The ‘Natuurhistorisch Museum Maastricht’ – four decades of successful close co-operation with citizen scientists

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Founded in 1912 by the society named ‘Natuurhistorisch Genootschap in Limburg’, the ‘Natuurhistorisch Museum Maastricht’ (abbreviation: NHMM; Natural History Museum of Maastricht) at the Heksenhook (Jekerkwartier, south-western part of the city of Maastricht, the Netherlands), originally principally held collections of natural objects (including fossils) that had been amassed by members of that society, amongst whom were clergymen, school teachers, directors, medical doctors, civil servants and lawyers. A selection of these objects were put on display; school classes ranked amongst the most frequent visitors from the early beginning. Only from the 1960s onwards was material added to the museum collections on a regular and carefully planned basis. That decade saw the rise of an important group of local collectors from all walks of life, led by two mining engineers, who recovered numerous fossils of Late Cretaceous (Campanian and Maastrichtian), Paleogene and Neogene age, all across southern Limburg, between the cities of Heerlen and Maastricht. In the 1960s and 1970s there were still a lot of small chalk pits in the area; these have now long gone, making the material recovered from them of special importance. These local collectors, including schoolboys, were genuine ‘citizen scientists’ – all of them were well-versed collectors, who prepared their own finds and produced catalogues with all data on locality and stratigraphy. In this respect, this is a prime example of the so-called ‘Polder model’ that exists between professional (academic) palaeontologists and ‘amateur’ collectors across the Netherlands. There are no rules and regulations as far as the collection in the field of fossils is concerned, in contrast to archaeological objects, as outlined by Den Ouden & Pouwer (2018). This opens up the way for close co-operation between museums and private collectors, with huge benefits to be enjoyed by both parties.

This ‘Polder model’ also applies to Maastricht, and Cretaceous fossils from the vicinity. For over four decades, a group of private collectors have been considering the NHMM as their ‘home base’, meaning that each and every one of them is willing to part with their specimens if these are deemed important to be incorporated into the museum collections. This goes, of course, mostly for new species that are often described together with the collectors (as co-authors), and for taxa that are named after the collectors in peer-reviewed scientific papers. In this way, numerous scientifically important finds have been made, also at places no longer accessible today, and these have considerably increased our knowledge of the type-Maastrichtian (70.2-66 Ma). To name but a few groups: mosasaurs, plesiosaurs, birds (including both stem and crown group members that have made the pages of the journal *Nature*), mammals, ammonites and nautiloids, bivalves and all echinoderm groups. Thus, in close co-operation with citizen scientists in the area, we now have a much better picture of the shallow and warm sea that engulfed the north-western part of Europe during the latest Cretaceous and was teeming with life. Ongoing projects illustrate that there is more to come in future years!

The museum collections document the geology and palaeontology of the Maastricht area in particular (and southern Limburg, in general terms), as well as the present-day flora and fauna of this part of the province, displayed in several permanent exhibitions on the ground and first floors. Highlights comprise latest Cretaceous macrofossil taxa from the Sint-Pietersberg area (former ENCI cement quarry), i.e., the type area and section of the Maastrichtian Stage (Vellekoop *et al*., 2022). Several ‘citizen scientists’ also participate in the Science Lab, a special preparatory laboratory which attracts the most attention on the visitors’ part, with direction interaction with preparators, who often also take interested visitors into the adjoining geology/palaeontology hall where a mosasaur skeleton is on display, or onto the museum inner square with the ‘Mosaleum’, a glass cube in which the holotype (Dortangs *et al*., 2002) of the mosasaur, *Prognathodon saturator*, can be seen.

The museum also has a period room (‘Bruin museum’ or ‘Cabinet’), with curiosities dating from the late 19th and early 20th centuries. The adjoining botanical garden is situated close to a tributary of the River Jeker, itself a tributary of the River Maas. This river was the main ‘sculptor’ of the landscape during the late Pliocene and Pleistocene; its gravel deposits reflect the provenance areas of rock types and fossils of Palaeozoic and Mesozoic age from northern France and the Ardennes area in Belgium. One of the former intervals during the early Pleistocene, named Tiglian, also receives ample attention, the main ‘hero’ being the extinct beaver species, *Trogontherium cuvieri.* Once or twice per year, temporary exhibitions are staged; these are either productions produced by museum staff members themselves (such as successful exhibitions on sharks and whales) or hired from other parties.

**References**

Den Ouden, N. & Pouwer, R., 2018. Professional and amateur palaeontologists – the Dutch Polder Model. *In*: Proceedings of the ‘Fossillegal’ Symposium on Ethics in Palaeontology and The Ethics of UK fossil collecting from the shore to the store. *The Geological Curator*, **10** (10): 577-584.

Dortangs, R.W., Schulp, A.S., Mulder, E.W.A., Jagt, J.W.M., Peeters, H.H.G. & de Graaf, D.Th., 2002. A large new mosasaur from the Upper Cretaceous of The Netherlands. *Netherlands Journal of Geosciences*, **81** (1): 1-8.

Vellekoop, J., Kaskes, P., Sinnesael, M., Huygh, J., Déhais, T., Jagt, J.W.M., Speijer, R.P. & Claeys, P., 2022. A new age model and chemostratigraphic framework for the Maastrichtian type area (southeastern Netherlands, northeastern Belgium). *Newsletters on Stratigraphy*, **55** (4): 479-501. <https://doi.org/10.1127/nos/2022/0703>