

# U3A JOINT ARCHAEOLOGICAL GROUP

## ANTI-CORONAVIRUS EDITION - 5

01/08/20

*In this edition I have copied all archaeological reports in full, including any pictures, to give you a 'good read' and, of course deleted all references to meetings, walks and talks. I have checked the various websites and, in accordance with government advice, all have cancelled all events for the foreseeable future. I have indicated the link to each of the original articles but as I have copied the entire item, there's hardly any need to go further.*

### LOCAL NEWS (With thanks to CBA Wessex):

#### BBC:

**Stonehenge tunnel decision delayed by archaeological find.** Transport Secretary Grant Shapps has pushed back the announcement to November to allow for "further consultation". The proposed tunnel would remove the sight and sound of traffic from the frequently congested A303 route, Highways England has said. Campaigners have argued the scheme would damage the World Heritage site.

Salisbury MP John Glen said the announcement would be "unwelcome news" to local residents, particularly those in Shrewton, which is close to the landmark. He added: "I'm still optimistic that we will get to the final green light in November. I regret the delay, but we've got to do these things properly."

The Planning Inspectorate handed its recommendations to Mr Shapps in January, and he was due to make his decision on Friday. Last month it emerged that a team of archaeologists had discovered a ring of at least 20 large shafts a short distance from Stonehenge. It is thought they form the largest prehistoric monument ever discovered in Britain, and experts believe they may have served as a boundary to a sacred area.

Announcing the delay, Transport Minister Andrew Stephenson said the decision to add the four-month extension was "without prejudice to the decision on whether to give development consent."

Earlier this year the two-mile (3.2km) tunnel was [given the green light by chancellor Rishi Sunak](#). Officially known as the A303 Amesbury to Berwick Down Improvement, the plan includes a flyover at Countess Roundabout in Amesbury, alongside the Blick Mead settlement, and a bypass for Winterbourne Stoke. More than 54,000 people have signed a petition started by the Stonehenge Alliance, which opposes the plans. It said if the tunnel had to go ahead it should be a deep-bored tunnel of at least 2.8 miles (4.5km) long.

"Anything shorter would cause irreparable damage to this landscape, in breach of the World Heritage Convention," the group said. Derek Parody, Highways England project director for the A303 Stonehenge scheme, said: "We are confident that the proposed scheme presents the best solution for tackling the longstanding bottleneck on this section of the A303, returning the Stonehenge landscape to something like its original setting and helping to boost the south-west economy." [LINK](#)

#### BBC:

**Cerne Abbas Giant: Snails show chalk hill figure 'not prehistoric'.** Snails have shown an ancient naked figure sculpted into a chalk hillside is unlikely to be prehistoric as hoped, archaeologists have said. The National Trust project, in which soil was taken from the giant's elbows and feet, was carried out to celebrate its 100-year ownership of the site.

Martin Papworth, senior archaeologist at the National Trust, and environmental archaeologist Mike Allen said two species of snail that appeared for the first time in Britain in the Roman period - thought to have been brought over from France as food - were not found at the site. However, microscopic species, found for the first time in the medieval period during the 13th and 14th Centuries, have been discovered in the samples.



"They arrived here accidentally, probably in straw and hay used as packing for goods from the continent," Mr Allen said. "Sadly, this shows the giant is unlikely to be prehistoric or Roman, and more likely dates to medieval times or later."

The earliest recorded mention of the Cerne Abbas Giant, which was gifted to the National Trust in 1920 by the Pitt-Rivers family, was in 1694. Local folklore has long held the 180ft (55m) chalk man to be a fertility aid.

Early antiquarians linked the giant with the Anglo-Saxon deity Helis, others have said he is the classical hero Hercules, while some believe he was carved during the English Civil War as a parody of Oliver Cromwell.

A further layer of mystery was revealed in the 1980s when a survey showed anomalies that suggested he originally wore a cloak and stood over a disembodied head. There has also been a suggestion his significant anatomy is in fact the result of merging a smaller penis with a representation of his navel during a re-cut by the Victorians.

Tests of soil samples extracted from Dorset's Cerne Abbas Giant to determine its exact age have been delayed by the coronavirus epidemic. They are not due until later in the year. However, land snail shells found in the samples suggest it may date to medieval times, separate tests have found.

Mr Allen said snail shell testing had also shown the vegetation at the site had changed over time. "There was a period when the giant was grown over with grass and other vegetation, and disappeared," he said. "This suggests some people weren't bothered about the giant or felt he was too rude so left him. However, during the Victorian period - a time thought of as the most prim and proper - he was there in all his glory." He said it was hoped funding could be secured for further snail shell testing.

However, the soil tests, using a technique called optically stimulated luminescence (OSL), are due in the autumn. They would give a more accurate age of the giant as they would "determine when mineral grains in soil were last exposed to sunlight", Mr Papworth previously said. [LINK](#)

### **UK GOVERNMENT:**

**Ancient mosaic from Roman Dorset at risk of export.** Culture Minister Caroline Dinenage has placed a temporary export bar on a panel of mosaic from a Roman villa at Dewlish, Dorset. Thought to date to the 4th century AD, the mosaic is considered by many to be an exceptional piece and is at risk of being lost abroad unless a buyer can be found to match the £135,00 asking price.

The mosaic would have been part of an elaborate pavement in the reception room of a luxurious villa and includes a depiction of a leopard pouncing on the back of an antelope as blood drips from its wounded prey. Floor mosaics like this would have been chosen to reflect the values and beliefs of the villa's owner and can help modern viewers understand the aspirations and education of country landowners who held power in the final decades of the Roman Era.



Apart from one smaller piece in the Dorchester Country Museum, much of the mosaic floor at the Dewlish Roman villa has now been destroyed, so this fragment is of crucial importance to understanding the whole composition. This fragment has strong similarities to other fourth century mosaics found in the region surrounding Dorchester, ascribed to a Durnovarian School of mosaic workers. Although notable examples survived, including the Hinton St Mary mosaic in the British Museum, many of the mosaics assigned to the Durnovarian school have been reburied or destroyed.

Culture Minister Caroline Dinenage said: "This mosaic is a piece of history telling us about the lives of our Roman ancestors more than 2,000 years ago. It is an incredibly rare example of the Roman occupation of Britain and I hope that, even in these challenging times, a buyer can be found to keep this important and striking work in the UK."

The Minister's decision follows the advice of the Reviewing Committee on the Export of Works of Art and Objects of Cultural Interest (RCEWA). The committee noted that there were few mosaics from the Durnovarian school showing this quality and exceptional workmanship. It was also widely agreed that there was much to be learned about Romano-British mosaics from further research and study of the fragment. The RCEWA made its recommendation on the grounds of the mosaic's outstanding significance to the study of Romano-British art and history.

Committee member Leslie Webster said: "The mosaic's spirited depiction of a leopard bringing down an antelope is a brilliantly accomplished image of nature red in tooth and claw; the soaring leap of the deer, and the precise delineation of the leopard's muscular power and ferocious grace is a tour de force of the mosaicist's art. Such a resonant image, with its origins in the art and mythology of the classical world and beyond, has travelled a long way to Dorset, to feature in the villa of a wealthy Romano-British landowner; it must have been the latest thing in up-market house decoration. The grand mosaic from which this fragment came, dominating the principal public room of the villa, was clearly designed to

impress the spectator with the learning and cultural aspirations of its owner. Perhaps this exotic symbol of the hunt, popular elsewhere in the Empire but exceptional in Britain, and its implicit theme of domination, were also intended to suggest its owner's status and power. In the later years of the Roman era in Britain, the representational innovation and technical sophistication of this mosaic, and of others produced by the Dorchester school of mosaicists, give fascinating insight into the lives of local Roman magnates, in a period seen as one of change and decline; they open up many questions and opportunities for investigation. For us to lose it from Britain would be a great misfortune."

The decision on the export licence application for the mosaic will be deferred until 16 October 2020. This may be extended until 16 January 2021 if a serious intention to raise funds to purchase it is made at the recommended price of £135,000 plus VAT. [LINK](#)

## WIDER ARCHAEOLOGICAL NEWS:

### British Museum (JUN)

**Take a special tour of our 2013 blockbuster exhibition 'Life and death in Pompeii and Herculaneum'.** [Click here to go onto their website.](#)

### Heritage Daily: (AUG)

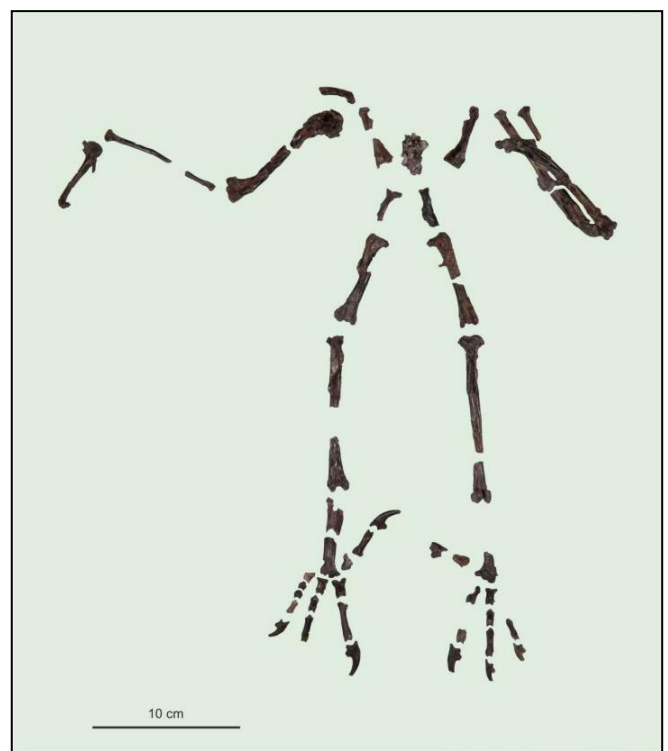
**50 Ancient Ruins Around the World.** This article (too big to print here, obviously) starts off: "*The world is littered with the ancient ruins of man-made cities and settlements that stretch back thousands of years. Represented are 50 ruins that embody some of the outstanding achievements of humanity across various cultures and civilisations.*" Certainly worth looking at. [Click this LINK](#)

### Taylor & Francis Group (AUG)

**Owl discovered that hunted like a hawk 55 million years ago.** Palaeontologists have described in the [Journal of Vertebrate Paleontology](#) a large owl that killed medium-sized mammals with its feet and claws some 55 million years ago. "Today, owls kill with their beak," says palaeontologist Thierry Smith (RBINS), who participated to the study of the well-preserved skeleton from Wyoming, USA. *Primoptynx poliotaurus* is a new species and a new genus. The skeleton excavated by American palaeontologists at Bighorn Basin in Wyoming thirty years ago, is one of the most complete fossilized owls of the Paleogene, the geological period after the extinction of the non-avian dinosaurs 66 million years ago. The fossil, of which all major postcranial bones have been preserved, is 54.5 to 55 million years old (early Eocene).

#### Different Toes

*Primoptynx poliotaurus* was about 50 centimetres in size - comparable to Hedwig, the snowy owl of Harry Potter - and belongs to a group of owls closely related to extinct family Protostrigidae. "Its feet are different from those of today's owls", says palaeontologist Thierry Smith of the Royal Belgian Institute of Natural Sciences (RBINS),



co-author of the study with Gerald Mayr of the Senckenberg Research Institute in Frankfurt and Philip Gingerich of the University of Michigan. "Owls today have four toes with claws of equal size to catch relatively small preys and kill them with the beak. *Primoptynx* has a longer first and second toe, as seen in hawks and other members of the family Accipitridae. Those more developed toes are used to pin down prey, which are punctured by the talons. So it was an owl that hunted like a hawk on medium-sized mammals."

This fossil shows - together with other finds - that during the early Eocene there were already many species of owls, of different sizes, which occupied different ecological niches. The success of the owls runs parallel to that of the mammals, which became very diverse after the fifth mass extinction, that wiped out the dinosaurs. The later extinction of *Primoptynx poliotaurus* and other proto-owls may have been due to the emergence of daytime birds of prey in the Late Eocene.

Discoveries from the early stages of owl evolution are exceedingly rare. An approximately 60-million-year-old leg bone is the oldest fossil that can be assigned to an owl. "Other owls from this time period are also only known on the basis of individual bones and fragments. Therefore, I was especially pleased when I received a largely complete owl skeleton from the North American Willwood Formation for study, which my colleague and the study's co-author, Philip Gingerich, had discovered 30 years ago," explains Dr. Gerald Mayr of the Senckenberg Research Institute and Natural History Museum in Frankfurt, Germany.

The newly described animal belongs to a previously unknown, very large species of fossil owl. Except for the skull, all major bones of the 55-million-year-old bird are preserved. "The fossil owl was about the size of a modern Snowy Owl. However, it is clearly distinguished from all extant species by the different size of its talons. While in present-day owls the talons on all toes are approximately the same size, the newly described species *Primoptynx poliotaurus* has noticeably enlarged talons on its hind toe and second toe," explains Mayr.

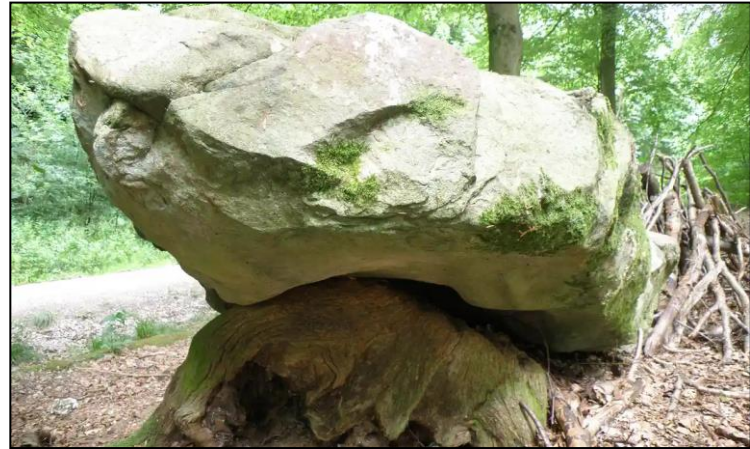
These toe proportions are known from modern diurnal raptors, e.g., eagles and goshawks. These birds, which are not closely related to owls, pierce their prey with their sharp talons. Mayr and his colleagues therefore assume that the extinct owl also used its feet to kill its prey. "By contrast, present-day owls use their beak to kill prey items--thus, it appears that the lifestyle of this extinct owl clearly differed from that of its modern relatives," adds the ornithologist from Frankfurt. Moreover, the new discovery reveals a high level of diversity among the owls of the early Eocene in North America--from the small species *Eotrix gulottai*, measuring a mere 12 centimetres, to the newly discovered, roughly 60-centimetre-tall bird.

"It is not clear why owls changed their hunting technique in the course of their evolution. However, we assume that it may be related to the spread of diurnal birds of prey in the late Eocene and early Oligocene, approximately 34 million years ago. Competition for prey with diurnal birds of prey may have triggered feeding specializations in owls, possibly also leading to these charismatic birds' nocturnal habits," says Mayr. [LINK](#)

### **American Association for the Advancement of Science (AUG)**

**Most of Stonehenge's large boulders share origin in west woods, Wiltshire.** Most of the hulking sandstone boulders - called sarsens - that make up the United Kingdom's famous Stonehenge monument appear to share a common origin 25 kilometres away in West Woods,

Wiltshire, according to an analysis of the stones' chemical composition. The findings support the theory that the stones were brought to Stonehenge at around the same time, contradicting a previous suggestion that one large sarsen, the Heel Stone, originated in the immediate vicinity of the monument and was erected earlier than the others. The results may also help scientists



identify the route the monument's ancient builders would have taken to transport the enormous rocks to their celebrated resting site. "Until recently we did not know it was possible to provenance a stone like sarsen," says David Nash, the lead author of the study. "It has been really exciting to use 21st century science to understand the Neolithic past and answer a question that archaeologists have been debating for centuries." Since technology for determining the origins of the enormous sarsens, which tower at up to 30 feet tall, weigh as much as 25 tons, and make up most of Stonehenge, did not exist until recently, most research has revolved around the monument's smaller "bluestones" - various types of rock that clearly were not gathered locally. To learn where the behemoth boulders came from, Nash and colleagues used portable x-ray fluorescence spectrometry (PXRF) to initially characterize their chemical composition, then analyzed the data statistically to determine their degree of chemical variability. Next, the researchers performed inductively coupled plasma mass spectrometry (ICP-MS) and ICP-atomic emission spectrometry (ICP-AES) of samples from a core previously drilled through one sarsen stone and a range of sarsen boulders from across southern Britain. After comparing these signatures, Nash et al. were able to point to West Woods as the sarsens' earliest home. The reason the monument's builders selected this site remains a mystery, although the researchers suggest the size and quality of West Woods' stones, and the ease with which the builders could access them, may have factored into the decision. [LINK](#)

### **Bar-Ilan University (AUG)**

**Grape pips reveal collapse of ancient economy in the grip of plague and climate change.**

While we all try to understand the new reality imposed by the COVID-19 pandemic, many look to the past for historical precedents such as the Spanish flu of 1918 and the Black Plague of the 14th century. The first historically attested wave of what later became known as the Black Plague (caused by the bacterium *Yersinia pestis*) spread throughout the Byzantine Empire and beyond, in 541 CE. Known as Justinianic Plague, after the emperor Justinian who contracted the disease but survived, it caused high mortality and had a range of socio-economic effects. Around the same time, an enormous volcanic eruption in late 535 or early 536 CE marked the beginning of the coldest decade in the last two thousand years (another volcano of similar proportions erupted in 539 CE). However, scholars disagree as to just how far-reaching and devastating the mid-6th century epidemic and climate change were. This scholarly debate is unsurprising considering that even today, leaders and policymakers

around the world differ on the severity and correct response to COVID-19, not to mention climate change. One reason that hindsight is not 20/20 when it comes to ancient plagues is that ancient reports tend to exaggerate, or underrepresent, the human tolls, while archaeological evidence for the social and economic effects of plague are very hard to find.

Recently, a team of Israeli archaeologists discovered new and compelling evidence for a significant economic downturn on the fringe of the Byzantine Empire in the aftermath of a major pandemic in the mid-6th century CE. The research, published today in the *Proceedings of the National Academy of Sciences (PNAS)*, reconstructs the rise and fall of commercial viticulture in the middle of Israel's arid Negev desert.

Agriculture in this arid desert was made possible through rainwater runoff farming which reached its peak in the Byzantine period, as seen at sites like Elusa, Shivta and Nessana. At Negev Highland sites today, the ruins of well-built stone structures attest to their former glory, but Bar-Oz's team, guided by field archaeologists from the Israel Antiquities Authority (IAA), Dr. Yotam Tepper and Dr. Tali Erickson-Gini, discovered even more compelling evidence about life during that period in an unexpected place: the trash. "Your trash says a lot about you. In the ancient trash mounds of the Negev, there is a record of residents' daily lives - in the form of plant remains, animal remains, ceramic sherds, and more," explains Bar-Oz. "In the 'Crisis on the Margins' project, we excavated these mounds to uncover the human activity behind the trash, what it included, when it flourished, and when it declined."

The study of seeds found in archaeological excavations is part of the field known as archaeobotany (aka paleoethnobotany). The Bar-Ilan University Archaeobotany Lab in which most of this research was conducted is the only lab in Israel dedicated to the identification of ancient seeds and fruits. Prof. Ehud Weiss, the lab's head, explains that the task of archaeobotany is to "get into the pantry - or, in this case, the trash - of ancient people and study their interactions with plants. Archaeobotany reconstructs ancient economy, environment and culture, but the way there is not easy. Grain by grain must be sorted through endless sediment samples, looking for seeds, identifying them and counting each one, as it is written '...if one can count the dust of the earth, then your seed too can be counted' (Genesis 13:16)." For the present study, nearly 10,000 seeds of grape, wheat and barley were retrieved and counted from 11 trash mounds at three sites. "Identifying seed and fruit remains is a unique capability of our lab," says Weiss, "and it relies on the Israel National Reference Collection of Plant Seeds and Fruit held in our lab, and on years of experience in retrieving, processing, and analyzing plant remains from sites of all periods in Israeli archaeology."

One of the researchers' first observations was the high numbers of grape seeds in the ancient trash mounds. This fit well with previous scholars' suggestions that the Negev was involved in export-bound viticulture. Byzantine texts laud the *vinum Gazetum* or "Gaza wine" as a sweet white wine exported from the port of Gaza throughout the Mediterranean and beyond. This wine was generally transported in a type of amphora known as "Gaza Jars" or "Gaza Wine Jars", which are also found in sites throughout the Mediterranean. In Byzantine Negev trash mounds, these Gaza Jars appear in high quantities.

Daniel Fuks, the Bar-Ilan University PhD student, sought to determine whether there were any interesting trends in the relative frequency of grape pips in the rubbish. In a Ted-style talk hosted by Bet Avichai last year, he said, "Imagine you're an ancient farmer with a plot of land to feed your family. On most of it, you plant cereals like wheat and barley because that's how you get your bread. On a smaller part, you plant a vineyard and other crops like legumes, vegetables and fruit trees, for your family's needs. But one day you realize that you could sell the excellent wine you produce, for export, and earn enough cash to buy bread and a bit more. Little by little you expand your vineyard and move from subsistence farming to commercial

viticulture. If we look at your trash and count the seeds, we'll discover a rise in the proportion of grape pips relative to cereal grains. And that's exactly what we discovered: A significant rise in the ratio of grape pips to cereal grains between the 4th century CE and the mid-6th century. Then suddenly, it declines."

Meanwhile, Fuks and Dr. Tali Erickson-Gini, an expert in ancient Negev pottery, took this to the next level. They checked whether there were similar trends in the proportion of Gaza Wine Jars to Bag-Shaped Jars, the latter being much less suited to camelback transport from the Negev Highlands to the port at Gaza. Indeed, the rise and initial decline of Gaza Jars tracked the rise and fall of the grape pips. The researchers concluded that the commercial scale of viticulture in the Negev, as seen in the grape pip ratios, was connected to Mediterranean trade, attested to by the Gaza Jar ratios. In other words, a novel archaeological testimony to an international commercial economy from some 1,500 years ago was discovered!

Like today, this situation brought unprecedented prosperity, but also greater vulnerability to shocks. In the mid-6th century, there were a few such shocks that could explain the decline. One of them was Justinianic plague, which had a high death toll in Byzantium and other parts of the empire. In the article, the authors explain that the resulting "contracting market for Gaza products would have detrimentally impacted the Negev economy, even while trade at nearby Gaza may have continued... If the plague reached the Negev, it could also have harmed the local production capacity and supply of agricultural products in general by inducing a shortage of agricultural laborers."

A different shock of that period was a volcanic eruption of global proportions in late 535/early 536 CE, which covered the Northern Hemisphere's atmosphere with dust and caused decade-long global cooling (another eruption of similar magnitude occurred in 539 CE). This led to drought in Europe, but may have increased precipitation, possibly including high-intensity flash flooding, in the southern Levant, causing detriment to local agriculture.

The Sisyphean task of sorting and counting seeds may not appear to be the most exciting, but the research on archaeological plant finds is innovative and influential, while also demonstrating the ingenuity and insightfulness involved in ancient peoples' interactions with plants. Guy Bar-Oz, of the University of Haifa, states, "The discovery of the rise and fall of commercial viticulture in the Byzantine Negev supports other recent evidence unearthed by the 'Crisis on the Margins' project for major agricultural and settlement expansion in the 5th to mid-6th century followed by decline. It appears that agricultural settlement in the Negev Highlands received such a blow that it was not revived until modern times. Significantly, the decline came nearly a century before the Islamic conquest of the mid-seventh century."

Two of the most likely triggers for the mid-6th century collapse - climate change and plague - reveal inherent vulnerabilities in political-economic systems, then and now. "The difference is that the Byzantines didn't see it coming," explains Fuks. "We can actually prepare ourselves for the next outbreak or the imminent consequences of climate change. The question is, will we be wise enough to do so?" [LINK](#)

### **University of Copenhagen (AUG)**

**Researchers find evidence of smallpox in the Viking age.** The fatal disease smallpox is older and more widespread than scientists so far have proved. A new study by an international team of researchers from the University of Copenhagen and the University of Cambridge shows that the Vikings also suffered from smallpox. Through the ages, the highly infectious disease smallpox has killed hundreds of millions of people. But it is unclear exactly when the disease emerged. There has been found evidence of smallpox from individuals from the 17th



century while written records suggest the disease is much older.

Now a new study shows that the disease dates 1,000 years further back in time than previously shown. Researchers from the University of Copenhagen (UCPH) and the University of Cambridge have found proof that smallpox also existed in the Viking Age. The new results have been published in the scientific journal [\*Science\*](#).

"We have found the oldest evidence of smallpox. Moreover, it seems to have been surprisingly common as early as in the Viking Age," says Associate Professor Martin Sikora, Globe Institute, UCPH, and the University of Cambridge. He continues: "Smallpox is the infection in the world that has killed most people. For that reason alone, it is very important and interesting to know how the disease developed. It gives us a unique opportunity to understand the viruses' evolution: How did it change and become the pathogen that we know of today."

### **Widespread in Northern Europe**

The researchers have studied and analysed the DNA of 13 individuals from Northern Europe infected with smallpox. The samples are 1,000 years older than the previous oldest sample known to have been infected based on ancient DNA, and they thus push the timeline for smallpox further back in time. The study also shows the disease has been more widespread than previously assumed. The general idea used to be that smallpox was not endemic to Northern Europe during that time period.

"We show that not only was it endemic in Europe, but it was actually quite widespread in Northern Europe already at the year 600. That means that the disease was almost certainly far more established at a much earlier age than previously thought," says Professor Eske Willerslev, Globe Institute, UCPH.

The researchers have also discovered that the viruses circulating during the Viking Age were distinct from their modern counterparts, and not directly ancestral to the viruses that caused the last big outbreak of smallpox in the 20th century.

"They share a common ancestor, but they also have unique features that differentiate them from the ones circulating later on in history. It turns out that the viruses we have found were some of these very, very early and different versions of the devastating pathogens known from the 20th century. It is the first time we can trace these early smallpox viruses and compare their genomes and mutations and see how the disease evolved over time," says Eske Willerslev.

### **Catalogue of Mutations**

Even though the disease has been eradicated today, it is still very useful to know how it developed and mutated through the ages. Smallpox is a so-called poxvirus, a large family of viruses with many different types infecting a diverse set of host species. One such example is monkeypox, which typically infects monkeys but has also been known to cause a disease similar to smallpox in humans. It is therefore useful to know how other types of poxviruses mutate and survive.

"When we know how the disease mutated through time, it gives us an opportunity to put together a catalogue of how these pathogens might mutate in the future: What mutations and combinations make such a pathogen viable and successful? If they had those mutations in the past, they can most likely get them again. It is one of a few examples where ancient genetic research has direct implications for present-day and future health," says Martin Sikora.

### **Smallpox:**

- It is the variola virus that causes smallpox. It is a so-called poxvirus.
- Written records of possible smallpox infections dating at least 3,000 years back.

- The disease was declared eradicated in 1980 by WHO.
- Smallpox virus still exists in two laboratories in the world: one in the US and one in Russia. [LINK](#)

### Università di Bologna (AUG)

**Neanderthals of Western Mediterranean did not become extinct because of changes in climate.** *Homo Neanderthaliensis* did not become extinct because of changes in climate. At least, this did not happen to the several Neanderthals groups that lived in the western Mediterranean 42,000 years ago. A research group of the University of Bologna came to this conclusion after a detailed paleoclimatic reconstruction of the last ice age through the analysis of stalagmites sampled from some caves in Apulia, Italy.



The researchers focused on the Murge Karst plateau in Apulia, where Neanderthals and *Homo Sapiens* coexisted for at least 3,000 years, from approximately 45,000 to 42,000 years ago. This study was published in *Nature Ecology & Evolution*. Data extracted from the stalagmites showed that climate changes that happened during that time span were not particularly significant. "Our study shows that this area of Apulia appears as a 'climate niche' during the transition from Neanderthals to *Homo Sapiens*" explains Andrea Columbu, researcher and first author of this study. "It doesn't seem possible that significant climate changes happened during that period, at least not impactful enough to cause the extinction of Neanderthals in Apulia and, by the same token, in similar areas of the Mediterranean".

### THE CLIMATE CHANGE HYPOTHESIS

The hypothesis that a changing climate was a factor in Neanderthals extinction (that happened, in Europe, nearly 42,000 years ago) found considerable support among the scientific community. According to this theory, during the last ice age, sharp and rapid changes in climate were a decisive factor in Neanderthals' extinction because of the increasingly cold and dry weather. We can find confirmation of these sharp changes in the analysis of ice cores from Greenland and from other paleoclimatic archives of continental Europe. However, when it comes to some Mediterranean areas where Neanderthals had lived

since 100,000 years ago, the data tell a different story. The Western Mediterranean is rich in prehistorical findings and, until now, no one ever carried out a paleoclimatic reconstruction of these Neanderthals-occupied areas.

### **THE IMPORTANCE OF STALAGMITES**

Where to find answers about the climate past of the Western Mediterranean? The research group of the University of Bologna turned to the Murge plateau in Apulia. "Apulia is key to our understanding of anthropological movements: we know that both Neanderthals and Homo Sapiens lived there approximately 45,000 years ago", says Andrea Columbu. "Very few other areas in the world saw both species co-existing in a relatively small space. This makes the Murge plateau the perfect place to study the climate and the bio-cultural grounds of the transition from Neanderthal to Sapiens".

How is it possible to provide a climate reconstruction of such a remote period? Stalagmites have the answer. These rock formations rise from the floor of karst caves thanks to ceiling water drippings. "Stalagmites are excellent paleoclimatic and paleoenvironmental archives", explains Jo De Waele, research coordinator and professor at the University of Bologna. "Since stalagmites form through rainwater dripping, they provide unquestionable evidence of the presence or absence of rain. Moreover, they are made of calcite, which contains carbon and oxygen isotopes. The latter provide precise information about how the soil was and how much it rained during the formation period of stalagmites. We can then cross these pieces of information with radiometric dating, that provide an extremely precise reconstruction of the phases of stalagmites' formation".

### **A (RELATIVELY) STABLE CLIMATE**

The pace at which stalagmites formed is the first significant result of this study. Researchers found out that Apulian stalagmites showed a consistent pace of dripping in the last and previous ice ages. This means that no abrupt change in climate happened during the millennia under investigation. A draught would have been visible in the stalagmites.

Among all the stalagmites that were analysed, one was particularly relevant. Researchers sampled this 50-cm long stalagmite in the Pozzo Cucù cave, in the Castellana Grotte area (Bari) and they carried out 27 high-precision datings and 2,700 analyses of carbon and oxygen stable isotopes. According to dating, this stalagmite formed between 106,000 and 27,000 years ago. This stalagmite represents the longest timeline of the last ice age in the western Mediterranean and in Europe. Moreover, this stalagmite did not show any trace of abrupt changes in climate that might have caused Neanderthals' extinction.

"The analyses we carried out show little variation in rainfall between 50,000 and 27,000 years ago, the extent of this variation is not enough to cause alterations in the flora inhabiting the environment above the cave", says Jo De Waele. "Carbon isotopes show that the bio-productivity of the soil remained all in all consistent during this period that includes the 3,000 years-long coexistence between Sapiens and Neanderthals. This means that significant changes in flora and thus in climate did not happen".

### **THE TECHNOLOGY HYPOTHESIS**

The results seem to show that the dramatic changes in the climate of the last ice age had a different impact on the Mediterranean area than in continental Europe and Greenland. This may rule out the hypothesis that climate changes are responsible for Neanderthals dying out.

How do we explain their extinction after a few millennia of coexistence with Homo Sapiens? Stefano Benazzi, a palaeontologist at the University of Bologna and one of the authors of the paper, provides an answer to this question. "The results we obtained corroborate the hypothesis, put forward by many scholars, that the extinction of Neanderthals had to do with

technology", says Benazzi. "According to this hypothesis, the Homo Sapiens hunted using a technology that was far more advanced than Neanderthals', and this represented a primary reason to Sapiens' supremacy over Neanderthals, that eventually became extinct after 3,000 years of co-existence". [LINK](#)

### University of Warwick (AUG)

#### Breakthrough in studying ancient DNA from Doggerland that separates the UK from Europe.

Thousands of years ago the UK was physically joined to the rest of Europe through an area known as Doggerland. However, a marine inundation took place during the mid-Holocene, separating the British landmass from the rest of Europe, which is now covered by the North Sea.

Scientists from the School of Life Sciences at the University of Warwick have studied sedimentary ancient DNA (sedaDNA) from sediment deposits in the southern North Sea, an area which has not previously been linked to a tsunami that occurred 8150 years ago.

A number of innovative breakthroughs were achieved by the University of Warwick scientists in terms of analysing the sedaDNA. One of these was the concept of biogenomic mass, where for the first time they were able to see the how the biomass changes with events, evidence of this presented in the paper refers to the large woody mass of trees from the tsunami found in the DNA of the ancient sediment.

New ways of authenticating the sedaDNA were also developed, as current methods of authentication do not apply to sedaDNA which has been damaged whilst under the sea for thousands of years because there is too little information for each individual species. Researchers therefore came up with a new way, metagenomic assessment methodology, whereby the characteristic damage found at the ends of ancient DNA molecules is collectively analysed across all species rather than one.

Alongside this a key part of analysing the sedaDNA is to determine whether or not it was deposited in situ or has moved over time. This led researchers to develop statistical methods to establish which scenario was appropriate, using stratigraphic integrity they were able to determine that the sedaDNA in the sediment deposits had not moved a massive amount since deposition by assessing the biomolecules vertical movement in the core column of the sedaDNA.

Identifying which organisms the ancient fragmented molecules of DNA came from is also challenging because often there is nothing to directly compare. In a fourth innovation the researchers refined algorithms to define these regions of "dark phylogenetic space" from where organisms must have originated overcome this issue.

Professor Robin Allaby from the School of Life Sciences at the University of Warwick comments: "This study represents an exciting milestone for sedimentary ancient DNA studies establishing a number of breakthrough methods to reconstruct an 8,150 year old environmental catastrophe in the lands that existed before the North Sea flooded them away into history."



Professor Vince Gaffney from the School of Archaeological and Forensic Sciences at the University of Bradford said: "Exploring Doggerland, the lost landscape underneath the North Sea, is one of the last great archaeological challenges in Europe. This work demonstrates that an interdisciplinary team of archaeologists and scientists can bring this landscape back to life and even throw new light on one of prehistory's great natural disasters, the Storegga Tsunami.

"The events leading up to the Storegga tsunami have many similarities to those of today. Climate is changing and this impacts on many aspects of society, especially in coastal locations." [LINK](#)

### **Nicolaus Copernicus University in Torun (AUG)**

**5,000 years of history of domestic cats in Central Europe.** A loner and a hunter with highly developed territorial instincts, a cruel carnivore, a disobedient individual: the cat. These features make the species averse to domestication. Even so, we did it. Nowadays, about 500 million cats live in households all around the world; it is also difficult to estimate the amount of the homeless and the feral ones. Although the common history of cats and people began 10,000 years ago, the origins of the relation still remain unknown. How was the domestication process carried out? When did the first domesticated cats appear in Central Europe? Where did they come from, and how? What was their role in contemporary people's lives. The knowledge gaps in the topic are numerous; thus, archaeologists, archaeozoologists, biologists, anthropologists as well as other researchers all around the world cooperate to find answers to the questions. Scientists from the Institute of Archaeology at the Nicolaus Copernicus University in Torun have outstanding merits in this field. An article discussing significant research achievements in the area has been published in *PNAS*, a prestigious official journal of the National Academy of Sciences. The first author is Dr



Magdalena Krajcarz who has made an attempt to find ancestors of domestic cats in Neolithic Central Europe. By analyzing cat diet, she is trying to check how close they cohabitated with people.

### **Winding paths of the domesticated cat**

According to the assumptions made, the deliberate creation of a breed which involved selecting particular individuals, cross-breeding and reproducing them, took place relatively recently, in the 19th century. In Medieval Poland, cats were not as popular as we could think. According to evidence provided by researchers, semi-domesticated weasels, or even snakes, were used to protect grain crops against rodents. These were people who settled in towns founded in the second half of the 13th century who increased the popularity of cats. It does

not mean, however, that cats had entered into no relations with people even earlier. The first, best-documented domesticated cat remains on the territory of Poland date back to the beginnings of our era. The animals are believed to have spread across Central Europe mainly due to the influence of the Roman Empire. Nonetheless, the earliest cat remains in the area date back to even 4,200-2,300 BC and evidence the first migrations of the Nubian cat which originally inhabited the Near East and North Africa. This particular species is considered as the ancestor of domestic cats in Central Europe.

The Nubian cat is one of wildcat subspecies (next to the European wildcat which is not the domestic cat ancestor even though it is able to cross-breed with it) whose domestication began in the Fertile Crescent ca. 10,000 - 9,000 years ago. In archaeological excavation sites in Anatolia, Syria as well as Israel, a variety of stone figurines representing those cats has been found. Apparently, cats stayed in the proximity of the first farmers and, with high probability, the Neolithic Age is when the first human-cat interrelations were initiated. People gave up nomadism in favour of sedentary life and started to gather eatables which, consequently, attracted rodents of many kinds. This could result in attracting wild cats to easily achievable food sources and the benefits turned out to be mutual. With much likelihood, cats remained rather neutral to people. Cat skeleton analyses, together with the mammal iconography, allow researchers to make an assumption that cats reached Europe migrating from the Near East, through Anatolia, Cyprus, Crete, Greece, to Ancient Rome, where they were taken over by Celts and Germans .

### **Cat diet vs the history of domestication**

The role cats played in Late Neolithic Poland is not clear since scientists have little evidence of these animals' presence. The remains found come from caves rather than from human settlements which means that cats not necessarily had to be buried by men. They could as well be prey to other predators or they simply lived and died in caves. Nevertheless, researchers do not reject the hypothesis which says that the animals could be kept by men in order to protect crops from rodents, and thus, benefit from their skills, and occasionally follow them to the caves which contemporary people used as shelters.

Research performed by Dr Magdalena Krajcarz helps to resolve the mystery. In the article entitled Ancestors of domestic cats in Neolithic Central Europe: Isotopic evidence of a synanthropic diet published in PNAS, she provides an insight into cats' diet in order to determine how close human-cat relations were. To carry out studies, six Neolithic cat remains of the Near East characteristics from four cave sites in the Kraków- Czestochowa Upland (southern Poland) were used. Nearby, there used to be farmer settlements located on fertile soils. Moreover, four European wildcat remains from an analogous period and area as well as three Pre-Neolithic and two others from the Roman Period were examined. The reference material additionally covered human and other animal remains.

Analyzing stable carbon and nitrogen isotopes in bone collagen constituted the methodological basis. The stable isotope analysis method is a commonly applied tool in the palaeontology and ecology of animals because the isotope composition of their remains reflects the isotope composition of food. According to Krajcarz, the method enables, for example, the identification of feeding habits of particular fossil animal species. In research on wild animal feeding habits, conventional techniques involve analyzing food remnants in faeces or stomachs, which imposes significant limitations. Most importantly, not all the remnants can be identified. Moreover, the remnants are from the last feeding. Finally, the access to such fossil material is very poor.

Owing to the isotope analysis, taking accurate chemical measurements as well as recognizing average diet covering the whole animal lifespan are possible. Primarily, the method allows

the examination of feeding habits of animals from the past. All we have are bone tissue remnants which have survived in the unaltered state as the isotope composition of bones has been unchanged for thousands of years - says Dr Krajcarz. To simplify the issue, the Neolithic farmers were knowledgeable enough to apply fertilizers such as dung or plant ash. Rodents which fed on the collected crops were consumed by cats. By the stable isotopes examination, we are able to decide whether contemporary cats found food taking advantage of human activity somehow.

So, what are the conclusions drawn by the researchers? According to the examination results, the Near East cats were not fully dependent on men. They made use of all the available food sources but could also find others in their habitat. They could do it periodically, either benefiting from human activity or hunting individually in forests. Thus, they maintained their independence. As Dr Krajcarz explains, their findings confirm the hypothesis that the Near East wildcats have spread across Europe accompanying the first farmers, probably as commensal animals. The results of the stable isotope analysis obtained for the Roman Period cats, however, seem to resemble those of men and dogs which suggests that cats followed a similar diet, i.e. they benefited from human resources or were possibly fed by men. Also, the development in farming partially influenced our native European wildcat, even if it was more forest resources oriented.

### **On the track of the cat history**

Dr Magdalena Krajcarz and Prof. Daniel Makowiecki from the Institute of Archaeology at the Nicolaus Copernicus University are continuing their research on the history of domestic cats. Together with a team of palaeogeneticians supervised by Dr Danijela Popovi from the Warsaw University, they are initiating a new research project, 5,000 Years of History of Domestic Cats in Central Europe: an Interdisciplinary Paleogenetic and Archaeozoological Study funded by the National Centre of Science. The project will be based on the international cooperation with researchers representing European institutions including Belgium, Serbia, Lithuania, Slovakia, and the Czech Republic.

The main aim of the four year project is to reconstruct migration trails of domestic cats from their domestication regions to Europe and look for traces of the cat genome selection, natural and/or controlled by men. The research team is planning to analyse hundreds of cat bone remains from archaeological and paleontological sites. In the interdisciplinary project, conventional archaeozoological and paleontological morphometric methods as well as fossil DNA analysis and radiocarbon dating will be employed.

The researchers wish to trace all the phenotypic and genetic changes in cats which are responsible for domestication (aesthetic: size, coloration; behavioural: reducing aggression; physiological: adopting to digest anthropogenic food, e.g. milk, starch). On the basis of the genomic data, they want to estimate the cross-breeding intensity of the Nubian cat and the European wildcat in order to check whether it increased together with the domestic cat population expansion. [LINK](#).

### **Cardiff University (AUG)**

**Norman Conquest of 1066 did little to change people's eating habits.** Archaeologists from Cardiff University and the University of Sheffield have combined the latest scientific methods to offer new insights into life during the Norman Conquest of England.

Until now, the story of the Conquest has primarily been told from evidence of the elite classes of the time. But little has been known about how it affected everyday people's lives. The research team, which also included academics from the University of Bristol, used a range of bioarchaeological techniques to compare human and animal bones recovered from sites across Oxford, along with ceramics used for cooking. Their results suggest only short-

term fluctuations in food supplies following the Conquest which didn't adversely affect the population's overall health. There is evidence the Norman invasion led to more controlled and standardised mass agricultural practices. Pork became a more popular choice and dairy products were used less. But on the whole, a diet dominated by vegetables, cereals beef and mutton remained largely unchanged.

Dr Elizabeth Craig-Atkins of the University of Sheffield's Department of Archaeology said: "Examining archaeological evidence of the diet and health of ordinary people who lived during this time gives us a detailed picture of their everyday experiences and lifestyles. Despite the huge political and economic changes that were happening, our analysis suggests the Conquest may have only had a limited impact on most people's diet and health. There is certainly evidence that people experienced periods where food was scarce. But following this, an intensification in farming meant people generally had a more steady food supply and consistent diet. Aside from pork becoming a more popular food choice, eating habits and cooking methods remained unchanged to a large extent."

Researchers used a technique called stable isotope analysis on bones to compare 36 humans found in various locations around Oxford, including Oxford Castle, who had lived between the 10th and 13th centuries. Signals from food we consume are archived as chemical tracers in our bones, allowing scientists to investigate the quality and variety of a person's diet long after they have died. The team found that there wasn't a huge difference between the health of the individuals, who were alive at different points before and after the Conquest. Levels of protein and carbohydrate consumption were similar in the group and evidence of bone conditions related to poor diet - such as rickets and scurvy - were rare. However, high resolution analysis of teeth showed evidence of short-term changes in health and diet in early life during this transitional phase.

Isotope analysis was also used on 60 animals found at the same sites, to ascertain how they were raised. Studies of pig bones found their diets became more consistent and richer in animal protein after the Conquest, suggesting pig farming was intensified under Norman rule. They were likely living in the town and being fed scraps instead of natural vegetable fodder.

Fragments of pottery were examined using organic residue analysis. When food is cooked in ceramic pots, fats are absorbed into the vessel, allowing researchers to extract them. Analysis showed that pots were used to cook vegetables like cabbage as well as meat such as lamb, mutton or goat across the conquest. Researchers say the use of dairy fats reduced after the Conquest and that pork or chicken became more popular.

Dr Richard Madgwick, based in Cardiff University's School of History, Archaeology and Religion, said: "To our knowledge, this is the very first time globally that human osteology, organic residues analysis and isotope analysis of incremental dentine and bone have been combined in a single study. It is only with this innovative and diverse suite of methods that we have been able to tell the story of how the Conquest affected diet and health in the non-elite, a somewhat marginalised group until now." [LINK](#)

### **Chinese Academy of Sciences (AUG)**

**Amber fossils unlock true colour of 99-million-year-old insects.** Nature is full of colours, from the radiant shine of a peacock's feathers or the bright warning coloration of toxic frogs to the pearl-white camouflage of polar bears. Usually, fine structural detail necessary for the conservation of colour is rarely preserved in the fossil record, making most reconstructions of the fossil based on artists' imagination.



A research team from the Nanjing Institute of Geology and Palaeontology of the Chinese Academy of Sciences (NIGPAS) has now unlocked the secrets of true coloration in the 99-million-year-old insects.

Colours offer many clues about the behaviour and ecology of animals. They function to keep organisms safe from predators, at the right temperature, or attractive to potential mates. Understanding the coloration of long-extinct animals can help us shed light on ecosystems in the deep geological past. The study, published in *Proceedings of the Royal Society B* on July 1, offers a new perspective on the often overlooked, but by no means dull, lives of insects that co-existed alongside dinosaurs in Cretaceous rainforests. Researchers gathered a treasure trove of 35 amber pieces with exquisitely preserved insects from an amber mine in northern Myanmar.



"The amber is mid-Cretaceous, approximately 99 million years old, dating back to the golden age of dinosaurs. It is essentially resin produced by ancient coniferous trees that grew in a tropical rainforest environment. Animals and plants trapped in the thick resin got preserved, some with life-like fidelity," said Dr. CAI Chenyang, associate professor at NIGPAS who lead the study. The rare set of amber fossils includes cuckoo wasps with metallic bluish-green, yellowish-green, purplish-blue or green colours on the head, thorax, abdomen, and legs. In terms of colour, they are almost the same as cuckoo wasps that live today, said Dr. CAI.

The researchers also discovered blue and purple beetle specimens and a metallic dark-green soldier fly. "We have seen thousands of amber fossils but the preservation of colour in these specimens is extraordinary," said Prof. HUANG Diying from NIGPAS, a co-author of the study. The type of colour preserved in the amber fossils is called structural colour. It is caused by microscopic structure of the animal's surface. The surface nanostructure scatters light of specific wavelengths and produces very intense colours. This mechanism is responsible for many of the colours we know from our everyday lives," explained Prof. PAN Yanhong from NIGPAS, a specialist on palaeocolour reconstruction. To understand how and why colour is preserved in some amber fossils but not in others, and whether the colours seen in fossils are the same as the ones insects paraded more than 99 million years ago, the researchers used a diamond knife blades to cut through the exoskeleton of two of the colourful amber wasps and a sample of normal dull cuticle. Using electron microscopy, they were able to show that colourful amber fossils have a well-preserved exoskeleton nanostructure that scatters light. The unaltered nanostructure of coloured insects suggested that the colours preserved in amber may be the same as the ones displayed by them in the Cretaceous. But in fossils that do not preserve colour, the cuticular structures are badly damaged, explaining their brown-black appearance.

What kind of information can we learn about the lives of ancient insects from their colour? Extant cuckoo wasps are, as their name suggests, parasites that lay their eggs into the nests of unrelated bees and wasps. Structural coloration has been shown to serve as camouflage in insects, and so it is probable that the colour of Cretaceous cuckoo wasps represented an adaptation to avoid detection. "At the moment we also cannot rule out the possibility that the colours played other roles besides camouflage, such as thermoregulation," adds Dr. CAI.

[LINK](#)

### **PUBLICATIONS:**

Two PDFs free to download:

**"The Durotriges Project, Phase Three: an interim statement"** : Dr Mikes Russell [LINK](#)

**"Along the road to Stonehenge: investigations of the Stonehenge Avenue and within the World Heritage Site"** : Robert Ixer [LINK](#)

**"The Beau Street, Bath, Hoard"** Anthony, Abdy & Clews. The story of the 17,660 Roman coins found in 2007. Prices various. Printed by Archaeopress.

**"Early Christianity in South-West Britain: Wessex, Somerset, Devon, Cornwall and the Channel Islands"** Elizabeth Rees. £34.99. Oxbow Books

**"Sark: A Sacred Island?" Excavations 2004-2017.** Barry Cunliffe & Emma Durham. Full price £40. Available from various outlets including Oxbow

**"Stonehenge for the Ancestors Part 1 - Landscape and Monuments"**. Mike Parker Pearson; Josh Pollard; Colin Richards; et al. Published 30.3.20. Sidestone Press pre-order price €64.95

**"A Bluffers Guide to Archaeology"** Paul Bahn. Updated and re-issued. £6.99 Haynes Publishing.

**"The Land of the White Horse: Visions of England"** by David Miles discusses the Uffington white horse (and more). £24.95 from Waterstones (and probably others).

**"The Ancient Ways of Wessex ... travel and communication in an Early Medieval landscape"** by Alex Langland. Oxbow Books: currently priced at £28.00

**"The Lost Abbey of Eynsham"** from Archaeopress priced at £45.00 or £16 e-version.

**"The Middle Ages Revised .... "** edited by Ben Jervis from Archaeopress, price £32 or £16 e-version.

**"Somerset: unique images from the archives of Historic England"**. £14.99 (variable) available on Amazon.

**"From Roman Civitas to Anglo-Saxon Shire: Topographical Studies on the Formation of Wessex"**. Bruce Eagles. £34.99 from [Oxbow](#)

**"The Search for Winchester's Anglo-Saxon Minsters"** Martin Biddle £15 from [Archaeopress](#).

**"New Forest: the forging of a landscape"** by Hadrian Cook. List price £34.99. Copies available on Amazon.

**"Blick Mead: Exploring the First Place in the Stonehenge Landscape"**. David Jacques, Tom Phillips & Tom Lyons. £35 from Peter Lang.

**"The Hidden Bones"** is an archaeological novel by Nicola Ford (aka Dr Nick Snashall - National Trust archaeologist for Stonehenge & Avebury WHS). £19 from Allison & Busby.

**"Megalith"** is published by Wooden Books.

**"Hillforts and the Durotriges"** A geophysical survey of Iron Age Dorset by Dave Stewart and Miles Russell. Published by Archaeopress price £30. Miles is Senior Lecturer in Prehistoric and Roman Archaeology at Bournemouth University and a Trustee of CBA Wessex.

**"50 Finds from Hampshire" finds of PAS from [Amberley Press](#). £13-15**

**"Winchester: An Archaeological Assessment" by Patrick Ottaway will be available shortly from [Oxbow Books](#). £40**

**"Arthur and the Kings of Britain"** by Dr Miles Russell. Published 15 March 17: £20. Pre-order now through Amazon.

**"50 Finds from Hampshire: Objects from the Portable Antiquities Scheme"** by Katie Hinds (Hants PAS officer). Available from Amazon from £6.55 plus postage

Thames Valley Archaeological Services Publications. New monographs:

***Neolithic, Bronze Age, Roman and Anglo-Saxon occupation and Bronze Age burial at Ibsley Quarry, Ibsley, Ringwood, Hampshire.***

***Roman occupation at Chapel Farm, Blunsden, Swindon, Wiltshire (Lower Widhill Farm), Excavations 2004-2012.***

***Archaeological excavations at Latton Quarry, Wiltshire.*** [Click here for website](#)

**"Neolithic Horizons: monuments and changing communities in the Wessex Landscape".** Dave Field and Dave McOmish. From £10 on Amazon

***Iron Age Hillfort Defences and the Tactics of Sling Warfare*** by Peter Robertson. 2016. £25.00. eBook £19.00 from [Archaeopress](#).

***Exploring Avebury the Essential Guide*** by Steve Marshall with 400 photographs, maps and diagrams. Price around £15.

***Stonehenge: The Story of a Sacred Landscape.*** Francis Pryor. Available mid-July £16.99

***Gardens & Gardeners of the Ancient World: History, Myth & Archaeology.*** Tracing the beginning of gardening from Ancient Egypt & Mesopotamia to the Minoans, Greeks and Romans right up to the Middle Ages. £25 Oxbow Books

**"Rescue Archaeology: Foundations for the future"**, edited by Paul Everill and Pamela Irving, published by RESCUE The British Archaeological Trust, as part of the celebrations of RESCUE's 40th anniversary. Examines current challenges faced by archaeologists in Britain. Full details from [RESCUE](#).

**"Stonehenge: Making Sense of a Prehistoric Mystery"**. Parker-Pearson, Pollard, Richards & Thomas. £14. Oxbow Books.

**ASSUME ALL MEETINGS, TALKS, WALKS AND EVENTS HAVE BEEN CANCELLED**