraped, called careening. Other responses included adding a sacrificial layer of hull planking and/or diverse painted-on mixtures thought to be distasteful to these creatures. The ultimate response was the sheathing of hulls with lead, copper or other alloys.

Freshwater, cold water and bodies of water with lower salinity are inhospitable environments for shipworm and so, concomitantly, exposed shipwrecks tend to be much better preserved. A prime example is the Baltic Sea which, at most, is 0.9% saline compared with 3.5% for the Atlantic Ocean and tends to be colder resulting in finds of spectacularly preserved shipwrecks.

However, the situation is changing. With a general rise in global temperatures, shallow bodies of water are warming up and *Teredo* are expanding their range. In 2016, a log full of living larvae was recovered in the Arctic off the coast of Norway, indicating they also are becoming more cold water tolerant (*Kintisch, E. 2016. "Arctic Shipworm Discovery Alarms Archaeologists." Science 351(6276):901. Smithsonian Marine Station at Fort Pierce: https://naturalhistory2.si.edu/smsfp/irlspec/Teredo_navalis.htm*) Their appearance in the Baltic demonstrates they are starting to be tolerant of more brackish and less saline waters.

While *Teredo* were found in the Chesapeake as early as 1878, in very low numbers, their presence is

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Have you registered for 2021 yet? See website

Upcoming events

March 6: ASM board meeting. Virtual. 9 a.m.

March 26: MAC conference. Online.

Volunteer opportunities (non-covid)

The following volunteer opportunities are open to CAT participants and other ASM members:

ASM Volunteer Lab, most Tuesdays: The lab in Crownsville. Contact Charlie Hall at charles.hall@maryland.gov or Louise Akerson at lakerson1@verizon.net It is currently working on cataloging artifacts form the Levering Coffee House Site, Baltimore (a mostly late 18th/early 19th Century site).

The Smithsonian Environmental Research Center seeks participants in its Citizen-Scientist Program in archeology and other environmental research programs in Edgewater. Field and lab work are conducted Wednesdays and on occasional Saturdays. Contact Jim Gibb at jamesggibb@verizon.net

Montgomery County for lab and field work volunteers, contact Heather Bouslag at 301 563 7530 or Heather.Bouslog@montgomeryparks.org

The Anne Arundel County Archaeology Program and the Lost Towns Project welcome volunteers in both field and lab at numerous sites. For diggers, the Linniston site on Gibson Island Fridays from 8 to 3. The lab will be open some weekdays at the Anne Arundel collection facility at 7409 Baltimore-Annapolis Blvd. in Glen Burnie. For more information email Drew Webster at volunteers@losttownsproject.org or call 410 222 1318.

Mount Calvert. Lab work and field work. 301 627 1286.

Jefferson Patterson Park invites volunteers to take part in its activities, including archeology, historical research and conservation. Contact 410 586 8554.

The Archaeological Institute of America provides an online listing of fieldwork opportunities worldwide. Call up www.archaeological.org/fieldwork to get started.

UPAG/Howard County Recs and Parks invites volunteers interested in processing collections and conducting historical research to contact Kelly Palich at Kpalich@howardcountymd.gov or 410-313-0423.

CAT corner: For information on the CAT program, contact chair Kelly Palich at Kpalich@howardcountymd.gov or 410-313-0423.

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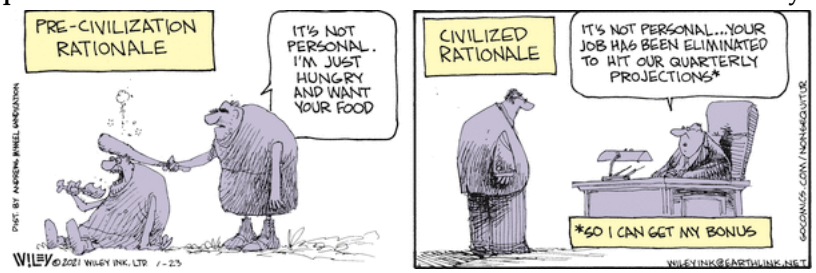

Dogs came across with first Americans

Condensed from Heritage Daily, January 25, 2021

An international team of researchers led by archeologist Angela Perri, of Durham University, UK, looked at the archeological and genetic records of ancient people and dogs.

They found that the first people to cross into the Americas before 15,000 years ago, who were of northeast Asian descent, were accompanied by their dogs.

The researchers say this discovery suggests that dog domestication likely took place in Siberia before 23,000 years ago. People and their dogs then eventually travelled both west into the rest of Eurasia, and east into the Americas. The findings are published in the journal *Proceedings of the National Academy of Sciences* of the United States of America (*PNAS*).

The Americas were one of the last regions in the world to be settled by people. By this same time, dogs had been domesticated from their wolf ancestors and were likely playing a variety of roles within human societies.

Research lead author Angela Perri, in the Department of Archaeology at Durham University, said: "When and where have long been questions in dog domestication research, but here we also explored the how and why, which have often been overlooked.

"Dog domestication occurring in Siberia answers many of the questions we've always had about the origins of the human-dog relationship. By putting together the puzzle pieces of archaeology, genetics and time we see a much clearer picture where dogs are being domesticated in Siberia, then disperse from there into the Americas and around the world."

Geneticist and co-author Laurent Frantz (Ludwig Maximilian University of Munich) said: "The only thing we knew for sure is that dog domestication did not take place in the Americas.

"From the genetic signatures of ancient dogs, we now know that they must have been present somewhere in Siberia before people migrated to the Americas."

Co-author Professor Greger Larson, Oxford University, said: "Researchers have previously suggested that dogs were domesticated across Eurasia from Europe to China, and many places in between.

"The combined evidence from ancient humans and dogs is helping to refine our understanding of the deep history of dogs, and now points toward Siberia and Northeast Asia as a likely region where dog domestication was initiated."

During the Last Glacial Maximum (from ~23,000-19,000 years ago) Beringia (the land and maritime area between Canada and Russia), and most of Siberia, was extremely cold, dry, and largely unglaciated.

The harsh climatic conditions leading up to, and during this period may have served to bring human and wolf populations into close proximity given their attraction to the same prey.

This increasing interaction, through mutual scavenging of kills from wolves drawn to human campsites, may have began a relationship between the species that eventually led to dog domestication, and a vital role in the populating of the Americas.

As co-author and archeologist David Meltzer of Southern Methodist University (Dallas, TX) notes, "We have long known that the first Americans must have possessed well-honed hunting skills, the geological know-how to find stone and other necessary materials and been ready for new challenges.

"The dogs that accompanied them as they entered this completely new world may have been as much a part of their cultural repertoire as the stone tools they carried."

Since their domestication from wolves, dogs have played a wide variety of roles in human societies, many of which are tied to the history of cultures worldwide.

Future archeological and genetic research will reveal how the emerging mutual relationship between people and dogs led to their successful dispersal across the globe.

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You read about it, now you can see it

In November the Ink ran an excerpt from John Preston's 2007 novel, "The Dig," about the 1939 discovery of a hoard of Anglo-Savon treasure at Sutton Hoo in England. Serendipitously, a movie based on the book is about to be released on Netflix. It stars Ralph Fiennes and Carey Mulligan and has gotten good reviews.

Some unseen villains in climate change

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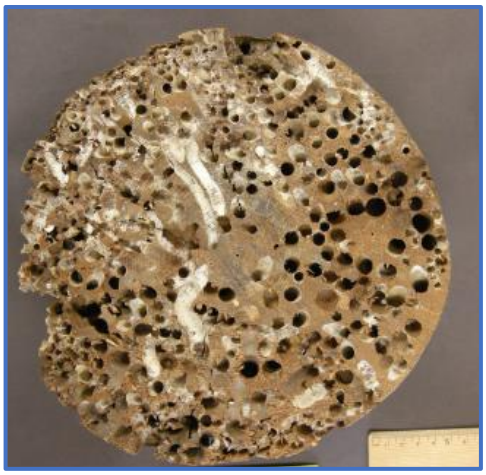
increasing as are other related mollusks like *Bankia gouldi* and the genus *Lyrodus* (Smithsonian). The threat to Maryland's historic wooden shipwrecks and any other submerged wooden artifacts is palpable.



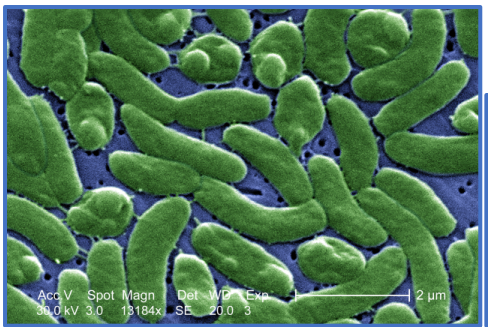
Left: Wood from an archeological shipwreck (https://whatsinaname.hmnh.harvard.edu/shipworm)Shipworm
Right: larvae in wood (https://alchetron.com/Shipworms)

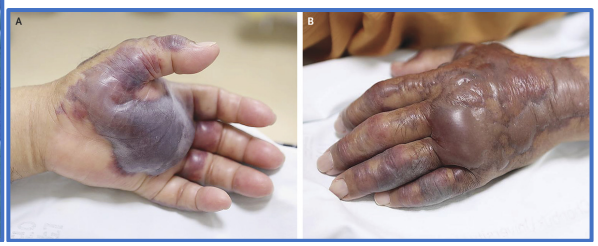
The other effect of rising temperatures in the Chesapeake region is longer, hotter summers that also result in heating the relatively shallow waters of the Bay. This is causing the proliferation of the bacteria, *Vibrio vulnificus*.

The latter is present in marine environments, including estuaries, brackish ponds and coastal areas. First identified in 1976, the rod-shape, curved bacilli are related to the causative agent of cholera and infection results in rapidly expanding sepsis. It is known as a fast-moving, flesh-eating bacteria that frequently results in amputation or death.

It flourishes in the bottom sediments so infections can be acquired by cuts when excavating in oyster shells even through gloves, or, in the case of a Potomac River fisherman, by receiving a puncture in a hand vein from the barbule of a catfish, a bottom feeder. Rapidly seeking treatment is critical.

It can also be acquired through the ingestion of raw or poorly cooked shellfish or seafood. In a healthy person, ingestion will result in unpleasant gastroenteritis, but in a health-compromised individual (particularly, but not limited to, liver disease) it is much more serious and potentially fatal.





Left: Bacilli of Vibrio vulnificus (https://en.wikipedia.org/wiki/Vibrio_vulnificus)
Right: *(https://healthjade.net/wp-content/uploads/2018/10/Vibrio-vulnificus.jpg)*

The result of the potential presence of this dangerous bacterium is that the Maryland Maritime Archaeology Program carefully assesses the environmental and temperatures when planning field work. If conditions are ripe for the presence of *Vibrio*, research will be limited to remote sensing surveys and diving will be undertaken only in the cooler months of the spring or fall.

If work is proposed for colder, fresher water, such as up rivers or at the head of the Bay, diving may be possible, but the conditions are carefully evaluated if bottom disturbance is necessary. So, in this case, climate change is influencing when and how field research may be safely undertaken rather than the direct impact on historic cultural resources.

These two examples of biological threats driven by climate change highlight the importance of interdisciplinary studies. Such partnerships will be necessary to understand these and other effects better, while safely and effectively documenting Maryland's submerged cultural heritage.

1,700 cans of beer on the wall, 1,700 cans of beer

By Jessica Gingrich

Condensed from Gastro Obscura, January 6, 2021

David Maxwell's office at Simon Fraser University could easily be mistaken for a dorm room. Beer cans are lined up like trophies on top of the bookcase and prop up archeology textbooks. Maxwell is not just an avid collector of breweriana; he's also the world's foremost—and probably only—archeological scholar of beer cans.

For most people, archeology conjures images of timeworn tombs and temples. But archeologists have long relied on garbage, whether sherds of pottery or empty beer cans, for insight. Trash is a testament of daily life. Regardless of its age, it represents a wealth of information about the society that produced it.

"You could argue that trash is one of the things that make us human," said Rebecca O'Sullivan, a public archeologist, said on her podcast. "There's truly nothing that archeologists love more than garbage."

When canned beer was first introduced in 1935, the ease of littering cans—in contrast to refillable glass bottles that customers returned for five-cent refunds—was a major selling point.

From his house in British Columbia, Maxwell calls this "a godsend for collectors and archeologists."

While canned beer sales exploded in the United States after World War II, the industry failed to take off in Canada until the 1980s. "When I was a kid, all the beer came in the same shape bottle," says Maxwell. It made the cans strewn along the Mount Baker highway seem all the more magical.

For much of the 1900s, littering was socially acceptable. Drivers and passengers tossed empty cans, gum wrappers, and half-eaten lunches out the window as they cruised down the highway. In 1969, a study conducted by the National Research Council found an average of 3,279 littered objects per mile across 29 states.

For Maxwell, this trash was a treasure trove. "The cans were weird and old and mysterious looking," he says. "They had punches to open them instead of pull rings and all I knew was that they predated me."

Over the decades, Maxwell amassed 4,500 cans, which he recently cut down to 1,700 due to a lack of storage space.

Officially, beer-can archeology is a passion project for Maxwell, who trained as a Mayanist, became an expert in animal bones and works as an instructor at Simon Fraser University. Maxwell recognized early in his career that beer cans contained chronological and cultural data that could yield valuable insights.

Few academics have the time or motivation to meticulously research all of the subtle stylistic variations that occur to one object over a period of time. In contrast, individual collectors and formal clubs have published a wealth of research on the dating and production of beer cans.

"Collectors are a fabulous resource for academics," he says. "These are the guys who do the grunt work."

In 1993, he published a field-identification guide in *Historical Archaeology*, which has since become an industry standard and his most-read work. Maxwell's paper traces the evolution of the beer can throughout the 20th Century, which helps archeologists date their sites and draw conclusions about human behavior by identifying features pegged to different time periods.

If the label is long gone, he looks at features like the size and shape of a can's punch hole. Over time, so-called "flat top" cans got lighter and thinner, and so did the churchkeys used to open them (until the invention of pull tabs in 1962).

In many places, any object on public land that is at least 50 years old is considered historic and therefore eligible for protection under the National Historic Preservation Act of 1966—as long as they meet certain criteria. This makes the ability to date beer cans a useful skill for archeologists.

Hungry? Here's what Pompeiians snacked on

By Elisabetta Povoledo

Condensed from the New York Times, December 26, 2020

ROME — Wine turned white with crushed fava beans. A soupy concoction of snails, sheep and fish. If these don't sound particularly appetizing today, they appear to have been all the rage in ancient Pompeii, as evidenced by ancient leftovers found during excavations this month at the archeological site of the former Roman city. They were found in a thermopolium — or snack bar — serving street food popular in 79 A.D.

Two years after it was first partly unearthed, archeologists began to excavate the interior of the shop this October. Last week, they found food and drink residue that is expected to provide fresh clues about the ancient population's culinary tastes.

The work offers "another insight into daily life at Pompeii" and represents the "first time an area of this type has been excavated in its entirety" and analyzed with modern technology, Massimo Osanna, the departing director of the Archaeological Park of Pompeii, said in a statement Saturday.

Human life in Pompeii came to an abrupt halt nearly 2,000 years ago, when Mount Vesuvius spilled tons of lapilli, ash and rock onto the city, preserving it in time.

Since excavations began in 1748, fragments of that ancient civilization have continued to emerge, providing clues on how residents may have lived, dressed and eaten. About 80 thermopolii have been found at Pompeii, where residents could choose their edibles from containers set into street-front counters.

The one excavated this month included a large dolium, or earthenware vessel, that had contained wine.

"It was full of lapilli, and removing them released a very intense aroma of wine," said Teresa Virtuoso, the archeologist overseeing the excavation. "It was so strong we could smell it through our masks." Although the archeological park has been closed for part of this year because of the pandemic, excavations have continued, with archeologists taking precautions.

In another dolium, they found the skeletal remains of a mouse, suggesting that the vessel might have contained grains of some kind, and that the mouse — like the residents of ancient Pompeii — fell victim to the eruption, Virtuoso said.

The contents of two other jars remain to be analyzed, but Chiara Corbino, the archeozoologist involved in the dig, said it appeared that they contained two kinds of dishes: a pork and fish combination found "in other contexts at Pompeii," and a concoction involving snails, fish and sheep, perhaps a soup or stew. Further analysis is expected to determine whether vegetables were part of the ancient recipe.

"We will analyze the contents to determine the ingredients and better understand what kind of dish it was," she said. For now, she thinks the thermopolium probably served a stew or soup that included "all these animals together."

The remains of at least two people were also found inside the shop. Archeologists believe that tomb robbers moved the bones in the 17th Century, because the skeletons found this month were not intact.

Culture Minister Dario Franceschini said on Saturday that the excavations at Pompeii continued to deliver "extraordinary discoveries." Last month, Italian officials presented another new find: the remains of two of the original city dwellers.

The documentary division of the national broadcaster Rai has followed the excavations at Pompeii over the past three years. Its documentary will be available to international audiences online.

Valeria Amoretti, the anthropologist who heads Pompeii's applied research laboratory, described the thermopolium as "a complex environment" that provides information that "had never been detected at Pompeii."

It also exemplifies the high quality of decoration in the ancient city. Painted panels on the front of a Z-shaped counter included a central image of a Nereid, the mythological sea nymph, riding a sea horse, along with frescoes of a rooster, ducks being prepared for cooking and a chained dog.

The frame of the collared dog includes an unusual piece of graffiti: an unprintable slur — or joke — against one of the employees or the owner of the shop.

Osanna, the site's director, said in an interview on Saturday that work on the thermopolium was expected to finish by March. He hoped to make the site available to visitors by Easter, he said, coronavirus permitting.

And what to their wondering eyes should appear

Condensed from The Onion, Thursday 10:10 a.m.

MENDOZA, ARGENTINA — Announcing that they had made an astounding once-in-a-lifetime discovery, a team of archeologists from Rutgers University Thursday reportedly uncovered a separate team of archeologists digging toward them from the other side of the globe.

"While our initial assumption was that we had stumbled on the previously unknown descendants of some ancient race of upside-down people, it turns out that this was a group of Canadian and Chinese archeologists who had dug through the center of the Earth from a site in Mongolia," said lead archeologist Denise Mendoza, adding that the newly discovered archeologists were like her own team in many respects and even used many of the same tools.

"At first, we thought we were looking in a mirror, but as we moved our hands back and forth with these subterranean natives, we realized that we were actually from two different sides of the planet. We have a lot to learn from this group and their ways of tunneling through the earth, so we've brought in teams of anthropologists to attempt to speak to them in their own tongue in order to glean information into their way of life. It appears that, much like us, they also use small brushes to clean dust and debris from artifacts.

"Ultimately, we're hopeful that this is discovery will offer crucial additions to our understanding of how they do archeological work elsewhere on the planet."

The archeological team added that it had had to tread carefully after one of the members of the team fell in love with one of the archeologists who had dug through from the other side of the globe.

Chapter News

Check with your local chapter to see what activities will take place.

Central Chapter

All Meetings will be held on Zoom the third Tuesday of the Month. For more information and to be added to the Zoom list contact: Katharine Fernstrom at kwfappraising@gmail.com

March 16: Katherine Sterner, of Towson University, on differences told by stone tools, agriculture, and community at late prehistoric sites in Southern Wisconsin.

Charles County

Meetings are held at 7 p.m. on the second Thursday (September–May). The next few will be virtual. Contact President Carol Cowherd at ccasm2010@gmail.com for Zoom access information. Website ccarchsoc.blogspot.com and Facebook @ccasm2010

Mid-Potomac

Until further notice, all Mid-Potomac Chapter Meetings will be by Zoom starting at 7 p.m., the talk at 7:30, the third Thursday of the month. Contact Don Housley at donhou704@earthlink.net or 301-424-8526. Chapter website: www.asmmidpotomac.org Email: asmmidpotomac@gmail.com

February 18: Matt Reeves, director of archeology at Montpelier, will speak on the new findings at the Planters cottage/kitchen site.

March 18: Don Barron, docent at the county's MOOseum, will speak on the history of dairy farming in Montgomery County and the history of the museum.

April 15: Ralph Buglass, chapter member, will speak on the book he wrote in conjunction with Peerless Rockville, *Rockville, Images of America.*

May 20: Lew Toulmin, chapter member, will speak on the recent and upcoming excavations at the medieval Lindisfarne island site off the northeast coast of England.

Monocacy

The chapter meets in the C. Burr Artz Library in Frederick the second Wednesday of the month at 7 p.m. For more information, visit the chapter's web page at digfrederick.com or call 301-378-0212.

Northern Chesapeake

A business meeting at 7 is followed by the presentation at 7:30. Contact Dan Coates at 410- 273-9619 or dancoates@comcast.net Website: http://sites.google.com/site/northernchesapeake

St. Mary's County

Meetings are the third Monday of the month at 6:30 p.m. at the Joseph D. Carter State Office Building in the Russell Conference Room, Leonardtown. For information contact Chris Coogan at Clcoogan@smcm.edu

Upper Patuxent

Meetings the second Saturday or Sunday of the month, virtual or at the Heritage Program Office, 9944 Route 108, Ellicott City, unless otherwise noted. www.facebook.com/pages/Upper-Patuxent-Archaeology-Group/464236446964358 or www.upperpatuxentarchaeology.com or call Kelly Palich, 410 313 0423.

Western Maryland

Programs are the fourth Friday of the month, at 7:30 p.m. in the LaVale Library, unless noted. Contact Roy Brown, 301-724-7769. Email: wmdasm@yahoo.com Website: http://sites.google.com/site/wmdasm

The Archeological Society of Maryland Inc. is a statewide nonprofit organization devoted to the study and conservation of Maryland archeology.

ASM members receive the monthly newsletter, ASM Ink, the biannual journal, MARYLAND ARCHEOLOGY, reduced admission to ASM events and a 10-perceent discount on items sold by the Society. Contact Membership Secretary Ethan Bean, 765-716-5282 or beans32@comcast.net for membership rates. For publication sales, not including newsletter or journal, contact Dan Coates at ASM publications, 716 Country Club Rd., Havre de Grace MD 20178-2104 or 410-273-9619 or dancoates@comcast.net

Submissions: Please send to Myron Beckenstein, 3126 Gracefield Rd., Apt 106, Silver Spring, MD. 20905 or 240-867-3662 or myronbeck@verizon.net