

ACADEMIA Focus on Archeology

SECRETS UNDER A MOLLUSK SHELL

We talk to **Dr. Maciej Jórdeczka** from the PAS Institute of Archaeology and Ethnology in Poznań about archaeological surprises, Neolithic medicine and paying respect to our deceased.



1

THE OLDEST-KNOWN SKULL TREPANNATION

ACADEMIA: You led the archaeological research mission in Omdurman in Sudan, where you discovered one of the oldest trepanned skulls in North-East Africa, dating back around seven thousand years. Were you expecting to make such a momentous find?

MACIEJ JÓRDECZKA: It was a huge surprise. We weren't expecting it, since evidence of trepanation – a medical procedure involving drilling a hole in the skull – is rare in this part of Africa. Four years ago, we conducted a pilot study at the site and we knew it to be promising – there is an extensive burial ground with numerous graves. We were certainly hoping to find something interesting, but not actual remains of someone who underwent a trepanning!

How was such a procedure technically possible back then?

Trepanning was carried out in Western Africa even earlier, as far back as ten to twelve thousand years

B.C. We are aware of individual examples from the North-Western part of the continent – the earliest were found at the Taforalt Epipaleolithic dig in Morocco – as well as in Iraq and Ukraine. During the Neolithic, trepanning was fairly common in Europe. It was sufficiently simple to be carried out using flint tools. We aren't certain as to how the procedure was carried out in the skeleton we found. The oval hole scratched in the left parietal bone is small, approx. 1 cm in diameter. The total size of the post-trepanation site is 21x20 mm and 9x9 mm without the rim. The wound had not scarred, but we don't know whether the individual died as a result of the procedure or whether it was perhaps carried out after his death during a magic ritual.

What kind of anesthetic might have been used? After all, something – most likely a plant extract – must have been given to prevent the patient from dying of shock or pain. And humans are



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Fig. 1
Exploration of one of the Neolithic graves at Khor Shambat.

Fig. 2
Neolithic grave of a man who had undergone trepanning.

MACIEJ JÓRDECZKA'S ARCHIVES (3)



Fig. 3
Close-up of the trepanation
hole. Traces of ochre are also
visible on the skull.

known to have been using various ways of combatting pain for millennia...

It's very likely, but it's also difficult for me to speculate. We don't have a lot of data so far, because plant remains are very rarely preserved, unlike bone fragments. At our site in Khor Shambat, we found some charcoal, African hackberry seeds and charred *Ziziphus* seeds. It will be very difficult to reconstruct the full spectrum of plants growing at the time – it requires further paleobotanical research.

The dead were buried within settlements. Were they the focus of any particular cult? Did the living want to stay close to the deceased?

The tradition of burying the dead within settlements goes back a very long way in this region. I think it's to do with a certain veneration. Graves were frequently generously supplied with goods. We have so far studied those near the boundary of the burial ground. The graves near the center of the site tend to be more lavish, while the ones we have studied thus far have been rather modest. However, one child's grave held fragments of a ceramic vessel, mountain crystal beads and an ivory bangle which must have been worn by

an adult. It was likely to have been placed in the grave by the child's mother as a final farewell. The man who underwent the trepanning was covered in ochre and most likely shrouded in a sheet or placed in a container made of an organic material. This could well have had a symbolic meaning.

How tall was he?

He was around 157 cm.

Was this an average height for a man at the time?

That's right. What wasn't average at the time of his death was his age, estimated to have been between 55 and 65 years old. We found that he had been suffering from periodontitis, with degenerative changes in his whole skeleton and overload changes in the spine. His grave did not contain any goods. As well as having been covered in ochre, there was a Nile mollusk shell on his temple.

Is it possible to use mitochondrial DNA to determine the cause of death?

Yes, at least in theory. We will certainly try, although I'm doubtful whether we'll be able to conduct any DNA tests at all because his bones are in very poor condition. Only his teeth are relatively well preserved, and the plaque may provide information about his diet. Analysis of strontium isotopes may help us determine his origins, but this will have to wait until next year when we obtain the necessary funds. We will also try to reconstruct the paleoenvironment and migration routes.

You mentioned that there may have been a ritual conducted after the man's death. Is much known about magic practices of the Neolithic?

Very, very little is known.

Would such an elderly man have been the subject of a cult while he was still alive? He's likely to have been the eldest person any of his contemporaries had ever met...

It's not impossible, although in comparison with other Neolithic burials, his grave is rather modest – it only contains the shell and the ochre. Neolithic societies were highly hierarchical, which is clearly seen at other burial sites; even children's graves frequently contained a rich supply of goods. Graves often contain attributes of power. As such, the modest contents of the grave of our trepanned deceased make speculation as to his social position difficult.

Were hierarchical societies of the Neolithic class-based?

They mainly comprised shepherds, but I think we can say that there were clans, tribes or privileged fami-

THE OLDEST-KNOWN SKULL TREPANNATION

lies – elites which accumulated and inherited surplus produce.

Do we know who would have been at the lowest tier of such a society?

Unfortunately not.

Have similar mollusk shells been found in other graves?

Yes, shells have been found in other Neolithic graves. Our archaeological site is right by the Nile, so there are literally thousands of shells. The villagers' diet included whatever they caught in the river, so the shell isn't anything unusual in itself. What is unusual is its placement on the man's temple, although it's difficult to tell what significance this had. The trepanning could mean that the man was suffering from an illness.

Was ochre reserved for the dead?

Ochre protected the skin from insects, but it also certainly had a symbolic significance, especially during burials. The dead were frequently covered with red ochre. Our subject's entire skeleton is red, which means that his whole body was covered with the pigment.

What kinds of fabrics were made during the period? What would the villagers have worn?

It's hard for me to say what fabrics they had. They certainly wore animal skins.

Was the fetal position in which the dead man was arranged used in other burials?

Yes, it was typical of the time.

The dead man had suffered from periodontitis, and he was likely to have had tooth decay. How did people deal with dental problems during the Neolithic?

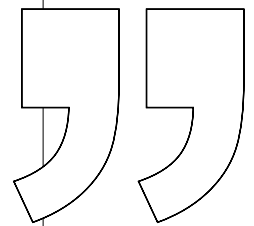
I don't know – I imagine that painful teeth were simply removed – but I must say that they had a good idea of the structure of the human skeleton. Damaged burial sites were repaired; for example, teeth which had fallen out were replaced, although frequently not in the correct order. We have examples from the Western Libyan Desert, where old burial sites were accidentally used again, and the damaged remains were repaired. The dead were treated with the utmost respect.

In North-Eastern Africa, settlements have been found dating to the earlier era of the Khartoum Mesolithic. Do we know which one is the oldest?

About 10–15 km south of our settlement, an Italian expedition found burials from the early Holocene, dating back about ten, maybe eleven thousand years. The dead were buried in a completely different position – lying flat and face down. Our settlement has a sig-

nificantly longer chronology, and – even more importantly than the trepanning – we have a preserved stratigraphy, which is unique in Sudan. I'm talking about sequential and chronological relationships between the layers and contact points of archaeological objects. We can recognize at least two Mesolithic layers, and more layers and Neolithic objects above them. We suspect we will uncover Mesolithic burial sites, since human bones have been found in lower layers dating back to the Mesolithic.

It's not clear whether the individual died as a result of the procedure, or whether it was perhaps carried out after his death, during a magic ritual.



Remains of dogs have been found in Neolithic settlements, suggesting that they had been eaten. Is it possible that they had been kept and bred similarly to cattle?

We found one such example; the condition of the dog's skeleton revealed that it had been roasted over a fire and eaten.

Dogs were domesticated much earlier in Asia, and they found their way to central Sudan during the Neolithic alongside sheep, goats and cattle. They had mainly been used in shepherding, perhaps also in hunting. Hunting and gathering were still significant during the Neolithic, although in certain settlements cattle bones were dominant. At Khor Shambat, detailed studies of individual stratigraphic layers should help us learn more about the diet, paleoenvironment and material culture of the villagers, and compare the Mesolithic and Neolithic settlements.

When are you returning to Sudan?

I think we'll spend a month there in early 2017.

INTERVIEW BY ANNA KILIAN

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