

Das paläontologische Erbe in den Niederlanden

The Netherlands' palaeontological heritage

Нидерланди - палеонтологическое наследие

Von / by

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Abstract

The fate of palaeontological collections in The Netherlands is discussed, starting with the curiosity cabinets from the XVI and XVII century. The historically important collections of TEYLER's Museum are dealt with in some detail, as are the collections of the National Museum of Natural History. University collections are briefly treated, mentioning the scientific highlights and their present fate. The *Geological Survey of The Netherlands* (now: *Netherlands Institute for Applied Geoscience TNO*) has, of course, important collections from our country, of which the palaeobotanical collection of JONGMANS at the Geological Bureau of the Mining is especially mentioned. It will be no surprise that the only regional museum of natural history with a palaeontological collection of international importance is the one at

Maastricht, famous for its Maastrichtian (Late Cretaceous) fossils. Finally the importance up to this day of private collectors is emphasized.

The curiosity cabinets

Fossil collecting started in The Netherlands at the end of the XVI century with the curiosity cabinets of rich merchants, artists, pharmacists and physicians. The first important collection was that of Bernard ten Broecke (Bernardus Paludanus; Steenwijk, 28.10.1550 – Enkhuizen, 1633; see Theunisz, 1936), a town physician of Enkhuizen, who travelled a lot and got his MD in Italy, where he will have seen the important cabinets, such as those of Ferrante IMPERATO and Ulisse ALDROVANDI (VAN GELDER, 1993, p.125). In his turn he will have influenced the Danish collector Ole Worms, well known for his 'Museum Wormianum'. The Dutch cabinets, such as those of Albertus Seba (pharmacist; ETZEL, 2.5.1655 – Amsterdam, 2.5.1736) and the famous painter Rembrandt Harmensz van RIJN (Leiden, 15.7.1606 – Amsterdam, 4.10.1669) were rich in exotics, brought in by sailors, e.g. shells and other animals and plants from the former Dutch East Indies (present-day Indonesia) and many other countries, but minerals and fossils were usually also present. The collections were ordered in some way or another, sometimes on esthetic grounds, but others such as SEBA, a friend of LINNAEUS, tried a truly systematic order (see SEBA, 1765): The best Dutch fossil collection brought together in the XVII century was that of Peter VALCKENIER of whom little is known. None of these collections are, however, preserved in The Netherlands. Most were broken up after the death of the collector, who often sold part of his collection during his lifetime, and others were kept intact but sold abroad. Paludanus, for example, sold part of his collection to Landgrave Maurits of Hessen-Kassel and in 1651 his collection was sold posthumously to Duke FREDERICK III of Schleswig-Holstein, the latter collection now forming part of the Royal collection in Copenhagen (it is, however, highly unlikely that any fossils of Paludanus would still be tra-

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cable). The SEBA collection, together with that of Frederick RUYSC (Den Haag, 23.3.1638 – Amsterdam, 22.2.1731), was bought by Czar Peter the Great and is still at the Zoological Institute of the Russian Academy of Sciences in Saint Petersburg (VAN GELDER, 1993, p.141).

TEYLER's Museum

A good example of a curiosity cabinet that has survived to the present day is the TEYLER's Museum in Haarlem, a legacy of the rich merchant Pieter TEYLER VAN DER HULST (Haarlem, 1720 – Haarlem, 8.4.1778), originally consisting mainly of his art and numismatic collections. Since it was open to the general public and the scientific ordering was of prime importance, it bridges the gap to the modern science museums. In 1784, the physician Martinus van Marum (Delft, 20.3.1750 – Haarlem, 26.12.1837), a notable physicist, became its first director (see SCHREUDER, 1931; VAN REGTEREN ALTENA, 1957b). He was the first to include machines – such as his huge electricity machine – minerals and fossils in the museum, mainly by buying important specimens and collections such as the Cretaceous fossils from South Limburg of lieutenantcolonel Jean Baptiste Drouin (SEDAN, 1752 – Maastricht, 17.1.1792; see van Regteren Altena, 1957a). In 1802 he bought a most interesting fossil from a historical point of view, a salamander from the Miocene of Oeningen (Switzerland) described in 1726 by SCHEUCHZER (see VAN REGTEREN ALTENA, 1957b) as '*Homo diluvii testis et theoskopos*' (the man who witnessed the deluge and has seen God), later studied by CUVIER and described as *Andreas scheuchzeri* Holl, 1831. VAN MARUM also tried to buy a skull of a mammoth found near Heukelom, but he couldn't get enough funds and it went to the 'Hollandsche Maatschappij van Wetenschappen' (Dutch Society of the Sciences); eventually it went to TEYLER's when the Society's curiosity cabinet was liquidated.

His successor was Dr. Jacob Gisbert Samuel VAN BREDA (Delft, 24.10.1788 – Haarlem, 2.9.1867), Professor of Zoology and Geology at Leiden University. He en-

riched the palaeontological collections with important material from Oeningen, a locality that is no longer accessible, partly collected by HEER and including some more specimens of *Andreas scheuchzeri*. Also important Jurassic fossils from the famous German localities Holzmaden and Solnhofen were obtained by him. Recently, an important discovery was made among the latter material: a claw of an *Archaeopteryx* (see OSTROM, 1972). As chairman of the Commission to prepare a geological map of The Netherlands (see VAN DEN BOSCH, 1979 and also below), he managed to get the Cretaceous vertebrate collections from Limburg – accumulated by the Commission, including the collection of Professor Petrus CAMPER (Leiden, 11.5.1722 – Den Haag, 7.4.1789; see VAN STRAATEN, 1989) donated by his son Adriaan Giles CAMPER (Amsterdam, 31.3.1759 – Den Haag, 5.2.1820) to the University of Groningen (see VAN REGTEREN ALTENA, 1957a). Both were anatomists with a keen interest in vertebrate fossils, especially those from the Upper Cretaceous of Maastricht. They had a.o. obtained important material from Jean Leonard HOFFMANN (Basel, 30. 11. 1710 – Maastricht, 16. 1. 1782). An arrangement was made with the University of Groningen in order to keep these fossils in Haarlem and other fossils were given in exchange (STARING, 1862).

After VAN BREDA's demise, the physician Dr. h.c. Tiberius Cornelis WINKLER (Leeuwarden 28.5.1822 – Haarlem, 18.7.1897) became curator of the Mineralogical-Palaeontological cabinet of TEYLER's. As an anatomist he had a keen interest in vertebrate fossils, especially Mesozoic fishes. He described, for example, a Jurassic coelacanth from Solnhofen, named *Undina halemensis* for its repository: TEYLER's Museum at Haarlem (see VAN REGTEREN ALTENA, 1957b).

WINKLER was succeeded in 1897 by another physician, Professor Marie Eugene Francois Thomas DUBOIS (Eysden, 28. 1. 1829 – Haelen, 16. 12. 1940), reknown for his find of the *Pithecanthropus erectus* (see LEAKEY & SLIKKERVEER, 1993). Apart from a good collection of duplicates from famous hominid remains, including the notorious

Pitldown man *Eoanthropus dawsoni*, he enriched the collections with some nice ichthyosaur specimens from Holzmaden prepared by HAUFF and especially with a rich collection of vertebrate fossils from the type Tiglian at Tegelen, including *Trogontherium*, rhinos and the eagle *Haliaeetus albicilla*. At the beginning of the war Dr. Cornelis BEETS (Klaten, 25. 4. 1995, see WINKLER PRINS, 1996) took over. He and his successors Drs Carel Octavius VAN REGTEREN ALTENA and John DE VOS were mainly concerned in preserving the collections and stimulating research on it. All in all TEYLER's Museum has a comparatively small palaeontological collection of very high quality and extreme historical importance.

The National Museum of Natural History

In 1820 the '*Rijksmuseum van Natuurlijke Historie*' (National Museum of Natural History: RMNH) was founded in Leiden by Royal Decree. It was based on 's Lands Kabinet van Natuurlijke Historie' and the collections of Leiden University and of C.J. TEMMINCK, a keen ornithologist and the first director of the RMNH. The fossils formed a rather insignificant part of the collections, which were curated by zoologists. Examples are the collection of the chemist and geologist Gerard TROOST (Den Bosch, 15. 3. 1776 – Nashville, TN, 14. 8. 1850) and the ammonites described by Wilhem DE HAAN (Amsterdam, 7. 2. 1801 – Haarlem, 15. 4. 1855) in his doctor's thesis (see HOLTHUIS, 1993, 1995). Included in the Museum were also the collections that had been taken away by the French troops after occupying The Netherlands in 1794 and taken back from Paris after the battle of Waterloo (BRONGERSMA, 1978, p.43). The '*piece de resistance*' would have been the famous specimen of *Mosasaurus hoffmanni* MANTELL, 1829 found in 1770 near Maas-tricht but this was not returned, only a plaster cast copy and some other fossils were given as compensation.

An important addition was the collection gathered by the '*Commissie voor de Geologische Kaart van Nederland*' (Com-

mission to prepare the Geological Map of The Netherlands), notably by its secretary Dr. Winand Carel Hugo STARING (De Wildenborch near Vorden, 5. 10. 1808 – Laren, 4. 6. 1877; see Velding 1970, VAN DEN BOSCH, 1979). Many of the important fossil collectors in Limburg co-operated in the project by collecting material and describing it (see VAN DE GEIJN, 1944; KRUYTZER, 1963a). This collection included all rock types and fossils found in The Netherlands and contiguous areas, even some from the Lower Carboniferous of Vise. The CAMPER collection, brought to Haarlem by the chairman of the '*Commissie*', VAN BREDA, remained however in TEYLER's.

When in 1878 Dr. Karl Ludwig Maria MARTIN (Oldenburg, 24. 11. 1851 - Leiden, 14. 11. 1942, Fig. 6) came to Leiden as Professor of Geology, the director of the RMNH (Dr. H. SCHLEGEL) entrusted him with the geological collections, which he considered a nuisance (DE GROOT, 1978). Thus the '*Rijksmuseum van Geologie en Mineralogie*' (National Museum of Geology and Mineralogy; RGM) was created with Professor MARTIN as its first ('honorary') director (ESCHER, 1931; GERTH, 1944; VAN REGTEREN ALTENA, 1946). His life-long interest in the Cainozoic molluscs from the former Dutch East Indies (now Indonesia) made the RGM into the centre for the study of these fossils. He created the Museum's journal '*Sammlungen des Geologischen Reichsmuseums in Leiden*' mainly to describe them. Dr. Cornelis BEETS continued this work, including also research on Dutch Cainozoic molluscs from the Geological Survey of The Netherlands. Later, he also became director of the RGM (see WINKLER PRINS, 1996).

Early this century the important DUBOIS collection of mainly Quaternary vertebrates from the former Dutch East Indies, famous for the *Homo erectus* he described, was donated to the RMNH. The reason that it was not given to the RGM was that at the RMNH the fossils could be compared with the collection of Recent vertebrates from SE Asia. When both museums were after a century reunited to form the *Nationaal Natuurhistorisch Museum* (National Museum of Natural History), this collection was

included in the Palaeontology Department where it obviously belongs. The present curator of this collection, Dr. John DE VOS, stimulates research on this collection and is improving the knowledge on the stratigraphic context of the fossils in co-operation with Indonesian colleagues, stimulating them to build up their own, well documented collections.

Isaäk Marinus van der Vlerk (Utrecht, 31. 1. 1892 – Leiden, 29. 6. 1974), later to become also Professor of Palaeontology and director of the Museum, is internationally reknown for his work on Indo-Pacific large foraminifera and his letter-classification of the Tertiary based on it (DEN TEX, 1974). Through him the RGM obtained a large collection of Indonesian foraminifera, partly from the Royal Dutch/Shell Company. Leon O'HERNE and Dr. Jan Feike DE BOCK assisted him towards the end of his life and Dr. Jan KRIJNEN continued the study of larger foraminifera by studying Late Cretaceous *Lepidocyclina*'s from Jamaica. This research came to an end when KRIJNEN decided to leave the RGM in order to finish his fieldwork on Jamaica. Only this year it is renewed since a PhD student at the NNM, Willem RENEMA, has taken up the study of Tertiary and extant large foraminifera from Sulawesi (Indonesia).

The emphasis was shifted to a different kind of Microfossils, the conodonts, when Dr. Marinus van den Boogaard joined the RGM. His interests were broad, from Devonian to Triassic and from stratigraphy and palaeoecology to the reconstruction of an apparatus by statistic means (with the help of Bob Kuhry). Lately, he also studied Problematica, such as *Milaculum* and *Hadimopanella*, possibly remains of the oldest vertebrates.

The macro-invertebrates were curated by Dr. Gerda Elisabeth DE GROOT (Rotterdam, 25. 7. 1929 – Alphen aan de Rijn, 16. 11. 1990), who worked on Carboniferous corals from the Cantabrian Mountains (N Spain). In the late sixties and early seventies new curators were added to the staff to help her cope with the large and varied collections. They brought their own research projects with them, usually based on inves-

tigations carried out at the university where they were trained: I myself with Carboniferous brachiopods from Spain and elsewhere (e.g. Algeria, the Carnic Alps); Dr. Philippus Jacobus HOEDEMAEKER with Early Cretaceous ammonites from S Spain.

Vertebrate fossils in the RGM had been mainly obtained from The Netherlands by VAN DER VLERK and later Gerhard KORTENBOUT VAN DER SLUIJS (Alemlo, 17. 1. 1922 – Sassenheim, 1. 12. 1997), to a large degree from incidental finds by laymen, and the North Sea (especially from the '*Bruine Bank*' where fisherman got the bones in their nets). In this way an important collection was built: the collection of mammoth bones is considered the biggest in the world. When in 1969 Dr. Matthijs FREUDENTHAL joined the staff a different kind of vertebrate research began, the study of microvertebrates in a stratigraphic context. Although his work centered on faunas from Italy (Miocene island faunas from Gargano) and Spain (e.g. Aragonian project), he was also interested in our Dutch faunas and with others formed a group to investigate the type Tiglian at Tegelen. FREUDENTHAL took also on a quite different task in developing a computerised registration system for our collections (see FREUDENTHAL, 1975).

Two gifted amateurs joined the staff in 1970 to expand the research in The Netherlands. A special project was started to study the Tertiary of the Winterswijk area. Maarten VAN DEN BOSCH studied the lithostratigraphy and the shark teeth, whilst Adrianus Willem JANSSEN studied the molluscs (JANSSEN, 1984). The latter expanded his research to other areas in NW Europe and became very active in chronostratigraphic investigations. This made him shift his interest to the pelagic gastropods. For correlation purposes Mediterranean faunas, notably from Italy and Malta, were collected and studied by him.

Palynological research flourished during a short period with the work of Drs Johan Henri GERMERAAD and Heindricus Johannes Wilhelmus Geradina SCHALKE, but when they left the Museum the palynological collections, including those of Professor

Aart BROUWER, were given to the Rijks Geologische Dienst (Dutch material) and the Department of Palaeobotany and Palynology of the University of Utrecht (see below).

University collections

Several universities have no longer a geological institute, but most still have palaeontological collections, which have much in common. They all had material bought for teaching, to give a general overview of the different phyla through time. Students brought home through the years quite a lot of material from excursions throughout western Europe. Although among these collections there can be interesting specimens, the true importance lies in the material that formed the basis for the scientific research of staff and students. Naturally, each university had its own specialities both in systematic groups treated and the regions and geological ages that were covered.

As explained above, there was a close link between the Geological Institute of Leiden University and the RGM from its foundation with the arrival of Professor Martin. It was therefore a logical decision, that the collections that had been kept apart, mainly Devonian and Carboniferous invertebrate fossils from the Cantabrian Mts. (N Spain), were donated to the RGM when the Geological Institute was largely moved to Utrecht and the Palaeontology Department was closed down.

As described above in the discussion of TEYLER's Museum, the University of Groningen had an important collection brought together by Petrus CAMPER, of which only a small part remains there. Also of importance was the ostracod collection of the renowned specialist Professor Jan Haitzes BONNEMA (Arum, 7. 1. 1864 – Groningen, 17. 9. 1941; see VEENSTRA, 1990). When the Geological Institute was closed down, the general collections were donated to the RGM.

At the University of Utrecht Cainozoic invertebrate fossils from Indonesia were brought together by Professor Louis Martin

Robert RUTTEN (Maastricht, 4. 6. 1884 – Utrecht, 11. 2. 1946; see KUENEN, 1947), but the collection was far less important than that at the RGM. Vertebrate collecting was stimulated by Professor Gustav Heinrich Ralph VON KOENIGSWALD (Berlin, 13. 11. 1902 – Bad Homburg, 10. 7. 1982) and his staff and students accumulated a rich collection, well known for its Mediterranean island faunas. Professor Cornelis DROOGER started research on Tertiary foraminifera, specialising with his group on the Mediterranean region, where his successor is still working. A separate institute is the Department of Palaeobotany and Palynology of Professor Henk VISSCHER. He and his staff created a palaeobotanical museum with important plant macrofossils and palynological material.

It may seem peculiar that the mining institute of the Technical University at Delft had an important fossil collection and not of Carboniferous plants at that. Professor Gustaaf Adolf Frederik MOLENGRAAF (Nijmegen, 27. 2. 1860 – Wassenaar, 26. 3. 1930; see BROUWER, 1942) was a keen geologist who brought together a fine fossil collection for his teaching and also, during an expedition he directed, nice fossils from the Permian of Timor (Indonesia) including type material. The palaeontological collection was donated to the RGM apart from the latter material which is still at Delft.

At the University of Amsterdam Professor Hendrik Albertus BROUWER (Medemblik, 20. 9. 1886 – Amsterdam, 18. 9. 1973; see EGELER, 1973) gathered rich material from the former Dutch East Indies (present-day Indonesia) during expeditions he participated in. Specialists from all over the world studied the Mesozoic and Paleozoic (notably Timor) fossils. There has been a dispute about some of the Timor material between MOLENGRAAF and BROUWER, but that isn't of any importance any more. Later, Professor Jacobus Jan HERMES and his students collected foraminifera and other invertebrate fossils from Spain (Betic Cordillera) and the Caribbean. Part of the latter material, a.o. a large collection of rudists from Jamaica, was donated to the RGM. Dr. Thomas VAN DER HAMMEN moved in 1967 with his group from Leiden to Amsterdam founding a Paly-

nology Department, which was separate from the Geological Institute which is now closed down. They have got an international reputation for their work on the Cainozoic of northern South America and assembled an important collection.

The Geological Institute of the Free ('Vrije') University of Amsterdam is the youngest in our country and they have no long tradition in fossil collecting. Since they have limited space they decided to donate selected (and registered) material that is no longer used for research to the NNM. This co-operation is highly appreciated by both institutions.

Geological Survey of The Netherlands

The '*Rijks Geologische Dienst*' was founded in 1918 as a successor one could say of the '*Commissie voor de Geologische Kaart van Nederland*' (Commission to prepare the Geological Map of The Netherlands) discussed above. It has merged and will continue as the '*Nederland Instituut voor Technische Geowetenschappen TNO*' (Netherlands Institute for Applied Geoscience TNO). It obviously has important invertebrate collections from our country, especially Cainozoic molluscs, and microfossil collections, notably foraminifera, diatoms and palynological material.

After the '*Dienst voor de Rijksopsporing van Delfstoffen*' (State Service for the Exploration of Mineral Resources) ceased to exist in 1924, the '*Geologisch Bureau voor het Mijngebied*' (Geological Bureau for the Mining District) was created, which flourished under the direction of Professor Wilhelmus Josephus JONGMANS (Leiden, 13. 8. 1878 – Heerlen, 13. 10. 1957; see WAGNER & VAN AMEROM, 1995; WAGNER, 1997), who became famous both as a paleobotanist and Carboniferous stratigrapher. He was one of the founders of the International Congress on Carboniferous Stratigraphy and Geology, the first congress dedicated to a geological epoch, and it was thanks to him that the first four congresses were held at Heerlen. His collection of Carboniferous plants is one of the most important in the world, since it contains

many specimens of each species, showing the whole range of variety of the complicated leaves, and since it has material from all over the world. Apart from other fossil material from Limburg it has also an important spore collection brought together by Sijben Jan DIJKSTRA (Wams, 27. 2. 1906 – on his return to Heerlen from Hoogeveen, 28. 4. 1982, see VAN AMEROM, 1985).

Regional museums

There are many regional museums with palaeontological collections, which are however normally not of international importance. An exception is the Natuurhistorisch Museum (Natural History Museum) of Maastricht. It will be no surprise that it has rich material from the Maastrichtian (Late Cretaceous), both vertebrate and invertebrate, including the rich bryozoan collection of Eduard Willem Gerard PERGENS (Maaseik, 23. 10. 1862 – Maaseik, 11. 4. 1917, see DE BRUIJN, 1974).

Private collections

In the XIX century there were many keen fossil collectors in Limburg (VAN DER GEIJN, 1941; KRUYTZER, 1963a), who partly co-operated with Staring in the preparation of the first geological map of The Netherlands (see VAN DER GEIJN, 1944). Generally little is known about what happened with their collections. Exceptions are Johannes Theodorus BINKHORST VAN DEN BINKHORST (Amsterdam, 3. 8. 1810 – Gestel, 22. 12. 1876), whose collection went to the '*Kaiserliches Museum*' in Berlin, Joseph Augustin Hubert DE BOSQUET (Maastricht, 7. 2. 1814 – Maastricht, 28. 6. 1881; see KRUYTZER, 1963b), whose collection was bought by W. SUYKERBUYCK for the Musée royal des Sciences naturelles de Belgique at Brussels, and Pergens mentioned above.

Until this day, private collections are an important source for local, regional and national museums. Local amateurs have often excellent material, this holds for example true for *Nothosaurus* specimens from the Triassic at Winterswijk. In recent years, our

museum (NNM) has obtained through donation or purchase interesting invertebrate material from Willem Arnold DUVEEN, Jaap KLEIN and Wouter SÜDKAMP.

Conclusions

There are important collections in The Netherlands, not only from our own country and former colonies but also from elsewhere, forming part of the palaeontological heritage of the world (see CLEEVELEY, 1983). These are partly well kept in museums, but others are endangered by lack of interest of the governing bodies and of funding. The reorganisation of the geological education in The Netherlands with the closure of several geological institutes, such as that of the University of Amsterdam, has created a severe problem what to do with their collections. Financing storage room and personnel for curation is seen as a burden. The reorganisation of the Geological Survey of The Netherlands caused them to reconsider their priorities and there have been drastic cuts in the personnel of the Geological Bureau which ceased to exist as a separate unit.

The National Museum of Natural History sees it as one of its tasks to help find solutions in order to save the important geological (and biological) collections.

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