Deposits Magazine

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ROCKS
FOSSILS
GEOLOGY

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In this issue:

Dear readers...

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The cover picture shows sedimentary rock layering, which has been cleanly carved by the Ruddy Colorado River at Dead Horse Point State Park near Moab, Utah in the USA. The park was named after its use as a natural corral by cowboys in the nineteenth century. According to legend, they rounded up horses by herding them across the narrow neck of land and onto the point. The neck, which is only about 25m wide, was then fenced off with branches and brush.

When one lives in the western part of The Netherlands, like I do, one basically lives in the North Sea Basin. This has been more or less steadily sinking for millions of years, so, I live within a subsiding delta, barely a meter above rising sea levels. This has resulted in high sedimentary rates during the Holocene, which has given rise to thick Holocene deposits. Basically, therefore, I live on top of up to 20m or so of Holocene shallow marine, beach and peat deposits. And that leaves relatively few opportunities for those interested in fossils and geology.

Such people have two options: either travel a long way or settle for the one possibility there is close to home. I like to do quite a bit of both. For the first option, one has to travel towards the margins of the North Sea Basin or beyond, that is, abroad or towards the far eastern part of The Netherlands (where some Triassic rocks are quarried), the south-eastern part (where quite a lot of Cretaceous rocks are quarried) or the south-western part (where a lot of Cenozoic shells and sharks' teeth wash up on the beaches).

The second option involves scouring Dutch beaches. That brings us back to those thick Holocene beach deposits and indeed fossils on a natural Dutch beach are relatively rare, except for those in the south-western part of the country. However, there is one interesting exception, in which humanity and the rising sea levels play a critical role. To provide safety from the sea for the Dutch people, Dutch beaches are reinforced and even entirely new parts of The Netherlands are created. This is done by dredging sand from the bottom of the North Sea, using trailing suction hopper dredgers and then depositing it on, or close to, shore. In some cases, a significant part of this sand was deposited during the last Ice Age, by the palaeo-Rhine and palaeo-Meuse rivers. These deposits are exceptionally rich in fossils, most notably in woolly mammoth remains.

Therefore, these beaches provide a very rich source of fossils for people living in the western part of The Netherlands. And it is mainly that source that I have collected from for the past four years and hope to continue to collect from for many years to come. I also want to learn from the fossils in my (and other) collections - by studying them, one learns more about the geological history of The Netherlands.

In any discipline, co-operation is very important. Palaeontology is no exception. So I looked around for people with the same interest and was lucky enough to find two associations where somebody interested in palaeontology can join and learn from more experienced members. By joining these associations, over the past four years, I have met many interesting people. By studying fossils in their and my collections, co-operating and communicating, I have revealed the first Late Pleistocene fossil of a desman (a snouted and naked-tailed, diving insectivore mammal) Desmana cf. moschata from the Eurogeul area and revealed an interesting fact on the palaeo-ecology of a Late Pleistocene bivalve. That would never have been possible without the help and advice of my fellow members. That demonstrates the value of these societies and co-operation in palaeontology in general.

And that is where Deposits comes into play. It allows people of all sorts, and from all over the world, to communicate their research results in a readable format, show off their finds or even just share their general enthusiasm in all areas of palaeontology; and with a large and diverse public. And that, of course, can only lead to positive things. Therefore, I hope Deposits will continue to flourish and all those who have a palaeontological story to share, will do so through this great magazine.

Bram Langeveld
(The Netherlands)

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Collecting code - *In each issue of Deposits, we publish a reminder of the National Fossil Collecting code. This is a comprehensive guidance for all and we strongly advise that it should be followed. It is also important that it is recognised that various locations may change their geography, access and suitability due to a number of factors, including erosion and regional council regulations, and (following the code) it is imperative that tide times are fully researched in advance of a visit to the coast. From time to time, we do receive emails or calls from people complaining to us about the minority who they claim have little respect for coastal areas, private property or their own safety. Therefore, we must point out that we strongly discourage any reader to disrespect these codes and that SSSI locations must be respected. Indeed, it saddens us to think that any person might disrespect these codes and laws.*

You can view the National Fossil Collecting codes on www.ukfossils.co.uk or www.discoveringfossils.co.uk.

The first description of dinosaur fossils by Al-Andalusī in the twelfth century

Dr Ahmed K Al-Rawi (The Netherlands)

Drawn by Ibtihaj al-Harthi, an Omani female illustrator.

Western sources refer to a few scholars who were the pioneers in describing huge fossilised animals that are now known to be the remains of the long extinct dinosaurs. Around 1677, the British scholar, Robert Plot, was widely believed to have written the first description of a dinosaur fossil, after finding a fossilised object, which looked like the bones of a giant creature (Haven, 2007, p. 67; Parsons, 2004, p.15; Fastovsky & Weishampel, 2009, p. 309; Martin, 2009, p. 57). However, Plot was not able to identify the fossil, assuming first that it belonged to an elephant; and he later suggested that it belonged to giant human beings:

> *"There happily came to Oxford while I was writing of this, a living Elephant to be shown publickly at the ACT, An. 1676, with whose Bones … I compared ours; and found those of the Elephant not only of a different Shape, but also incomparably different to ours, though the Beast were very young and not half grown. If then they are neither the Bones of Horses, Oxen, nor Elephants, as I am strongly persuaded they are not… It remains, that (notwithstanding their extravagant Magnitude) they must have been the bones of Men or Women: Nor doth any thing hinder but they may have been so, provided it be clearly made out, that there have been Men and Women of proportionable Stature in all Ages of the World, down even to our own Days" (Plot, 1677, p. 137).*

It was only around two centuries later that Mary Anning (1799-1847) and shortly afterward Gideon Mantell (1790-1852) were able to find more bones and accurately relate them to extinct species that roamed the earth, millions of years ago (Cadbury, 2001, pp. 3-6; Haven, 2007, p. 67). As for the term 'dinosaur', it was first coined by Sir Richard Owen in 1841 and was published in the proceedings of a meeting held by the British Association for the Advancement of Science.

However, someone long before Plot and other Western writers did make a reference to dinosaur fossils and mentioned that they belonged to a giant animal that once lived on earth. His name is Abū Ḥāmid Moḥammed Al-Andalusī, an Arab traveller who was born in Granada, Spain in 1080. He died around the year 1169 in Damascus and wrote a book entitled *Tuḥfat Al-Albāb wa Nukḥbat Al-'Ijāb* in Arabic. Some parts of Al-Andalusī's book are missing, but there are several references to it made by another traveller called Al-Qazwīnī (about 1208-1283), especially a reference to Al-Andalusi's visit to Bulgar city (Volga Bulgaria), which is located in the modern day Republic of Tatarstan, part of today's Russian Federation. It is important to note that Al-Andalusī was not the first Arab traveller to visit Bulgar since Ibn Faḍlān described the city (also

called Saqqālbah) during his visit on 12 May 922 (Ibn Fadlān 1960, p. 113). After describing the city and its dwellers' manners and customs, Al-Andalusī mentioned the following:

> *"I saw a tooth whose width was about two hands in size and its length was four hands, while its skull was like a dome. There were teeth like elephant's tusks underneath the earth and were as white as snow. They were very heavy since each tooth weighed about 200 mann [about 170 kilos]. No one knows to which animal it belongs since they might be the teeth of the Bulgars' animals that were transported to Khewārzm city [Khiva in modern day Uzbekistan]. These teeth were sold in Khiva in a fairly good price since they were treated like ivory though they were stronger than ivory as they never break. They were often used to make combs and hair holders" (Al-Andalusī, 1925, p.238; Al-Qazwīnī, 1969, p. 613).*

The above account provides a description that is similar to that of a dinosaur - a giant extinct animal whose fossilised skeleton was buried under earth. Interestingly, Andalusī and Plot both compared the bones they found to elephants, because the latter was the largest living animal known to them. This is also confirmed by the famous Arab writer, Al-Jāhiz (c. 781-868), who mentioned that the elephant was believed to be the largest and strongest known animal during his time in carrying heavy weights (1968, p. 105 and p. 110). Yet, there seems to be an exaggeration regarding the weight of the teeth in the account given above: it seems that Al-Andalusī was referring to the animal's spikes or claws. Also, it is difficult to determine which kind of dinosaur the above account refers to, but the *Eotitanosuchus* that actually lived once in Russia had large teeth and a wide and big skull similar to the shape of a dome (Benton, Shishkin & Unwin, 2003, p. 89). Indeed, the account given above can be regarded as the earliest reference to a dinosaur and now needs to be incorporated into other academic sources that investigate man's first descriptions of extinct creatures.

About the author

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