Nationaal Natuurhistorisch Museum Naturalis, Leiden
National Museum of Natural History Naturalis, Leiden

This CD-ROM contains material from the Leiden museum not widely published in hardcopy form. It is made available in digital form through this CD-ROM, and readable through the Adobe Acrobat Reader.

CD-ROM Terms and Conditions of Use

1. License
(a) The National Museum of Natural History Naturalis (short: Naturalis) grants the customer a non-exclusive non-transferable license to use this CD-ROM either (i) on a single computer for use by one or more people at different times or (ii) by a single user on one or more computers (provided the CD-ROM is used only on one computer at one time and is always the same user).
(b) The customer must not: (i) copy or authorize the copying of the CD-ROM, except that Library customers may make one copy for archiving purposes only; (ii) translate the CD-ROM, (iii) reverse-engineer, disassemble or decompile the CD-ROM, (iv) transfer, sell assign, or otherwise convey any portion of the CD-ROM, or (v) operate the CD-ROM from a network or mainframe system.
(c) The customer may use the CD-ROM for educational and research purposes as follows: material contained on a single screen may be printed out and used within a fair use/fair dealing context; images may be downloaded for bona fide teaching purposes but may not be further distributed in any form or made available for sale. An archive copy of the product may be made where libraries have this facility, on condition that the copy is for archiving purposes only and is not used or circulated within or beyond the library where the copy is made.

2. Copyright

3. Limited warranty
To the extent permitted by applicable law, Naturalis accepts no liability for consequential loss or damage of any kind resulting from the use of the CD-ROM or from errors or faults contained in it. Naturalis's liability shall extend only to replacing a product that is defective.

4. Correspondence with the publisher
The Publisher
Nationaal Natuurhistorisch Museum Naturalis
Postbus 9517
NL-2300 RA Leiden
The Netherlands

v 2002-06-10

Type specimens of Maastrichtian fossils in the National Museum of Natural History, Leiden

Jacob Leloux

Leloux, J. Type specimens of Maastrichtian fossils in the National Museum of Natural History, Leiden. – NNM Tech. Bull., 4: 1-40, 4 pls, 1 fig., 1 table; Leiden, June 2002.
Jacob Leloux, Gortestraat 82, 2311 NM Leiden, The Netherlands, jx@wxs.nl

Keywords: Foraminifera; Scleractinia; Bivalvia; Ammonoidea; Nautiloidea; Asterozoa; Fossil plants; Ostracoda; Brachiopoda; Cirripedia; Staring Collection.
The type specimens of Maastrichtian invertebrate fossils from Limburg, The Netherlands, present in the National Museum of Natural History, Leiden, are listed. The Upper Cretaceous plant type specimens from Limburg of Miquel that were once part of the Staring collection present in the Palaeobotanical Museum of the Utrecht University are also included. Specimens of species described by Bosquet are also listed, since they possibly include type material. Short biographies of some of the important collectors and investigators are presented.

Contents

Introduction 1
Acknowledgements 6
Systematic list of type specimens 6
Plant fossils described by Miquel 22
Specimens of species erected by Bosquet and sent to Staring in 1863 24
References 31
Plates 35
Index 39

Introduction

André Dumont defined the geological time interval of the Maastrichtian in 1849. Dumont based his description on the chalk deposits at the St Pietersberg south of Maastricht, The Netherlands. In recent years the Maastrichtian has become a popular research topic worldwide. The Maastrichtian Age represents the final chapter of the Cretaceous Period. It was the last time interval in which dinosaurs and ammonites lived. The mass extinction at the end of the Maastrichtian is one of the largest extinction events in earth history. In 1999 the Natural History Museum of Maastricht celebrated the 150th anniversary of Dumont's introduction of the Maastrichtian with a conference and an exhibition.

In 1860 Staring published 'The Bodem van Nederland'. He presented the first detailed lithostratigraphy of the Maastrichtian in its type area. He divided the local Maastrichtian deposits in 'Maastrichtsche krijt' en 'Gulpensche krijt'. This division is in modern nomenclature: Maastricht Formation and Gulpen Formation. The collection on which he based his work and the first geological map of The Netherlands is considered an important part of our geological cultural heritage. Type specimens of 39 species of Maastrichtian Foraminifera, Scleractinia, Bivalvia, Ammonoidea, Nautiloidea, Echinoidea and Asteroidea are housed at the National Museum of Natural History at Leiden (Nationaal Natuurhistorisch Museum: NNM). Registration numbers are prefixed RGM, referring to the former Rijksmuseum van Geologie en Mineralogie, now forming part of the NNM. The publication of this list is a contribution of the NNM to the celebration of the 150th anniversary of the Maastrichtian and an invitation to colleagues to improve our knowledge of the last Mesozoic flora and fauna.

Some important names

Commission

The Commission on the geological map of The Netherlands, henceforth called the Commission, was appointed by the Dutch Ministery of home affairs in 1852. The chairman became van Breda, the secretary was Staring and Miquel became a member. The Commission had about twenty correspondents. Due to quarrels mainly between Staring and van Breda the Commission was dissolved in 1855. Source: Geyn, 1944; Breure & de Bruijn, 1979.

Bosquet

Joseph Augustinus Hubertus de Bosquet (Maastricht, 7.ii.1814 - Maastricht, 28.vi.1880) was the son of J.G.A. de Bosquet, a tax collector, and M.J.M. Mollee of Caberg. He was born during a visit to Maastricht. Joseph Bosquet, as

he called himself, started as an apprentice chemist with J.G.F. Henckelius (1783-1859) at the corner of the Muntstraat and the Jodenstraat in Maastricht. Henckelius himself had a famous collection of Cretaceous fossils. Not only did he teach Bosquet to be a good chemist but also to be a palaeontologist. After Henckelius' death Joseph took over the business and a part of the collection. In 1852 he became a correspondent for the Commission. He was praised for his scientific work: in 1856 he became a member of the Royal Academy of Sciences in Amsterdam, in 1864 the University of Groningen presented him an honorary degree and in 1868 the London Geological Society honoured him with the golden Wollaston medal. He described new ostracods, cirripedes and brachiopods in a series of publications and corresponded with Charles Darwin about cirripedes. His collection was bought after his death in 1880 by Guillaume Suyckerbuyck and was donated to KBIN (= IRScNB) in Brussels. This collection was split systematically. Portions of his collections were already sold and given away during Bosquet's life. A small collection of Cirripedes was acquired by Charles Darwin in 1854 and is now in London. In 1863 Staring received a considerable amount of material now at Leiden. In 1870 London purchased a collection of ostracods, including type specimens. Riemsdijck also had some ostracods, which are stored at the Institute for Earth Sciences in Utrecht. Reuss also received some material (now in Vienna). Source: Ubaghs, 1881; Withers, 1935; Kruytzer, 1963; Boekschoten, 1961; Jagt, 1994.

Van Breda

Jacob Gijsbertus Samuel van Breda (Delft, 24.x.1788 - Haarlem, 2.ix.1867) was the son of Dr Jacob van Breda, a physician and politician at Delft. He lost his mother when he was two years old. Van Breda studied in Leiden and he obtained his Doctor's degree in 1811. In 1816 he became professor at Franeker (botany, chemistry, pharmacy). He travelled extensively through Europe. In 1821 he married the daughter of Adrian Gilles Camper, granddaughter of the famous Petrus Camper. A year after, he became professor at Gent. Due to the political troubles in Belgium he left in 1830 and in 1831 he became professor at Leiden. Staring was one of his students at that time. Two years after the death of his first wife he remarried with C.M. Veeren and in 1839 he stopped working at the university to become secretary of the Hollandsche Maatschappij der Wetenschappen and director of Teylers Museum in Haarlem. He held these functions until 1864. During his life he collected about 1900 fossils, which were purchased from his executors in 1871 by the British Museum. Sources: Withers, 1935; de Bruijn, 1969.

Dhondt

Annie Valerie Jeanne Dhondt (Gent, 4.i.1942) studied zoology at the University of Gent (1960-1965) and obtained her Doctor's degree in 1970 on a study of the taxonomy of pectinids from the European Cretaceous. From 1967 onwards, she worked at the Royal Belgium Institute of Natural Sciences in Brussels, where at present she heads the section of Fossil Invertebrates. Her research is concentrated on non-rudistid Cretaceous bivalves.

Hofker

Jan Hofker Sr (Velsen, 15.vi.1898 - The Hague, 31.vii.1991) was the elder of two sons of Gerrit Jan Hofker and Maria Gerardina Adelink. He studied geology, botany and zoology at the University of Leiden, where he graduated in April 1922. At that time, he had already accepted a job as teacher at the municipal grammar school in The Hague, a job that he continued until his retirement in 1969. On 15.xi.1927 he obtained his Doctor's degree on a study of foraminifera of the Siboga expedition. He married twice and had two sons. One of them, Jan Hofker Jr, also became a well-known geologist (Source: den Hartog, in prep.). Jan Hofker Sr was a leading specialist on Maastrichtian and Danian foraminifera of Limburg in the middle of this century. He wrote countless publications in which he described and illustrated by line drawings most species. He published a taxonomical overview in 1966. Up to now, this publication is still regarded as one of the most complete works on Maastrichtian to Danian foraminifera of The Netherlands.

Jagt

John (Johannes Wilhelmus Maria) Jagt (Venlo, 17.xi.1960) studied English literature and applied linguistics at the Katholieke Universiteit Nijmegen (1979-1987). He worked for a couple of years as a volunteer at the former Geologisch Bureau (Heerlen), where he was the managing editor of a series on Late Cretaceous fossils from the Maastrichtian type area. From January 1991, Jagt has worked at the Natuurhistorisch Museum Maastricht, where he was appointed curator of Cretaceous collections in 1998. He obtained his Doctor's degree in 2000 on a study of echinoderm faunas from southern Limburg and adjacent areas . He has (co-)authored numerous papers on Late Cretaceous decapod crustaceans, ammonoids, nautiloids, mosasaurs, and dinosaurs.

Laurent

C.J. (or K.J.) Laurent (Maastricht, 1818 - ?) collected together with van Riemsdijk for Staring. Bosquet and Miquel described fossils from his collections. He resigned as correspondent from the Commission in 1853. Little is known about him. Source: van der Geyn, 1944.

Miquel

Friedrich Anton Wilhelm Miquel (Neunhaus (Drente), 24.x.1811 - Utrecht, 23.i.1872) studied literature and medicine in Groningen. He started his career as a physician in Amsterdam; subsequently he became lector at the Clinical School in Rotterdam. In 1840 he married C.E. Madry. In 1846 he became professor of Botany at the Amsterdam Athenaeum and in 1859 at the Utrecht University. He was also director of the Herbarium in Leiden and one of the three core members of the Commission. He described new species of Cretaceous plant fossils from Limburg in one of the publications of the Commission in 1854. Although none of these specimens are present in the NNM, they must be mentioned, because most were once part of the collections of Bosquet and Thierens and they have been registered by Staring in his Catalogue (p. 56: 'Krijtplanten van Maastricht gezonden door de correspondenten en teruggenomen door den eigenaar. Miquel in 1854'. STA 4741-4760).

Van Riemsdijk

Jonkheer Adrianus Willem Gerrit van Riemsdijk (Helmond, 1803 - Utrecht, 1871) was first 'arrondissementsbetaalmeester' at Maastricht, subsequently a member of the 'muntcollege' and finally 'inspecteur-essayeur-generaal' at Utrecht. Between 1820 and 1860 he amassed a beautiful collection of fossils, minerals and rocks. Bosquet donated to Riemsdijk 28 small glass tubes with Maastrichtian ostracods, which Bosquet had studied in 1847. After the death of his wife in 1882 a part of the collection went to the recently founded Geological Institute of Utrecht University. Professor Wichmann was pleased to receive this collection of 2130 objects, among which the Cretaceous of Limburg was well presented. The main portion is now part of the University Museum in Utrecht. Boekschoten (1961) noted that Van Hinte studied and registered these ostracods as S 2992-3023 in the so-called S-collection of the Institute of Earth Sciences of Utrecht University. He mentioned their value as paratypes. Miquel studied the fossil plants collected by van Riemsdijk; these were transferred to the Paleobotanical Museum of the Utrecht University. Source: Boekschoten, 1961.

Schijfsma

Ernest Schijfsma (born in Tjepoe) was awarded a Doctor's degree on 6.xi.1946 at Leiden University on a study of foraminifera from the Hervian (Campanian) of Southern Limburg. According to his thesis a complete collection of Hervian foraminifera was housed at the museum of the Geological Bureau, Akerstraat 86-88, in Heerlen. This collection contains holo- and paratypes of his 15 new species. A duplicate collection was stored at the Geological Foundation (= Survey) in Haarlem, Spaarne 17. Schijfsma liked to store a third collection at the RGM. However, no record has been found (yet?) of this donation to the NNM. It is supposed that it never came to a donation at all. The so-called type collection of Schijfsma at the Geological Bureau has not been transferred to Leiden and is probably still in Heerlen.

Staring

Winand Carel Hugo Staring (Lochem, 5.x.1808 - Lochem, 7.vii.1877) was the son of the poet A.W.C. Staring. He wrote his Doctor's thesis on the geology of The Netherlands and obtained his degree in 1833 at Leiden University. After his marriage in 1838 he lived in Laren. In 1852 he became secretary of the Commission. Due to quarrels the Commission ceased to exist in 1855. Staring continued the work on the map and in 1860 'De bodem van Nederland' was published. The last part of the map was published in 1867 and it was awarded in 1869 on the World exhibition in London for its precision. In 1863 Staring was professor in Delft for one year. He ended his career as an inspector for high schools and agricultural schools. Sources: Veldink, 1970; de Bruijn, 1974.

Between 1852 and 1864 Staring brought together a collection of rocks, sediments and fossils at 'het Paviljoen' in Haarlem. The collection's main purpose was to support the work on the geological map. It was brought to Leiden in April 1864, where it remained in the Rijksmuseum van Natuurlijke Historie (RMNH) until 1878. In that year the collection went to the just founded Rijksmuseum van Geologie en Mineralogie (RGM). Most of Staring's Archive was transferred to the RGM in 1915. The handwritten catalogue of this collection is present in the scientific archive of the palaeontological department of the NNM. [Maarten van den Bosch, former RGM curator Sedimentology, made a copy and an index of this catalogue in 1975. Gerda de Groot, former RGM curator, added some remarks in this copy.]

Van der Tuuk

Luit. A. van der Tuuk (Utrecht, 1954) lives and works in Utrecht. He married Ans Klein Hesselink. Between 1980 and 1985 he published several papers on jaw parts of nautiloids and on scaphitid ammonoids from the Upper Cretaceous of Limburg.

Umbgrove

Johannes Herman Frederik Umbgrove (Hulsberg, Limburg, 5.ii.1899 - Delft, 14.vi.1954) started to collect natural objects when he was in primary school. A schoolfriend's father worked in the quarries in Limburg, so that he could

look for fossils. His interest in collecting and in the Limburg Cretaceous would become an important factor in his life. In 1919 he started studying geology in Leiden. In 1926 he took his doctor's degree on the stratigraphy, tectonics and petrography of the Upper Cretaceous of Limburg, while he already wrote some important papers on fossils of the same age in 1925. In 1926 Umbgrove went to Indonesia as a coral specialist, but over there he also became a specialist on Cenozoic foraminifera, volcanoes, tectonics and palaeogeography. He worked for the Geological Survey for three years. Upon returning to the Netherlands in 1929 he worked as an assistant of Professor Escher at the RGM for a short time. In 1930 he became professor of historical geology and palaeontology in Delft. In 1952 he fell ill and died of that illness two years later. During his life he published more than one hundred and twenty papers, articles and books. For his research on Maastrichtian corals of Limburg he brought together from his own collection as well as from the collections of the universities of Leiden, Utrecht, Groningen and Wageningen a series of specimens of each species in Leiden in 1925. This material originated. In addition the collections of Teylers Museum, the Natuurhistorisch Genootschap and the city collection in the 'Atheneum' in Maastricht. He also studied the collections in Brussels and Bonn, while he stated that the München and Delft collections did not present new material. Umbgrove made wax casts of most of his studied corals, which are still stored with the original fossils. This collection of corals is not the so-called Umbgrove collection, which in fact is his private collection and bought by the RGM in 1955 together with its catalogues, which show notes by the young Umbgrove. Sources: van der Vlerk & Kuenen, 1954; van der Vlerk in Umbgrove, 1956; Umbgrove, 1925a; RGM archives.

Visser

Anna Maria Visser (Batavia (now Djakarta), ?) defended her thesis on Foraminifera of the Upper Cretaceous of Limburg on 20.xii.1950. She was the daughter of Professor Visser and Mrs. M. Visser-Laban. Her brother W.A. Visser had already published an article on the same subject in 1937. She married Mr L.P. Bienfait. The A.M. Visser collection is part of the NNM micro-invertebrate fossil collections. It has three parts:
1. 'Sample-collection'. Boxes FOR 01 to FOR 05 contain the sieving residues and the leftovers of the samples used for her research. It also contains some rough sketches on which her plates were based.
2. 'Thesis-collection'. Slides containing one to many specimens of one species and thin sections of one specimen on the basis of which she created her stratigraphical distributions (Visser, 1950, pl. 12-15). Stored on Tray 60-01 to 61-46. Part 3 of the collection is picked from these slides.
3. 'Type-collection'. Slides and thin sections containing one of just a few specimens, which were figured in Visser, 1950, pl. 1-11. This collection contains the slides, which Visser, 1950 appointed as holotypes for her new nominal species as well as the other figured specimens. Visser, 1950 mentioned of RGM S18748-RGM S18865, RGM S18890-S18925. RGM S18866 and S18867 also belong to this collection. Some slides were not in place during present stock-taking: RGM S18819 (Orbitoides apiculata, vertical section illustrated in Visser, 1950: pl. 11, fig. 3, supposedly transferred to 'Studiecollectie'), RGM S18853 (pl. 1, fig. 5), S18856 (pl. 1, fig. 1), S18857 (pl. 1, fig. 2) and S18890 (pl. 8, fig. 1). Stored in an old wooden cupboard. In several cases there are more than one specimen in the slide and the illustrations are too poor to recognize the correct specimen. Even worse, sometimes Visser illustrated more than one specimen as being the holotype. The specimens in these cases are syntypes.

Vogel

Friedrich Vogel (Hannover, 20.ii.1860 - ?) was the son of salesman Wilhelm Vogel and of Alexandra Vogel-Lutterloh. He obtained his Doctor's degree at the Rheinische Friedrich Wilhelms Universität in Bonn on 22 June 1892 on the Upper Cretaceous from Irnich at the northern edge of the Eifel. After working at the geological museum in Bonn, he became an assistant of Professor K. Martin at the RGM in Leiden (1894 - 1.v.1895). He published on Dutch Cretaceous mollusks and on Mesozoic molluscs from Borneo in the 'Sammlungen'. Sources: Vogel, 1892; Vlerk, 1931.

Van der Weijden

About W.J.M. van der Weijden, who authored 'Die Macrofauna der Hervenschen Kreide' in 1943 is little known. It was thought that this author was the same as Wilhelmus Jacobus Maria van der Weijden, born in Oss, who obtained Doctor's degree at Leiden University on *Discocyclina* of Europe on 29.ii.1940. However, Jagt (pers. comm., October 1999) had his doubts, since he remembered this author to be a woman working at the Geological Bureau at Heerlen.

Geography

Localities are listed (Table 1, Fig. 1) in alphabetical order, and spelt as cited on the labels and records belonging to the type specimens. The correct spelling and co-ordinates are taken from sheets 69B (Maastricht) and 69E (Heerlen) of the topographic map of The Netherlands 1:25000, edition VIII-93.

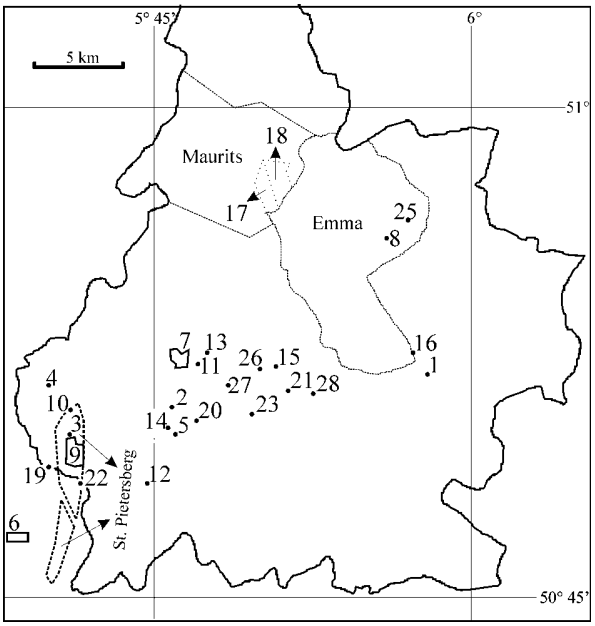

Fig. 1. Map of Southern Limburg showing the localities (see Table 1).

Stratigraphy

The stratigraphical provenance of the specimens is presented as cited on the labels or in the original publications. Therefore, only in a few cases it is in conformity with the modern nomenclature as defined by Albers & Felder (1979) and presented by van den Adrichem Boogaert & Kouwe (1994) and Felder & Bosch, 1998. It is in many cases difficult to correlate in detail the old citations to the present nomenclature.

Codes like m4, m8 and m17 are cited. Staring introduced them in 1860. The m stands for 'Maastrichtsche Krijt' or 'Système Maestrichtien' from Dumont, now the Maastricht Formation. m4 is the 'Eerste Bryozoënlaag', the so-called first bryozoa layer, counted from ground level downwards, in the 'Maastrichtsche krijt met Ostrea larva' (Staring, 1860) or 'Calcaire à polypier' from Dumont. m8 is the so-called second bryozoa layer. Compared to the situation in the ENCI quarry, m4 and m8 would probably be one of the fossil hashes in the Meerssen Member. m17 is the so-called coprolite-layer, which can be regarded as fossil hash layer at the base of the Maastricht Formation.

Table 1. Geographical co-ordinates and synonyms of localities (see Fig. 1).

No.	localities	co-ordinates
1:	Benzenraedhof (= Benzenraderhof)	± 50° 51'50" N 5° 57'56" E
2:	Bemelen	± 50° 50' 50" N 5° 45' 50" E
3:	Burgerwacht Quarry [1])	± 50° 50' N 5° 41' E
4:	Caberg	± 50° 51' 30" N 5° 40' E
5:	Cadier en Keer	± 50° 50' N 5° 46'E
6:	CBR-Romontbos Quarry	± 50° 47' N 5° 38' – 39' E
7:	Curfs Quarry [2])	± 50° 52' – 50° 52' 30" N 5° 46' – 5° 46' 40" E
8:	Emma colliery shaft I	± 50° 53' N 5° 59' E
9:	ENCI-Maastricht B.V. Quarry	50° 49'-50° 50' N 5° 40' 45"-5° 41' 40" E Fauquemont (= Valkenburg)
10:	Fort St Pieter	± 50° 50' 15" N 5° 41' 02" E Geulem (=Geulhem)
11:	Geulhem	± 50° 52' 09" N 5° 47' 04" E Geulheim (=Geulhem)
12:	Gronsveld, outcrop in the Savelsbosch	± 50° 48' 30" N 5° 44" 40" E)
13:	Houthem	± 50° 51' 30" N 5° 47' 30" E Houthemerberg = hill, SW of Houthem Kaberg, below fortress Willem (= Caberg) Keer (= Cadier en Keer)
14:	Keerderberg	± 50° 50' 12" N 5° 45' 39" E
15:	Keutenberg	± 50° 50' 40" N 5° 52' 35" E
16:	Kunraede (= Kunrade)	± 50° 52' 30" N 5° 57' 15" E
17:	Maurits I colliery	See I on map
18:	Maurits II colliery	See II on map Nedercanne/Neder-Canne (= Neerkanne)
19:	Neerkanne	± 50° 49' N 5° 40' E
20:	NEKAMI 't Rooth Quarry (= Ankerpoort-'t Rooth)	± 50° 50' 25" N 5° 47' E
21:	Oud-Valkenburg	± 50° 51' 20" N 5° 51' 20" E
22:	Petit-Lanaye	± 50° 48' 30" N 5° 41' 30" E
23:	Sibbe	± 50° 50' 37" N 5° 49' 37" E St. Pierre or Mont St. Pierre (=St. Pietersberg)
24:	St. Pietersberg	± 50° 45' – 50° 50' 30" N 5° 40' – 5° 41' 45" E
25:	Treebeek	± 50° 56' N 5° 56' E
26:	Valkenburg	± 50° 52' N 5° 50' E Vieux-Fauquemont (= Oud-Valkenburg)
27:	Vilt	± 50° 51' 30" N 5° 48' 30" E
28:	Wilze [3])	± 50° 50' N 5° 54' E

[1]) Between the former Fortress of St Pieter and the farmstead Zonneberg.
[2]) Quarry formerly owned by Curfs, now by Ankerpoort B. V., west of Geulhem.
[3]) Probably Wijlre near Gulpen between Schin op Geul and Wittem.

Acknowledgements

The author is thankful to John Jagt (Natuurhistorisch Museum Maastricht), Cor Winkler Prins, Willem Renema and Phillip Hoedemaeker (NNM) for critically reviewing the drafts. He is grateful to Annie Dhondt (KBIN-IRScNB) for her second opinion on the bivalve specimens and for the opportunity to study the Bosquet collection in Brussels. He thanks Diederik Visser (University Museum, Utrecht) for the opportunity to see the Riemsdijk collections. Johan van de Burgh (Utrecht University) is thanked for allowing the author to see the Miquel type specimens and Gerrit van 't Veld is thanked for allowing the author to have a look at the ostracods from the Van Riemsdijk collections. Further the author expresses his gratitude to the following people for help, advice and information: Han van Konijnenburg-van Cittert (NNM, Utrecht University), Wouter Wildenberg (NNM), Lars van den Hoek-Ostende (NNM), Frank Wesselingh (NNM) and Dr P.K. Tubbs (executive secretary of the International Commission on Zoological Nomenclature).

Systematic list of type specimens

Incertae sedis
Genus *Leptodermella* Rhumbler, 1935
Leptodermella maestrichtiensis Visser, 1950

Leptodermella maestrichtiensis n. sp. – Visser, 1950: 211, pl. 7, fig. 13.
Leptodermella maastrichtiensis Visser, 1950 – Bolli & Saunders, 1954: 49.
Leptodermella maastrichtiensis Visser – Hofker, 1966: 103.

Holotype from Burgerwacht Quarry, 17.00 m depth, collected by A.M. Visser (RGM S18860).

Paratypes from the Burgerwacht Quarry, collected by A.M. Visser: RGM 67159 (1 specimen, sample VAM B.02A, 19.40 m depth), RGM 67219 (9 specimens, sample VAM B.04, 17.80 m depth), RGM 67246 (6 specimens, sample VAM B.04A, 17.80 m depth), RGM 67278 (5 specimens, sample VAM B.05, 17.00 m depth), RGM 67310 (2 specimens, sample VAM B.06, 16.20 m depth), RGM 67340 (3 specimens, sample VAM B.09, 13.80 m depth), RGM 67373 (2 specimens, sample VAM B.10, 13.00 m depth), RGM 67593 (4 specimens, sample VAM B.16, 8.20 m depth).
Paratypes from Geul valley, south side of path Valkenburg to Geulhem at the crossroad to Berg, collected by A. M. Visser: RGM 68023 (4 specimens, sample VAM G.03, 13.00 m depth), RGM 68070 (1 specimen, sample VAM G.04, 12.20 m depth), RGM 68422 (2 specimens, sample VAM G.12, 5.80 m depth), RGM 68464 (1 specimen, sample VAM G.13, 5.00 m depth).

Paratypes from Gronsveld, outcrop in the Savelsbosch, collected by H.J. Jonker & K.L. de Vries: RGM 68725 (14 specimens, sample VAM S.01, 11.10 m depth), RGM 68753 (c. 170 specimens, sample VAM S.02, 10.50 m depth), RGM 68783 (c. 104 specimens, sample VAM S.04, 10.25 m depth), RGM 68812 (c. 80 specimens, sample VAM S.05, 10.00 m depth), RGM 68842 (c. 100 specimens, sample VAM S.07, 9.00 m depth), RGM 68908 (c. 150 specimens, sample VAM S.10, 7.75 m depth), RGM 68943 (57 specimens, sample VAM S.12, 7.00 m depth), RGM 68974 (c. 70 specimens, sample VAM S.14, 6.25 m depth), RGM 69008 (c. 100 specimens, sample VAM S.16, 5.25 m depth), RGM 69036 (23 specimens, sample VAM S.18, 4.25 m depth), RGM 69070 (c. 120 specimens, sample VAM S.20, 3.25 m depth), RGM 69111 (c. 130 specimens, sample VAM S.22, 2.50 m depth), RGM 69143 (c. 150 specimens, sample VAM S.25, 1.50 m depth), RGM 69172 (c. 200 specimens, sample VAM S.27, 1.00 m depth), RGM 69206 (c. 100 specimens, sample VAM S.28, 0.50 m depth), RGM 69239 (10 specimens, sample VAM S.29, 0.25 m depth).

Remarks – Visser, 1950 described this taxon as a foraminifer belonging to the Saccamminae. Bolli & Saunders, 1954, found Visser's illustration inadequate for discussion. They considered other species of *Leptodermella* to be *Centropyxis*, a Thecamoebina. Hofker, 1966: 103 considered it to be an alga, because 'the opening is much too fine to admit pseudopodia, but a flagellum may have penetrated it.'

Regnum Animalia Linnaeus, 1758
Order Foraminiferida von Eichwald, 1830
Suborder Lagenina Delage & Hérouard, 1896
Superfamily Nodosarioidea Ehrenberg, 1838
Family Vaginulinidae Reuss, 1860
Subfamily Polymorphininae d'Orbigny, 1839
Genus *Sigmomorphina* Cushman & Ozawa, 1928
Sigmomorphina kronenburgae Visser, 1950

Sigmomorphina kronenburgae sp. n. – Visser, 1950: 246, pl. 3, fig. 3.
Sigmomorphina kronenburgae Visser – Hofker, 1966: 106
Sigmomorphina brotzeni Hofker – Hofker, 1966: 153, 195, 205, 221, 242, 254.

Holotype from Burgerwacht Quarry, 20.20 m depth (RGM S18766).

Paratypes from Geul valley, south side of path Valkenburg-Geulhem at the crossroad to Berg, collected by A.M. Visser: RGM 68086 (1 specimen, sample VAM G.04, 12.20 m depth), RGM 68218 (1 specimen, sample VAM G.07, 9.80 m depth), RGM 68433 (2 specimens, sample VAM G.12, 5.80 m depth), RGM 68522 (1 specimen, sample VAM G.14, 4.20 m depth)

Remarks – Hofker, 1966 identified RGM S18766 as a small specimen representing the very beginning of the development series of *S. brotzeni*. He stated (p. 106): 'If this is correct, *S. brotzeni* is a later synonym of *S. kronenburgae*'. Obviously, he had his doubts, because he remained the name *S. brotzeni* in the same work.

Suborder Rotaliina Delage & Hérouard, 1896
Superfamily Discorboidea Ehrenberg, 1838
Family Eponididae Hofker, 1951
Subfamily Eponidinae Hofker, 1951
Genus *Eponides* de Montfort, 1808
Eponides toulmini Brotzen, 1948

Pseudoparrella meeterenae sp. n. – Visser, 1950: 278-279, pl. 7, fig. 9.
Pseudoparrella alata (Marsson) – Hofker, 1961: 67.
Eponides toulmini Brotzen – Hofker, 1966: 198, 208.

Syntypes from Burgerwacht Quarry, collected by A.M. Visser: RGM S18862 (2 specimens from sample VAM B.27, depth unknown), Visser appointed this slide as holotype. Since it contains two specimens, the holotype selection was illegitimate. These specimens are illustrated by Visser, 1950: pl. 7, fig. 9a (the largest one, partly covered by a piece of black paper) and fig. 9c; RGM 67110 (1 specimen, sample VAM B.01, 20.20 m depth), RGM 67251 (2 specimens, sample VAM B.04A, 17.80 m depth), RGM 67343 (1 specimen, sample VAM B.09, 13.80 m depth), RGM 67410 (1 specimen, sample VAM B.11, 12.20 m depth), RGM 67906 (2 specimens in slide) and RGM 67907 (1 specimen) from sample VAM B.29, depth unknown.

Syntypes from Geul valley, south side of path Valkenburg-Geulhem at the crossroad to Berg, collected by A.M. Visser: RGM 68029 (1 specimen, sample VAM G.03, 13.00 m depth), RGM 68132 (1 specimen in slide), RGM 68133 (c. 94 specimens, sample VAM G.05, 11.40 m depth), RGM 68260 (1 specimen, sample VAM G.08, 9.00 m depth), RGM 68643 (1 specimen, sample VAM G.17, 1.80 m depth), RGM 68693 (1 specimen, sample VAM G.18, 1.00 m depth).

Syntypes from St Pietersberg, pit under fortress of St. Pieter, collected by C. Kruit: RGM 66897 (1 specimen, sample VAM K.05, 9.05 m depth).

Syntypes from Gronsveld, outcrop in the Savelsbosch, collected by H.J. Jonker & K.L. de Vries: RGM 68755 (1 specimen, sample VAM S.02, 10.50 m depth), RGM 68814 (1 specimen, sample VAM S.05, 10.00 m depth), RGM 68845 (1 specimen, sample VAM S.07, 9.00 m depth), RGM 68978 (numerous specimens, sample VAM S.14, 6.25 m depth), RGM 69013 (2 specimens, sample VAM S.16, 5.25 m depth), RGM 69038 (3 specimens, sample VAM S.18, 4.25 m depth), RGM 69072 (6 specimens, sample VAM S.20, 3.25 m depth), RGM 69114 (2 specimens, sample VAM S.22, 2.50 m depth), RGM 69145 (2 specimens, sample VAM S.25, 1.50 m depth), RGM 69176 (1 specimen, sample VAM S.27, 1.00 m depth), RGM 69214 (3 specimens, sample VAM S.28, 0.50 m depth).

Remarks – Hofker, 1961: 67 regarded *P. meeterenae* as described by Visser to be the megalospheric form of *P. limburgensis* Visser, 1950. However, he also stated that slide RGM S18862 contained some small specimens of *P. alata*. Hofker, 1966 mentioned 2 specimens in slide RGM S18862. According to him one is 'more like *Pseudoparrella alata* (Marsson), while the other is more like *Eponides lunatus* Brotzen. But it shows the coarse pores of *E. toulmini* Brotzen, so it may be a young specimen of that species' (Hofker, 1966: 109).

Family Discorbidae Ehrenberg, 1838
Genus *Trochulina* d'Orbigny, 1839
Trochulina bienfaiti (Visser, 1950)

Lamarckina bienfaiti n. sp. – Visser, 1950: 263, pl. 5, fig. 4.
Rotorbinella mariei (Van Bellen) – Hofker, 1957: 124
Rotorbinella mariei (van Bellen) – Hofker, 1966: 108.

Syntypes from mixed localities: RGM S18834 (3 specimens: 2 from sample B.16, Burgerwacht Quarry, 8.20 m depth and 1 from sample VAM G9, Geul valley, 8.20 m depth, all collected by A.M. Visser). Visser illegitimately chose this slide with three specimens as holotype (Visser, 1950: pl. 5, fig. 4a-c).

Syntypes from Burgerwacht Quarry, collected by A.M. Visser: RGM 67158 (2 specimens, sample VAM B.02A, 19.40 m depth), RGM 67403 (1 specimen, sample VAM B.11, 12.20 m depth), RGM 67480 (1 specimen, sample VAM B.13, 10.60 m depth), RGM 67516 (2 specimens, sample VAM B.14, 9.80 m depth), RGM 67553 (2 specimens, sample VAM B.15, 9.00 m depth), RGM 67629 (2 specimens, sample VAM B.17, 7.40 m depth), RGM 67669 (1 specimen, sample VAM B.18, 6.60 m depth), RGM 67704 (2 specimens, sample VAM B.19, 5.80 m depth), RGM 67747 (1 specimen, sample VAM B.20, 5.00 m depth), RGM 67779 (2 specimens, sample VAM B.21, 4.20 m depth), RGM 67903 (2 specimens, sample VAM B.29, depth unknown).

Syntypes from Geul valley, south side of path Valkenburg-Geulhem at the crossroad to Berg, collected by A.M. Visser: RGM 67979 (6 specimens, sample VAM G.02, 13.80 m depth), RGM 68021 (1 specimen, sample VAM G.03, 13.00 m depth), RGM 68123 (6 specimens, sample VAM G.05, 11.40 m depth), RGM 68161 (1 specimen, sample VAM G.06, 10.60 m depth), RGM 68201 (8 specimens, sample VAM G.07, 9.80 m depth), RGM 68252 (1 specimen, sample VAM G.08, 9.00 m depth), RGM 68295 (3 specimens, sample VAM G.09, 8.20 m depth), RGM 68346 (1 specimen, sample VAM G.10, 7.40 m depth), RGM 68382 (1 specimen, sample VAM G.11, 6.60 m depth), RGM 68420 (10 specimens, sample VAM G.12, 5.80 m depth), RGM 68462 (5 specimens, sample VAM G.13, 5.00 m depth), RGM 68510 (11 specimens, sample VAM G.14, 4.20 m depth), RGM 68553 (14 specimens, sample VAM G.15, 3.40 m depth), RGM 68595 (4 specimens, sample VAM G.16, 2.60 m depth), RGM 68636 (1 specimen, sample VAM G.17, 1.80 m depth), RGM 68685 (3 specimens, sample VAM G.18, 1.00 m depth).

Syntypes from St Pietersberg, pit under fortress of St Pieter, collected by C. Kruit: RGM 66757 (2 specimens, sample VAM K.02, 6.55 m depth), RGM 66808 (1 specimen, sample VAM K.03, 7.55 m depth), RGM 66926 (1 specimen, sample VAM K.06, 10.65 m depth), RGM 66992 (1 specimen, sample VAM K.08, 12.65 m depth), RGM 67030 (2 specimens, sample VAM K.09, 13.20 m depth), RGM 67075 (1 specimen, sample VAM K.10, 17.50 m depth).

Syntypes from Gronsveld, outcrop in the Savelsbosch, collected by H.J. Jonker & K.L. de Vries: RGM 68724 (2 specimens, sample VAM S.01, 11.10 m depth), RGM 68811 (1 specimen, sample VAM S.05, 10.00 m depth), RGM 68840 (1 specimen, sample VAM S.07, 9.00 m depth), RGM 68973 (1 specimen, sample VAM S.14, 6.25 m depth), RGM 69007 (3 specimens, sample VAM S.16, 5.25 m depth), RGM 69069 (1 specimen, sample VAM S.20, 3.25 m depth), RGM 69108 (1 specimen, sample VAM S.22, 2.50 m depth), RGM 69142 (3 specimens, sample VAM S.25, 1.50 m depth), RGM 69171 (3 specimens, sample VAM S.27, 1.00 m depth), RGM 69238 (1 specimen, sample VAM S.29, 0.25 m depth),

Remarks – According to Loeblich & Tappan, 1988, *Rotorbinella* Bandy, 1944 is a junior synonym of *Trochulina* d'Orbigny, 1839.

Family Sphaeroidinidae Cushman, 1927
Genus *Pullenoides* Hofker, 1951
Pullenoides senoniensis (Visser, 1950)

Chilostomellina senoniensis (Hofker) – Visser, 1950: 282, pl. 2, fig. 23.
Sphaeroidina bulloides (non d'Orbigny) – van Raadshoven, 1940: 12.
Pullenoides senoniensis – Hofker, 1951: 10-12, fig. 11-13.
Pullenoides senoniensis Hofker – Hofker, 1959: 282, fig. 53-54.
Pullenoides senoniensis (Visser) – Hofker, 1966: 110, 207.
Pullenoides senoniensis Hofker – Hofker, 1966: 184, pl. 31, fig. 49.
Pullenoides senoniensis Visser – Hofker, 1966: 207, pl. 40, fig. 75.

Syntype from Burgerwacht Quarry, 12.20 m depth (RGM S18811, 1 specimen).

Remarks – Other syntypes could be present in Hofker reference collection (NITG-TNO, Utrecht).

Superfamily Discorbinelloidea Sigal, 1952
Family Pseudoparrellidae Voloshinova, 1952
Subfamily Pseudoparrellinae Voloshinova, 1952
Genus *Pseudoparrella* Cushman & ten Dam, 1948
Pseudoparrella limburgensis Visser, 1950

Pseudoparrella limburgensis sp. n. – Visser, 1950: 278, pl. 7, fig. 10.
Pseudoparrella limburgensis Visser – Hofker, 1961: 67.
Pseudoparrella limburgensis Visser – Hofker, 1966: 95, 109, 141, 169, 187, 231, 245.

Syntypes from Burgerwacht Quarry, collected by A.M. Visser: RGM S18861 (3 specimens, 5.80 m depth; Visser, 1950: pl. 7, fig. 10a-c, illegitimately chosen as holotype), RGM 67191 (3 specimens, sample VAM B.03, 18.60 m depth), RGM 67250 (1 specimen, sample VAM B.04A, 17.80 m depth), RGM 67282 (4 specimens, sample VAM B.05, 17.00 m depth), RGM 67313 (2 specimens, sample VAM B.06, 16.20 m depth), RGM 67409 (1 specimen, sample VAM B.11, 12.20 m depth), RGM 67487 (6 specimens, sample VAM B.13, 10.60 m depth), RGM 67599 (5 specimens, sample VAM B.16, 8.20 m depth), RGM 67637 (6 specimens, sample VAM B.17, 7.40 m depth), RGM 67711 (14 specimens, sample VAM B.19, 5.80 m depth), RGM 67753 (2 specimens, sample VAM B.20, 5.00 m depth), RGM 67785 (3 specimens, sample VAM B.21, 4.20 m depth), RGM 67809 (1 specimen, sample VAM B.26, depth unknown), RGM 67845 (2 specimens, sample VAM B.27D, depth unknown).

Syntypes from Geul valley, south side of path Valkenburg-Geulhem at the crossroad to Berg, collected by A.M. Visser: RGM 67947 (5 specimens, sample VAM G.01, 14.60 m depth), RGM 67984 (6 specimens, sample VAM G.02, 13.80 m depth), RGM 68131 (1 specimen, sample VAM G.05, 11.40 m depth), RGM 68692 (4 specimens, sample VAM G.18, 1.00 m depth).

Syntypes from St Pietersberg, pit under fortress of St Pieter, collected by C. Kruit: RGM 66860 (4 specimens, sample VAM K.04, 8.15 m depth), RGM 66896 (5 specimens, sample VAM K.05, 9.05 m depth), RGM 66965 (5 specimens, sample VAM K.07, 11.90 m depth), RGM 66998 (2 specimens, sample VAM K.08, 12.65 m depth), RGM 67037 (5 specimens, sample VAM K.09, 13.20 m depth), RGM 67080 (8 specimens, sample VAM K.10, 17.50 m depth).

Syntypes from Gronsveld, outcrop in the Savelsbosch, collected by H.J. Jonker & K.L. de Vries: RGM 69213 (8 specimens, sample VAM S.28, 0.50 m depth).

Pseudoparrella alata (Marsson, 1878)

Pseudoparrella minisae sp. n. – Visser, 1950: 279, pl. 7, fig. 8.
Pseudoparrella alata (Marsson) – Hofker, 1955: 25
Pseudoparrella alata (Marsson) – Hofker, 1966: 109.

Syntypes from Burgerwacht Quarry, collected by A.M. Visser: RGM 67111 (20 specimens, sample VAM B.01, 20.20 m depth), RGM 67138 (22 specimens, sample VAM B.02, 19.40 m depth), RGM 67164 (14 specimens, sample VAM B.02A, 19.40 m depth), RGM 67192 (15 specimens, sample VAM B.03, 18.60 m depth), RGM 67222 (16 specimens, sample VAM B.04, 17.80 m depth), RGM 67252 (23 specimens, sample VAM B.04A, 17.80 m depth), RGM 67283 (31 specimens, sample VAM B.05, 17.00 m depth), RGM 67314 (27 specimens, sample VAM B.06, 16.20 m depth), RGM 67344 (5 specimens, sample VAM B.09, 13.80 m depth), RGM 67376 (5 specimens, sample VAM B.10, 13.00 m depth), RGM 67411 (36 specimens, sample VAM B.11, 12.20 m depth), RGM 67488 (31 specimens, sample VAM B.13, 10.60 m depth), RGM 67524 (34 specimens, sample VAM B.14, 9.80 m depth), RGM 67561 (30 specimens, sample VAM B.15, 9.00 m depth), RGM 67600 (40 specimens, sample VAM B.16, 8.20 m depth), RGM 67638 (22 specimens, sample VAM B.17, 7.40 m depth), RGM 67678 (17 specimens, sample VAM B.18, 6.60 m depth), RGM 67754 (20 specimens, sample VAM B.20, 5.00 m depth), RGM 67783 (23 specimens, sample VAM B.21, 4.20 m depth), RGM 67810 (8 specimens, sample VAM B.26, depth unknown), RGM 67846 (12 specimens, sample VAM B.27D, depth unknown), RGM 67874 (3 specimens, sample VAM B.28, depth unknown), RGM 67908 (21 specimens, sample VAM B.29, depth unknown).

Syntypes from Geul valley, south side of path Valkenburg-Geulhem at the crossroad to Berg, collected by A.M. Visser: RGM S18863 (3 specimens, 1.80 m depth, illustrated in Visser, 1950: pl. 7, fig. 8a-c, illegitimately chosen as holotype by Visser, 1950), RGM 67948 (20 specimens, sample VAM G.01, 14.60 m depth), RGM 67985 (27 specimens, sample VAM G.02, 13.80 m depth), RGM 68030 (79 specimens, sample VAM G.03, 13.00 m depth), RGM 68080 (c. 79 specimens, sample VAM G.04, 12.20 m depth), RGM 68167 (17 specimens, sample VAM G.06, 10.60 m depth), RGM 68209 (38 specimens, sample VAM G.07, 9.80 m depth), RGM 68261 (28 specimens, sample VAM G.08, 9.00 m depth), RGM 68304 (63 specimens, sample VAM G.09, 8.20 m depth), RGM 68356 (41 specimens, sample VAM G.10, 7.40 m depth), RGM 68390 (23 specimens, sample VAM G.11, 6.60 m depth), RGM 68427 (15

specimens, sample VAM G.12, 5.80 m depth), RGM 68471 (9 specimens, sample VAM G.13, 5.00 m depth), RGM 68515 (11 specimens, sample VAM G.14, 4.20 m depth), RGM 68558 (7 specimens, sample VAM G.15, 3.40 m depth), RGM 68600 (27 specimens in slide) and RGM 68601 (1 specimen in slide) from sample VAM G.16, 2.60 m depth, RGM 68600 (27 specimens) and RGM 68601 (1 specimen) from sample VAM G.16, 2.60 m depth, RGM 68644 (42 specimens, sample VAM G.17, 1.80 m depth), RGM 68694 (55 specimens, sample VAM G.18, 1.00 m depth)

Syntypes from St Pietersberg, pit under fortress of St Pieter, collected by C. Kruit: RGM 66715 (5 specimens, sample VAM K.01, 5.00 m depth), RGM 66814 (2 specimens, sample VAM K.03, 7.55 m depth), RGM 66861 (16 specimens, sample VAM K.04, 8.15 m depth), RGM 66898 (60 specimens, sample VAM K.05, 9.05 m depth), RGM 66934 (26 specimens, sample VAM K.06, 10.65 m depth), RGM 66966 (10 specimens, sample VAM K.07, 11.90 m depth), RGM 66997 (23 specimens, sample VAM K.08, 12.65 m depth), RGM 67038 (14 specimens, sample VAM K.09, 13.20 m depth), RGM 67081 (32 specimens, sample VAM K.10, 17.50 m depth).

Syntype from Gronsveld, outcrop in the Savelsbosch, collected by H.J. Jonker & K.L. de Vries: RGM 69039 (1 specimen, sample VAM S.18, 4.25 m depth).

Superfamily Asteriginerinoidea d'Orbigny, 1839
Family Boreloididae Reiss, 1963
Genus *Eoconuloides* Cole & Bermúdez 1944
Eoconuloides roestae (Visser, 1950)

Cibicides roestae sp. n. – Visser, 1950: 291, pl. 6, fig. 9.
Lockhartia roestae (Visser) – Hofker, 1955a: 4-5, text figures.
Tremastegina roestae (Visser) – Hofker, 1966: 110, 190, 199, 210, 292, pl. 32, fig. 60.

Syntypes from mixed localities: RGM S18822 (3 specimens, sample Burgerwacht Quarry VAM B27-B29 (unknown depth) and Geul valley VAM G18 (1.00 m depth); Visser, 1950: pl. 6, fig. 9a-c.)

Syntypes from Burgerwacht Quarry, collected by A.M. Visser: RGM 67765 (3 specimens, sample VAM B.21, 4.20 m depth), RGM 67797 (1 specimen, sample VAM B.26, depth unknown), RGM 67825 (9 specimens, sample VAM B.27D, depth unknown), RGM 67861 (7 specimens, sample VAM B.28, depth unknown), RGM 67887 (13 specimens, sample VAM B.29, depth unknown).

Syntypes from Geul valley, south side of path Valkenburg-Geulhem at the crossroad to Berg, collected by A.M. Visser: RGM 67927 (1 specimen, sample VAM G.01, 14.60 m depth), RGM 67965 (14 specimens, sample VAM G.02, 13.80 m depth), RGM 68002 (1 specimen, sample VAM G.03, 13.00 m depth), RGM 68046 (8 specimens, sample VAM G.04, 12.20 m depth), RGM 68102 (7 specimens, sample VAM G.05, 11.40 m depth), RGM 68149 (1 specimen, sample VAM G.06, 10.60 m depth), RGM 68185 (58 specimens, sample VAM G.07, 9.80 m depth), RGM 68234 (15 specimens, sample VAM G.08, 9.00 m depth), RGM 68278 (19 specimens, sample VAM G.09, 8.20 m depth), RGM 68329 (15 specimens, sample VAM G.10, 7.40 m depth), RGM 68371 (7 specimens, sample VAM G.11, 6.60 m depth), RGM 68407 (35 specimens, sample VAM G.12, 5.80 m depth), RGM 68448 (13 specimens, sample VAM G.13, 5.00 m depth), RGM 68492 (53 specimens, sample VAM G.14, 4.20 m depth), RGM 68537 (50 specimens, sample VAM G.15, 3.40 m depth), RGM 68578 (35 specimens, sample VAM G.16, 2.60 m depth), RGM 68619 (42 specimens, sample VAM G.17, 1.80 m depth), RGM 68667 (36 specimens, sample VAM G.18, 1.00 m depth).

Syntypes from St Pietersberg, pit under fortress of St Pieter, collected by C. Kruit: RGM 66713 (44 specimens, sample VAM K.01, 5.00 m depth), RGM 66742 (27 specimens, sample VAM K.02, 6.55 m depth), RGM 66791 (32 specimens, sample VAM K.03, 7.55 m depth), RGM 66840 (3 specimens, sample VAM K.04, 8.15 m depth), RGM 66874 (7 specimens, sample VAM K.05, 9.05 m depth), RGM 66912 (13 specimens, sample VAM K.06, 10.65 m depth), RGM 66952 (1 specimen, sample VAM K.07, 11.90 m depth).

Syntypes from Gronsveld, outcrop in the Savelsbosch, collected by H.J. Jonker & K.L. de Vries: RGM 69088 (1 specimen, sample VAM S.22, 2.50 m depth), RGM 69191 (1 specimen, sample VAM S.28, 0.50 m depth).

Remarks – Visser, 1950 designated RGM S18820 as 'holotype', while on page 344 RGM S18822 was indicated as holotype-slide. The slide of RGM S18822 refers to B27-B29 and G18 as locality, while on page 344 B23 is given. Her designation of S18820 is a printing error. Since the slide appointed as holotype contains three specimens, the holotype selection as such is illegitimate. According to Loeblich & Tappan, 1988, *Tremastegina* is a junior synonym of *Eoconuloides*.

Superfamily Nonionoidea Schultze, 1854
Family Nonionidae Schultze, 1854
Subfamily Nonioninae Schultze, 1854
Genus *Nonionella* Cushman, 1926
Nonionella troostae (Visser, 1950)

Nonion troostae sp. n. – Visser, 1950: 250, pl. 6, fig. 13.
Nonionella troostae (Visser) – Hofker, 1955c: 99
Nonionella troostae troostae (Visser) – Hofker, 1962: 37.
Nonionella troostae (Visser) – Hofker, 1966: 107, 288.
Nonionella troostae troostae (Visser) – Hofker, 1966: 92, 120, 147, 155, 167.

Syntypes from St Pietersberg, Slavante, unknown collector: RGM 69267 (2 specimens, sample VAM 17433), RGM 69297 (2 specimens, sample VAM 17434).

Syntypes from Burgerwacht Quarry, collected by A.M. Visser: RGM 67108 (5 specimens, sample VAM B.01, 20.20 m depth), RGM 67135 (1 specimen, sample VAM B.02, 19.40 m depth), RGM 67190 (3 specimens, sample VAM B.03, 18.60 m depth), RGM 67221 (2 specimens, sample VAM B.04, 17.80 m depth), RGM 67248 (1 specimen, sample VAM B.04A, 17.80 m depth), RGM 67280 (1 specimen, sample VAM B.05, 17.00 m depth), RGM 67312 (1 specimen, sample VAM B.06, 16.20 m depth), RGM 67342 (2 specimens, sample VAM B.09, 13.80 m depth), RGM 67375 (1 specimen, sample VAM B.10, 13.00 m depth), RGM 67483 (5 specimens, sample VAM B.13, 10.60 m depth), RGM 67519 (2 specimens, sample VAM B.14, 9.80 m depth), RGM 67595 (2 specimens, sample VAM B.16, 8.20 m depth), RGM 67672 (1 specimen, sample VAM B.18, 6.60 m depth), RGM 67707 (2 specimens, sample VAM B.19, 5.80 m depth), RGM 67750 (1 specimen, sample VAM B.20, 5.00 m depth), RGM 67843 (15 specimens, sample VAM B.27D, depth unknown), RGM 67873 (5 specimens, sample VAM B.28, depth unknown), RGM 67905 (8 specimens, sample VAM B.29, depth unknown).

Syntypes from Geul valley, south side of path Valkenburg-Geulhem at the crossroad to Berg, collected by A.M. Visser: RGM 67944 (11 specimens, sample VAM G.01, 14.60 m depth), RGM 67981 (5 specimens, sample VAM G.02, 13.80 m depth), RGM 68025 (5 specimens, sample VAM G.03, 13.00 m depth), RGM 68072 (9 specimens, sample VAM G.04, 12.20 m depth), RGM 68126 (9 specimens, sample VAM G.05, 11.40 m depth), RGM 68204 (2 specimens, sample VAM G.07, 9.80 m depth), RGM 68255 (11 specimens, sample VAM G.08, 9.00 m depth), RGM 68298 (4 specimens, sample VAM G.09, 8.20 m depth), RGM 68349 (2 specimens, sample VAM G.10, 7.40 m depth), RGM 68384 (2 specimens, sample VAM G.11, 6.60 m depth), RGM 68424 (13 specimens, sample VAM G.12, 5.80 m depth), RGM 68466 (6 specimens, sample VAM G.13, 5.00 m depth), RGM 68512 (7 specimens, sample VAM G.14, 4.20 m depth), RGM 68555 (12 specimens, sample VAM G.15, 3.40 m depth), RGM 68598 (11 specimens, sample VAM G.16, 2.60 m depth), RGM 68639 (19 specimens, sample VAM G.17, 1.80 m depth), RGM 68688 (25 specimens, sample VAM G.18, 1.00 m depth).

Syntypes from St Pietersberg, pit under fortress of St Pieter, collected by C. Kruit: RGM S18812 (2 specimens, sample K.1, 5.00 m depth; Visser, 1950: pl. 6, fig. 9a-b), RGM 66699 (17 specimens, sample VAM K.01, 5.00 m depth), RGM 66759 (6 specimens, sample VAM K.02, 6.55 m depth), RGM 66809 (1 specimen, sample VAM K.03, 7.55 m depth), RGM 66858 (2 specimens, sample VAM K.04, 8.15 m depth).

Syntypes from Gronsveld, outcrop in the Savelsbosch, collected by H.J. Jonker & K.L. de Vries: RGM 68726 (6 specimens, sample VAM S.01, 11.10 m depth), RGM 68754 (12 specimens, sample VAM S.02, 10.50 m depth), RGM 68784 (10 specimens, sample VAM S.04, 10.25 m depth), RGM 68813 (2 specimens, sample VAM S.05, 10.00 m depth), RGM 68843 (4 specimens, sample VAM S.07, 9.00 m depth), RGM 68876 (7 specimens, sample VAM S.09, 8.25 m depth), RGM 68909 (10 specimens, sample VAM S.10, 7.75 m depth), RGM 68944 (4 specimens, sample VAM S.12, 7.00 m depth), RGM 68975 (7 specimens, sample VAM S.14, 6.25 m depth), RGM 69009 (7 specimens, sample VAM S.16, 5.25 m depth), RGM 69037 (3 specimens, sample VAM S.18, 4.25 m depth), RGM 69071 (4 specimens, sample VAM S.20, 3.25 m depth), RGM 69112 (3 specimens, sample VAM S.22, 2.50 m depth), RGM 69144 (3 specimens, sample VAM S.25, 1.50 m depth), RGM 69174 (14 specimens, sample VAM S.27, 1.00 m depth), RGM 69208 (4 specimens, sample VAM S.28, 0.50 m depth)

Remarks – Visser, 1950: 250, designated RGM S18818 as holotype. However, on her plate 6 fig. 13, she indicated slide number 18812 as holotype. Slide RGM S18818 contains three specimens of *Lepidorbitoides minor* Silvestri (identification according to handwriting on slide). Hofker, 1962:37, described RGM S18812 as the typical form with the central granulation in contrast to the other two subspecies, which were established by Hofker, 1962:37.

Superfamily Orbitoidoidea Schwager, 1876
Family Orbitoididae Schwager, 1876
Subfamily Orbitoidinae Schwager, 1876
Genus *Orbitoides* d'Orbigny, 1847
Orbitoides apiculata Schlumberger, 1901
Pl. 3, fig. 4.

Orbitoides brinkae sp. n. – Visser, 1950: 296, pl. 9, fig. 5, pl. 11, fig. 2, 5.
Orbitoides faujasi (Defrance) – Hofker, 1926: 38-42, pl. 1, fig. 1-2, pl. 2, fig. 1-2.
Orbitoides brinkae Visser – Hofker, 1966: 209, pl. 39, fig. 57.
Orbitoides apiculata Schlumberger 1901 – Gorsel, 1978: 31.

Holotype from Pit under fortress St Pieter, Sample VAM K.4, 8.15 m depth, collected by C. Kruit (RGM S18820).

Paratypes from Burgerwacht Quarry, sample VAM B.15, 9.00 m depth, collected by A.M. Visser (RGM 67558, 2 specimens).

Family Lepidorbitoididae Vaughan, 1933
Subfamily Lepidorbitoidinae Vaughan, 1933
Genus *Daviesina* Smout, 1954
Daviesina fleuriausi (d'Orbigny, 1826)

Operculina labanae sp. n. – Visser, 1950: 253, pl. 1, fig. 18, pl. 10, fig. 2, 3.
Amphistegina fleuriausi (d'Orbigny) Forma A – Hofker, 1926: 80, fig. 5-10, 13.
Daviesina fleuriausi (d'Orbigny) form A_1 – Hofker, 1966: 107.

Holotype: loc.:Burgerwacht Quarry, 20.20 m depth, collected by A.M. Visser (RGM S18846).

Paratypes from Burgerwacht Quarry, collected by A.M. Visser: RGM 67109 (5 specimens, sample VAM B.01, 20.20 m depth), RGM 67136 (3 specimens, sample VAM B.02, 19.40 m depth), RGM 67161 (1 specimen, sample VAM B.02A, 19.40 m depth), RGM 67249 (5 specimens, sample VAM B.04A, 17.80 m depth), RGM 67521 (3 specimens, sample VAM B.14, 9.80 m depth).

Paratypes from Geul valley, south side of path Valkenburg-Geulhem at the crossroad to Berg, collected by A.M. Visser: RGM 68127 (1 specimen, sample VAM G.05, 11.40 m depth), RGM 68300 (1 specimen, sample VAM G.09, 8.20 m depth), RGM 68425 (1 specimen, sample VAM G.12, 5.80 m depth), RGM 68640 (5 specimens, sample VAM G.17, 1.80 m depth), RGM 68690 (1 specimen, sample VAM G.18, 1.00 m depth).

Paratypes from St Pietersberg, pit under fortress of St Pieter, collected by C. Kruit: RGM 66727 (29 specimens, sample VAM K.01, 5.00 m depth), RGM 66761 (8 specimens, sample VAM K.02, 6.55 m depth), RGM 67034 (1 specimen, sample VAM K.09, 13.20 m depth)

Paratypes from Gronsveld, outcrop in the Savelsbosch, collected by H.J. Jonker & K.L. de Vries: RGM 69113 (8 specimens, sample VAM S.22, 2.50 m depth), RGM 69175 (4 specimens, sample VAM S.27, 1.00 m depth), RGM 69209 (18 specimens, sample VAM S.28, 0.50 m depth).

Remarks – RGM S18846 contains 2 specimens: a large and a small one, the former being from B.1, the latter from K.1. According to a letter of Dr Alexander Liebau (Universität Tübingen) (10.3.87, RGM Archive N^{o} 6610056) the larger one is definitely the holotype, while the other one is probably *Daviesina ornamentata* Hofker. Visser, 1950: pl. 1, fig. 18a, b is a poor illustration of the holotype. Liebau (in letter) could not decide whether *Daviesina labanae* was a separate species or a rare variety of a juvenile stadium of *D. fleuriausi*.

Genus *Hellenocyclina* Reichel, 1949
Hellenocyclina visserae (Hofker, 1958)

Linderina visserae spec. nov. – Hofker, 1958: 125-127 fig. 1-8.
Linderina douvillei Silvestri – Visser, 1950: 292, pl. 6, fig. 10, pl. 10, fig. 11.
Linderina visserae Hofker – Hofker, 1966: 110, 291, pl. 63, fig. 102,
Hellenocyclina visserae (Hofker) – MacGillavry, 1963: 167-169, pl. 4, fig. 2, pl. 7, fig. 1-2.

Syntypes from Burgerwacht Quarry: RGM S18821 (2 specimens, Sample VAM B4.A, 17.80 m depth; Visser, 1950: pl. 6, fig. 10).

Syntype from Geulvalley, collected by A.M. Visser: RGM S18916 (thin section, sample G.3, 13.00 m depth; Visser, 1950: pl. 10, fig. 11).

Remarks – Hofker, 1958, decided that the specimens of Visser, 1950, are not *Linderina douvillei* Silvestri and established a new species. RGM S18821 and S18916 are syntypes, since Hofker did not select any specimen as holotype.

Phylum Coelenterata Frey & Leuckart, 1847
Subphylum Cnidaria Hatschek, 1888
Class Anthozoa Ehrenberg, 1834
Order Scleractinia Bourne, 1900
Suborder Faviina Vaughan & Wells, 1943
Superfamily Favioidea Gregory, 1900
Family Montlivaltiidae Dietrich, 1926
Genus *Montlivaltia* Lamouroux, 1821
Montlivaltia angusticostata Umbgrove, 1925

Montlivaultia angusticostata spec. nov. – Umbgrove, 1925a: 101-102, pl. 10 fig. 10, 13.

Holotype: RGM 29143 (= Kneppelhout 22): St Pietersberg. Imprint of the external of the coral in rock characteristic of middle part of Meerssen Member (IV f3-f5). Stored with this sample is a wax cast of this fossil made by Umbgrove. Fungi attacked this wax cast.

Additional material: RGM 29142 (= U 799, collected by Umbgrove on the Houthemerberg in 1916, this is one of the fragments of questionable state. Umbgrove's original label is in the RGM catalogue), RGM 108602 (according to old card system of RGM this specimen should also be a *M. angusticostata*. However, neither the specimen nor the catalogue containing this number could be found during the present stocktaking. It could be another one of the Umbgrove's fragments of questionable state, but it also could be a fossil collected at a later date).

Remarks – Umbgrove mentioned two specimens and several fragments of questionable state. He described and illustrated specifically the specimen in the NNM, which makes it the holotype. The other specimen should be in the Brussels collections. However, no specimen could be found there of which one could be sure that Umbgrove referred to that particular specimen.

Family Faviidae Gregory, 1900
Subfamily Montastreinae Vaughan & Wells, 1943
Genus *Montastrea* de Blainville, 1830
Montastrea arachnoides (Schröter, 1778)
Montastrea arachnoides conica (Umbgrove, 1925)

Orbicella Riemsdijcki var. *conica* (var. nov.) – Umbgrove, 1925a: 103, pl. 8, fig. 3.
not *Orbicella (Montastrea) riemsdijcki* var. *Conica* (Umb., 1926) – *v*an der Heyden et al., 1989 fig. 12.

Syntypes: RGM 29037 (Umbgrove, 1925: pl. 8, fig. 3; imprint of the upper side of a coral colony is in rock characteristic for Meerssen Member. A wax cast made by Umbgrove is stored with this fossil. This is the only specimen in the NNM of this species. The original label of Umbgrove is in the RGM catalogue), TM 6941a. (loc.: Limburg, housed at Teylers Museum with a label with Umbgrove's handwriting: '*Orbicella conica* spec. nov.').

Remarks – Umbgrove based his description on more than one specimen, but illustrated only one of them. The specimen illustrated in van der Heijden et al. (1989: fig. 12) is stored at Teylers Museum catalogue number TM 6933. This specimen is a *Montastrea arachnoides*.

Montastrea maxima (Umbgrove, 1925)

Orbicella maxima spec. nov. – Umbgrove, 1925a: 104-105, pl. 10, fig. 14.

Syntypes: RGM 29030 (Umbgrove, 1925: pl. 10, fig. 14; cast of surface in rock characteristic of Meerssen Member. Found near Maastricht. A wax cast made by Umbgrove is stored with this fossil. Umbgrove's original label is in the RGM catalogue), TM 10680 (loc.: St Pietersberg, housed at Teylers Museum with label hand-written by Umbgrove: '*Orbicella maxima* spec. nov.').

Additional material: RGM 29024 is the wax cast of TM 10680 made by Umbgrove.

Montastrea conferta (Umbgrove, 1925)

Orbicella conferta spec. nov. – Umbgrove, 1925a: 105, pl. 8, fig. 6.

Syntypes: RGM 29039 (Umbgrove, 1925: pl. 8, fig. 6; this fragment, c. 5 cm in length, was found near Maastricht, probably from the Nekum or Meerssen Member. A wax cast made by Umbgrove is stored with this fossil. Umbgrove's original label is in the RGM catalogue), G.550.1883 (Collected by Riemsdijk and donated by his son to

Utrecht University. Riemsdijk originally named this specimen *Astrea angulosa*. A label handwritten by Umbgrove accompanies this specimen. Stored at Utrecht University Museum).

Remarks – Umbgrove mentioned 2 specimens in his description, of which only one showed clear surface structures.

Genus *Dimorphastrea* d'Orbigny, 1850
Dimorphastrea solida Umbgrove, 1925
Pl. 1, fig. 1.

Dimorphastraea solida spec. nov. – Umbgrove, 1925a: 111, pl. 9, fig. 7.

Syntypes: RGM 29059 (Umbgrove, 1925: pl. 9, fig. 7; imprint of an incomplete surface of a coral colony. Umbgrove's original label is in the RGM catalogue), TM 10683 (housed at Teylers Museum, includes label on which Umbgrove wrote: '*Dimorphastrea solida* spec. nov.').

Remarks – Umbgrove's description suggests that he had more than one specimen, but illustrated only one.

Subfamily Placosmiliinae Alloiteau, 1952
Genus *Placosmilia*
Placosmilia robusta Umbgrove, 1925
Pl. 1, fig. 3.

Placosmilia robusta spec. nov. – Umbgrove, 1925a: 115, pl. 11, fig. 33.

Syntype: RGM 29036 (Umbgrove, 1925: pl. 11, fig. 33; it is present on the rock sample among several other imprints of this and other species. Found at the St Pietersberg. A wax cast of this syntype made by Umbgrove is stored with this fossil. Umbgrove's original label is in the RGM catalogue).

Remarks – Umbgrove clearly based his description on several specimens, although he did not state on how many. He illustrated one.

Subfamily Faviinae Gregory, 1900
Genus *Favia* Oken, 1815
Favia planissima Umbgrove, 1925

Favia planissima spec. nov. – Umbgrove, 1925a: 106, pl. 10, fig. 12.

Holotype by monotypy: RGM 29040 (St Pietersberg. A wax cast made by Umbgrove is stored with this fossil. Umbgrove's original label is in the RGM catalogue).

Favia maastrichtensis Umbgrove, 1925
Pl. 1, fig. 4.

Favia Maastrichtensis spec. nov. – Umbgrove, 1925a: 107, pl. 11, fig. 19.

Holotype by monotypy: LH Wageningen no. 1227, this cast of the upper side of a small fragment of a coral colony was found in 1910 on the Keerderberg and housed in the University of Wageningen until it was transferred to the NNM.

Suborder Astrocoeniina Vaughan & Wells, 1943
Superfamily Astrocoenioidea Koby, 1890
Family Astrocoeniidae Koby, 1890
Subfamily Astrocoeniinae Koby, 1890
Genus *Columastrea* d'Orbigny, 1849
Columastrea fallax (Umbgrove, 1925)

Columnastraea fallax spec. nov. – Umbgrove, 1925a: 119, pl. 8, fig. 1; pl. 10, fig. 11.

Syntypes: RGM 29067 (= STA 12683, St Pietersberg, Henkelius' collection, bought by Staring), RGM 29068, RGM 29074 (including its wax cast, both illustrated by Umbgrove. Umbgrove collected the fossil and made the wax cast), RGM 33987 ('Cabinet Temminck*: Astraea geminata* Goldfuss 23/8. Mont St. Pierre', STA 12680, probably bought by

Staring as part of the Henkelius collection), RGM 76618 (part of Umbgrove's private collection, bought by RGM in June 1955), RGM 76703 (idem).

Remarks – Umbgrove found a dozen of specimens in his research material. He illustrated one specimen and its wax cast. Six specimens are present in the NNM. The original handwritten labels of Umbgrove are present in the RGM catalogue.

Family Acroporidae Verrill, 1902
Montipora cretacea Umbgrove, 1925
Pl. 1, fig. 2.

Montipora cretacea spec. nov. – Umbgrove, 1925a: 120, pl. 8, fig. 4.

Holotype by monotypy: RGM 29072 (Found at Maastricht, collected by Umbgrove. Umbgrove's original handwritten label is stored in RGM Catalogue).

Phylum Mollusca
Class Cephalopoda Cuvier, 1798
Subclass Ammonoidea von Zittel, 1884
Family Baculitidae Gill, 1871
Genus *Baculites* Lamarck, 1799
Baculites vaalsensis Kennedy & Jagt, 1995

Baculites vaalsensis n. sp. – Kennedy & Jagt, 1995: 282-287, fig. 4.1-4.18, 5.1-5.17, and 6.1-6.9.

Holotype: Geological Bureau N^{o} 6266 from the Vaals Formation of Emma colliery, shaft 1: 182-183 m depth, near Treebeek. Originally illustrated by van der Weijden (1943: pl. 13, fig. 5 as *Baculites bohemicus* Fritsch 1934. Specimen now present in the 'Jongmans' collection in the NNM.

The paratypes are housed at KBIN, Brussels (IRScNB 10462a-d).

Subclass Nautiloidea Agassiz, 1847
Genus *Conchorhynchus* de Blainville, 1827
Conchorhynchus limburgicus van der Tuuk, 1982

Conchorhynchus limburgicus n. sp. – van der Tuuk, 1982: 179-182, pl. 1, fig. 1A-C, and 2A-C.

Holotype (RGM 160229) and paratype (RGM 160230) are on the same SEM stub. They were collected from a layer of fossil hash at the base of the Emael Member (Maastricht Formation) in quarry NEKAMI-'t Rooth. The largest specimen is the holotype.

Genus *Rhyncolites* Biguet, 1819
Rhyncolites marcellae van der Tuuk, 1985

Rhyncolites marcellae n. sp. – van der Tuuk, 1985: 205-209, pl. 1, 2.

Holotype (RGM 365955) and paratype (RGM 365956) were collected from the Emael Member in quarry NEKAMI-'t Rooth. According to original publication, van der Tuuk donated the two type specimens to the RGM. They are probably on the same SEM stub.

Remarks – The type specimens could not be found during the reorganisation of the Cephalopoda collections in 1991-1993.

Class Bivalvia Linnaeus, 1758
Subclass Pteriomorphia Beurlen, 1944
Order Arcoida Stoliczka, 1871
Superfamily Arcoidea Lamarck, 1809
Family Arcidae Lamarck, 1809
Subfamily Arcinae Lamarck, 1809
Genus *Arca* Linnaeus, 1758
Arca geulemensis Vogel, 1895

Arca Geulemensis spec. nov. – Vogel, 1895: 34, pl. 2, fig. 13-14.

Syntypes from Kunrade: RGM 13446 (= STA 9109: '*Arca*?' collected by Thierens at Kunrade). The internal cast of an open pair on one rock fragment and a part of the external cast of the left valve of the same pair on another rock fragment, which has been attached to the first fragment. On the label this specimen was referred to *'Arca' geulemensis* Vgl., 1895, RGM 21487 (= STA 5224), RGM 21506 (= STA 9110, STA 9111, STA 9112, STA 9113: all '*Arca*?' collected by Thierens at Kunrade, this lot contains the internal casts of two pairs and four single valves).

Syntype from Benzenraedhof: RGM 21483 (= STA 8499, no identification in Staring's catalogue, 23rd sample by Riemsdijck and Laurent from Benzenraedhof, southeast of Heerlen on October 17, 1852, internal cast of a valve).

Syntype from Geulhem: RGM 21754 (= STA 10760 ('*Arca* spec? Kern', collected by Thierens). Apart from the internal cast of a right valve illustrated in Vogel, 1895: pl. 2, fig. 14, it also contains a fragment of the external cast of the same specimen), RGM 21759 (two Staring numbers refer to this sample: STA 9213 and STA 9214, both: '*Arca*?', collected by Thierens, it is not clear which number belongs to which rock fragment, RGM 21754 contains two internal casts of right valves), RGM 21765 (part of STA 10762, 'Arca spec? Kern', collected by Thierens, it contains three rock fragments: one contains a complete external cast of a right valve, one has the internal cast of a right valve and one has the internal cast of a left valve and the inner valve of a right valve, but not of the same specimen), RGM 21767 (originally contained eight rock fragments, labelled: '*Arca geulemensis* Vogel, Geulem bij Maastricht coll. Staring 10736, 10760, 10761', two fragments were taken out and given separate registration numbers: RGM 450000 and RGM 450001, the fragment with Staring number 10760 contains an internal cast of a right valve, STA 10761 contains a disputable external cast of a right valve, one of the other fragments has contained a Staring number and has an external cast of a right valve, two of the other fragments contain internal casts of right valves and the smallest rock fragment of the seven has a fragment of an external cast of a left or right valve), RGM 21768 (part of STA 10762: '*Arca* spec? Kern', collected by Thierens, it contains inner as well as external casts of left valve of one specimen, the external cast is broken in two fragments), RGM 450000 (external cast of a right valve, of which RGM 21746 is a wax cast, was one of the 8 rock fragments of RGM 21767, which number it also bears, on this rock fragment are also present two probably juvenile forms of the coral *Diploctenium cordatum* Goldfuss, 1826.)

Additional material: RGM 21746 (= wax cast of RGM 450000, the one on which Vogel, 1895: pl. 2, fig. 13 is based), RGM 21748 (= STA 9259: '*Arca*?' collected by Thierens at the 'Pisolithenkalk' at St Pietersberg). This fragment of internal cast of a right valve is the only *Arca geulemensis* from St Pietersberg found in the collection. However, 'Pisolithenkalk' refers to the Meerssen Member, which is the highest member of the Cretaceous in the St Pietersberg. Since Vogel described his St Pietersberg material from 'unteren Schichten', RGM 21748 cannot belong to the type series.

Remark – Vogel (1895: 34) described nine from Kunrade, 1 from Benzenraedhof, 16 from Geulhem, at least one cast 'aus den unteren Schichten des Petersberges'.

Order Pterioida Newell, 1965
Suborder Pteriina Newell, 1965
Superfamily Pteriacea Gray, 1847
Family Bakevillidae King, 1850
Genus *Tenuipteria* Stephenson, 1955
Tenuipteria argentea (Conrad, 1858)
Pl. 3, fig. 1.

Avicula Geulemensis spec. nov. – Vogel, 1895: 28, pl. 2, fig. 3-5.
Tenuipteria geulemensis Vogel – Dhondt, 1979: 141-149.
Tenuipteria argentea (Conrad, 1858) – Dhondt, 1983b: 44-45.

Lectotype: RGM 13569 (= STA 10790: '*Pholadomya* spec? afdruk en kern', collected by Thierens at Geulhem, illustrated by Vogel, 1895: pl. 2, fig. 4).

Paralectotypes: RGM 13568 (= STA 10793: '*Pholadomya* spec? kern', collected by Thierens at Geulhem, illustrated

in Vogel, 1895: pl. 2, fig. 5), RGM 21880 (= STA 10798: '*Pholadomya* -spec? kern en afdruk', collected by Thierens at Geulhem, illustrated in Vogel, 1895: pl. 2, fig. 3).

Additional material: RGM 21846 (this sample contains two rock fragments, one is STA 10798, '*Pholadomya* spec? kern en afdruk', collected by Thierens at Geulhem, both contain one internal cast of a right valve), RGM 21853 (three rock fragments each with one internal cast of a right valve with STA 10793, '*Pholadomya* spec? kern', collected by Thierens at Geulhem; two rock fragments with each one internal cast of a right valve with STA 10794 and one rock fragment, to which probably Staring number 10795 belonged, this fragment also contains one internal cast of a right valve), RGM 21854 (eight rock fragments: three of them bear Staring numbers: one carries STA 10787 and two carry STA 10788 (both '*Pholadomya* spec? platte klep', collected by Thierens at Geulhem, RGM 21854 contains one right valve, three left valves and one internal cast of a left valve), RGM 21865 (= STA 9209 '*Inoceramus*', collected by Thierens at Geulhem, an internal cast of a pair), RGM 21866 (= STA 10754 '*A*. of *Inoceramus*?' collected by Thierens at Geulhem, the internal cast of a pair), RGM 21867 (three rock fragments, one of which is STA 10753 '*A*. of *Inoceramus*?' collected by Thierens at Geulhem, all three fragments contain a left valve with the inner side visible), RGM 21868 (= STA 9210 '*Inoceramus*?' collected by Thierens at Geulhem, internal cast of a right valve), RGM 21869 (= STA 10792 '*Pholadomya* spec? kern' collected by Thierens at Geulhem, internal cast of a left valve), RGM 21872 (= STA 9211 '*Mytilus*?' collected by Thierens at Geulhem, internal cast of a right valve), RGM 21874 (= STA 10755 '*Avicula*, *Pholadomya* juv., Baculites' collected by Thierens at Geulhem), RGM 21877 (= STA 10790, internal cast of the lectotype), RGM 21882 ('*Pholadomya* spec? kern' collected by Thierens at Geulhem, this sample contains 3 rock fragments bearing Staring numbers 10795, 10796 and 10797, STA 10795 is the largest, containing one right, one left valve, two internal casts of right valves and several fragments of valves, STA 10796 contains the internal cast of a right valve and STA 10797 contains only a fragment of a valve), RGM 21883 (rock fragment with inner side of this right valve visible: STA 10753 '*Avicula* of *Inoceramus*?' collected by Thierens at Geulhem, and a rock fragment with two internal casts of right valves: STA 10795: '*Pholadomya* spec?' collected by Thierens at Geulhem), RGM 21884 (four rock fragments, two of which bear Staring numbers: STA 10795, an internal cast of a pair, and STA 10796, an internal cast of a right valve; one of the other two fragments is also an internal cast of a right valve while the last fragment does only contain fragments of the shell, Thierens found STA 10795 and 10796 in Geulhem), RGM 450002 (= STA 10798 and ex-RGM 21880, this right valve has been given its own registration number, so that sample RGM 21880 only contains the specimen illustrated by Vogel, 1895: pl. 2, fig. 3, the present valve is from another individual).

Remarks – Vogel mentioned 30 specimens from Geulhem and 1 questionable specimen from Kunrade. Dhondt, 1979 selected the specimen of Vogel: pl. 2, fig. 4 as lectotype (RGM 13569). The NNM contains over 40 specimens of this species, which were collected by Thierens at Geulhem and transferred to Staring in 1855, long before Vogel published his work. It is not possible to select the remaining paralectotypes from this material. Therefore only the illustrated specimens are recorded as paralectotypes and the other specimens are regarded as additional material

Order Limoida Rafinesque, 1815
Family Limidae Rafinesque, 1815
Genus *Ctenoides* Mörch, 1835
Ctenoides? vogeli Dhondt, 1983
Pl. 2, fig. 3.

Ctenoides? vogeli nom. nov. pro *Inoceramus nobilis* Münster *sensu* Goldfuss, 1835: 117, pl. 113 fig. 3
non *Inoceramus nobilis* Goldfuss, 1835: 109, pl. 109 fig. 4 – Dhondt, 1983a: 3, pl. 1, fig. 1, 4.
Inoceramus nobilis Münster – Goldfuss, 1835: 117, pl. 113, fig. 3.
Lima nobilis Münst. spec. – Vogel, 1895: 18, pl. 1, fig. 12.

Neotype: RGM 13550 (= STA 12732 '*Pteria approximata* v. Schloth. Sp.' collected by Henkelius from the St Pietersberg).

Remarks – According to Dhondt, 1983a, the holotype of Münster was destroyed during the second world war. She selected the specimen illustrated by Vogel as neotype. She copied the description of Goldfuss and gave an additional description based on 21 specimens, four of which are in the NNM.

Subclass Paleoheterodonta Newell, 1965
Order Trigonioida Dall, 1889
Superfamily Trigonioidea Lamarck, 1819
Family Trigoniidae Lamarck, 1819
Genus *Trigonia* Bruguière, 1789
'Trigonia' maastrichtiana Briart, 1888
Pl. 3, fig. 2.

Trigonia Geulemensis spec. nov. – Vogel, 1895: 38, pl. 2, fig. 16.

Syntypes: RGM 13573 (Vogel, 1895: pl. 2, fig. 16; external cast of a valve found at Geulhem and the plaster cast of this fossil), RGM 21704 (= STA 10768 '*Trigonia* spec. afdruk' collected by Thierens at Geulhem, three rock fragments, two of which bear the mentioned Staring number, all contain at least one external cast of a valve and one or several casts of the coral *Cyclolites cancellata* Goldfuss, 1826, interesting is the fragment lacking a Staring number for it contains several casts of cerithiid or turritellid gastropods and an internal cast of a nuculid bivalve), RGM 21705 (= STA 10764 '*Trigonia* spec? kern', collected by Thierens at Geulhem, one of the two internal casts of a valve among all the syntypes, fairly well preserved), RGM 21706 (= STA 10766 '*Trigonia* spec? afdruk' collected by Thierens at Geulhem, an external cast of a valve and fragments of *Baculites* spec), RGM 21708 (= STA 9216 '*Trigonia*?' collected by Thierens at the 'Pisolithenkalk' in Geulhem, at least six external casts, 9 external casts of the coral *Cyclolites cancellata* Goldfuss, 1826 and at least 2 external casts of the coral *Diploctenium cordatum* Goldfuss, 1826 in a quite large rock fragment, this combination of corals suggests this rock fragment to be from the basal fossil hash of the Meerssen Member), RGM 21710 (7 rock fragments of which two bear a Staring number, STA 9215 '*Trigonia*?' and STA 10767 '*Trigonia* spec? afdruk', both collected by Thierens at Geulhem,.all contain external casts of a valve and one also contains an internal cast, STA 10767 contains the external cast of two valves, which appear to be a pair), RGM 21764 (= STA 10765 '*Trigonia* spec? afdruk' collected by Thierens at Geulhem, external cast of a valve), RGM 21806 (= STA 10802 'Kernen van verschillende bivalven' collected by Thierens at Geulhem, a small external cast of a single valve), RGM 27553 (= STA 10825 collected by Thierens at Geulhem, Staring registered this rock fragment for content of an external cast of a gastropod: '*Rostellaria* spec? afdruk', external cast of a valve).

Remarks – Vogel described 18 specimens from Geulhem. Vogel's illustration is based on a wax cast. Apart from the original of this wax cast the NNM collections contain eight samples with specimens on which labels the name '*Trigonia geulemensis*' has been written and crossed out to be replaced by '*Trigonia maastrichtiana*'. All of them were present in the collections that Vogel might have studied. They are considered as syntypes. *Trigonia geulemensis* Vogel, 1895 is a subjective junior synonym of *Trigonia maastrichtiana* Briart, 1888. This species does not belong to the genus *Trigonia*. It probably belongs to *Linotrigonia* or *Oistotrigonia* (pers. comm.: Jagt, October 1999).

Subclass Heterodonta Neumayr, 1884
Order Veneroida H. Adams & A. Adams, 1856
Superfamily Crassatelloidea Férussac, 1822
Family Crassatellidae Férussac, 1822
Subfamily Crassatellinae Férussac, 1822
Genus *Crassatella* Lamarck, 1799
Crassatella symmetrica van der Weijden, 1943

Crassatella symmetrica nov. sp. – van der Weijden, 1943: 49, pl. 3, fig. 11-12.

Remarks – The main part of the collection of NITG-TNO Heerlen is housed at the NNM since 1999. For this reason *C. symmetrica* is treated in this type list. Van der Weijden, 1943, described 4 specimens, which are from either Maurits I-colliery, 261-262 m depth or the Maurits II colliery, 255-258 m depth or the Emma I colliery, 174-176 m depth. Her pl. 3, fig. 11 is even more confusing, since here the 255-258 m depth samples are from Maurits I in contrast to the main text, where it is attributed to the Maurits II colliery. Van der Weijden, 1943, stated that the holotype is present in the Geological Bureau in Heerlen. However, she did not tell which of the four described specimens is the holotype. Therefore, all four specimens are syntypes. None of these specimens could be found in the Heerlen collection in the NNM. It is presumed that this material is still stored at NITG-TNO in Heerlen. Their depot will probably be tidied up at the end of 1999. Until then this collection is not attainable (pers. comm., Peter Bosch, NITG-TNO Heerlen, 22.vii.1999).

Superfamily Veneroidea Rafinesque, 1815
Family Veneridae Rafinesque, 1815
Subfamily Dosiniinae Deshayes, 1853
Genus *Dosinia* Scopoli, 1777
Subgenus *Pectunculus* da Costa, 1778
Dosinia (Pectunculus) irnichensis (Vogel, 1895)

Pectunculus Irnichensis spec. nov. – Vogel, 1895: 35.
Pectunculus spec. – Vogel, 1892: 72, fig. 17.

Remarks – Vogel, 1895 published this name based on six small internal casts from the St Pietersberg and the specimen from Irnich (Germany) described in Vogel, 1892: 72 fig. 17. Although no type specimens from this species were found in the NNM, it is included in the present list, for it is the only other species established by Vogel, 1895. Vaught, 1989, listed *Pectunculus* as a subgenus of *Dosinia*.

Subgenus unknown
Dosinia mastrichtiensis Vogel, 1895

Dosinia Mastrichtiensis spec. nov. – Vogel, 1895: 44, pl. 3, fig. 5.

Syntypes: RGM 13578 (= STA 12653 '*Lucina*?' collected at Caberg below the Willem fortress, Henkelius collection bought by Staring, Vogel, 1895: pl. 3, fig. 5 illustrated this internal cast of a pair), RGM 21772 (= STA 12653 '*Lucina*?' collected at Kaberg below Fortress Willem, Henkelius collection bought by Staring, three internal casts of pair, one was open when fossilised), RGM 21781 (= STA 9269 '*Lucina*?' collected by Thierens from the 'Pisolithenkalk' of St Pietersberg, internal cast of a right valve).

Additional material: RGM 21792 (= STA 7165 '*Lucina*?' collected by Thierens at St Pietersberg, this sample of a fossil hash bed contains a fragment of an external cast of one valve). Since the counterpart of this fossil is not present in the collection, it cannot be checked whether or not this external cast belongs to the same species as the mentioned syntypes, for they are all internal casts.

Remarks – Vogel described four specimens from the St Pietersberg and 4 from Caberg.

Superfamily Cardioidea Lamarck, 1809
Family Cardiidae Lamarck, 1809
Subfamily Cardiinae Lamarck, 1809
Genus *Cardium* Linnaeus, 1758
Cardium subalternatum Vogel, 1895

Cardium subalternatum spec. nov. – Vogel, 1895: 40, pl. 3, fig. 1.
Cardium tubuliferum Goldf. – Bosquet in Staring, 1860

Syntypes: RGM 13574 (= STA 12828 '*Cardium* spec. ondetermin. - vuursteen, *C. tubuliferum* Goldf. vid. 13971' from St Pietersberg, Henkelius collection, bought by Staring, a silex nodule split into two parts: one part shows the internal cast of a right valve, the other shows the external cast. It is the described specimen of Vogel, 1895: 40), RGM 21798 (= STA 12834 '*Crassatella bosquetiana* d'Orb, vuursteen' from St Pietersberg, Henkelius collection, an internal cast of a left valve, which is partly eroded: it lacks the hinge).

Additional material: RGM 21793 = STA 13971 ('*Cardium tubuliferum* Goldf., St Pieter, m6, het originele exemplaar is in de collectie van P.Henkelius, JB.', It was sent to Staring by Bosquet in 1863), plaster cast of RGM 13574, illustrated in Vogel, 1895: pl. 3, fig. 1).

Remarks – Vogel had two fossils from 'Grauen Feuerstein' of St Pietersberg at his disposal. One specimen, of which he illustrated a plaster cast, was described. The other was only mentioned.

Superfamily Mactroidea Lamarck, 1809
Family Mactridae Lamarck, 1809
Subfamily Pteropsellinae Keen, 1894
Genus *Anatina* Schumacher, 1817
Anatina millepunctata Vogel, 1895
Pl. 2, fig. 2.

Anatina millepunctata spec. nov. – Vogel, 1895, pl. 3, fig. 10.

Syntypes: RGM 13450 and 21547 together were STA 5184 ('nov. gen.' collected by Thierens, Staring catalogued it in a series of bryozoa of the St Pietersberg and referred to receipt 308 in his archive). However, the original label reported Kunrade as locality. The original rock fragment of Thierens has been broken into four parts in the nineteenth century. The largest part bears a major part of the external cast of the right valve. This fragment is registered as RGM 21547. The other three fragments are registered as RGM 13450. They consist of two small fragments with parts the external cast of the left valve and a complete internal cast of the pair (Vogel, 1895: pl. 3, fig. 10).

Possible syntypes: RGM 21534 (= STA 9135 'gen. Novum', collected by Thierens at Kunrade, fragment of the internal cast of a pair), RGM 21544 (= STA 7897 'gen. nov.' collected by Thierens at Kunrade, fragment of an external cast of a right valve), RGM 21545 (= STA 9139 'gen. Novum?' collected by Thierens at Kunrade, fragment of a recrystallised valve), RGM 21546 (= STA 9136 'spec. nova' collected by Thierens at Kunrade, fragment of an external cast of a right valve).

Additional material: RGM 21533 (= STA 13960 '*Anatina arcuata* Forb.' collected by Bosquet in Kunrade, m18' and sent to Staring in 1863). It is a fifth specimen, a fragment of an internal cast of a pair, which was present at the RGM at the time of Vogel's study. However, it seems (when looking at the other bivalve type material of Vogel) that Prof. K. Martin only sent material from the Thierens and Henkelius collections to be studied. It still is an interesting object, for Bosquet gave the stratigraphic position according to Staring's stratigraphical system.

Remarks – Four specimens from Kunrade were at Vogel's disposal. He described and illustrated the most complete one. The NNM has more specimens that might have been studied by Vogel, than he stated. Therefore, we do not know which are the real syntypes apart from the illustrated specimen.

Superfamily Tellinoidea de Blainville, 1814
Family Tellinidae de Blainville, 1814
Subfamily Tellininae de Blainville, 1814
Genus *Tellina* Linnaeus, 1758
Tellina geulemensis Vogel, 1895
Pl. 2, fig. 1.

Tellina Geulemensis spec. nov. – Vogel, 1895: 44, pl. 3, fig. 6-7.

Syntypes: RGM 13579 (a larger and a smaller rock fragment: Vogel, 1895 pl. 3, fig. 6; internal cast of a right valve on the larger block, which also contains a fragment of the internal cast of a left valve. The smaller rock fragment carries a part of the external cast of the left valve of the larger block. The smaller fragment has been renumbered, originally is was part of lot RGM 13580). RGM 13580 (two rock fragments and a wax cast: One of them contains an internal cast of a left valve. It has been used as a mould for the wax cast (Vogel, 1895: pl. 3, fig. 7) and stored with this sample. The other one (= STA 10781, 'Tellina spec? Kern en afdruk', collected by Thierens at Geulhem, it was registered as part of lot RGM 13579, but since that lot contain a different specimen it has been renumbered) is the external cast of the same valve). RGM 21831 (three rock fragments, one of which is broken into two parts. All three contain an internal cast of a valve. The broken fragment was STA 10779, the two others STA 10780. STA 10799 as well as STA 10780 were registered by Staring as 'Tellina spec? afdruk', collected by Thierens at Geulhem).

Remarks – Six specimens from 'grauweisen, sandigen Kreide' at Geulhem. Vogel gave the dimensions of the largest specimen. He illustrated a specimen and a wax cast of another.

Bivalvia, Incertae sedis
'Limopsis' kunraediensis Vogel, 1895

Limopsis Kunraediensis spec. nov. – Vogel, 1895: 36, pl. 2, fig. 15.

Syntypes: RGM 21495 (an internal cast from right valve from Kunrade (Vogel, 1895: pl. 2, fig. 15, this drawing is idealised), RGM 21479 (= STA 7155 '*Venus*?' collected by Thierens at Kunrade, an internal cast of a pair), RGM 21482

(= STA 12635 '*Mytilus* sp. ondetermin.' Henkelius collection, an internal cast of a left valve).

Remarks – Vogel described 3 specimens. He illustrated a single internal cast. He did not explicitly mention their locality, although the name suggests Kunrade as provenance. A.V. Dhondt (pers. comm., 1999) agreed that RGM 21495 is the illustrated specimen. However, she stated, that this species is not a *Limopsis*. Therefore, this species is placed in the Incertae sedis category of the bivalves. All three specimens show clear traces of post mortem covering or encrusting and bio-erosion.

Phylum Echinodermata
Class Crinoidea Miller, 1821
Subclass Cladida Moore & Laudon, 1943
Infraclass Articulata Miller, 1821
Order Comatulidina A. H. Clark, 1908
Infraorder Comatulidia A. H. Clark, 1908
Superfamily Notocrinoidea Mortensen, 1918
Family Notocrinidae Mortensen, 1918
Genus *Semiometra* Gislén, 1924
Semiometra saskiae Jagt, 1999

Semiometra saskiae sp. nov. – Jagt, 1999: 104-108, pl. 21 fig. ?4, 5-11, pl. 22.

Paratypes: RGM 396251 and 396252 (= Jagt collection 2784a-b; Jagt, 1999: pl. 21 fig. 10-11), centrodorsals, CBR-Romontbos quarry, Nekum Member.

Remarks – Jagt (1999) designated cup NHMM MB 377-4a as holotype and named three paratypes, two of which are to come to Leiden (RGM 396251/2).

Order Roveacrinida Sieverts-Doreck, 1952
Family Roveacrinidae Sieverts-Doreck, 1952
Genus *Birgelenocrinus* Jagt, 1999
Birgelenocrinus degraafi Jagt, 1999

Birgelenocrinus degraafi gen. et sp. nov. – Jagt, 1999: 148-150, pl. 42, fig. 3, 5-10, pl. 43-44.

Paratype: RGM 396336 (= Jagt collection 9335b, a theca found from the base of the Emael Member at the ENCI quarry).
Jagt (1999) designated theca NHMM MB 506-15i as holotype. He appointed ten paratypes of which one specimen is to come to Leiden.

Class Echinoidea Leske, 1778
Subclass Euechinoidea Bronn, 1860
Infraclass Acroechinoidea Smith, 1981
Cohort Irregularia Latreille, 1825
Superorder Microstomata Smith, 1984
Series Neognathostomata Smith, 1981
Order Cassiduloida Claus, 1880
Family Plagiochasmidae Smith & Jefferey, in press
Genus *Plagiochasma* Pomell, 1883
Plagiochasma lammersmaxi Jagt & van der Ham in Jagt, 2000

Plagiochasma sp. (?nov. sp.) – Meijer, 1965: 99, pl. 1, figs. 5-8.
Plagiochasma lammersmaxi Jagt & van der Ham, sp. nov. – Jagt, 2000a: 252-254, pl. 17, figs. 1-3, 10.

Paratype: RGM 76289 (ex- Umbgrove collection).

Class Asteroidea de Blainville, 1830
Subclass Neoasteroidea Gale, 1987
Superorder Surculifera Gale, 1987
Order Valvatida Perrier, 1884
Family Goniasteridae Forbes, 1841
Genus *Metopaster* Salden, 1893
Metopaster continuus Jagt, 2000

Metopaster continuus sp. nov. – Jagt, 2000a: 396-397, pl. 24, figs. 8-16, 22-27.

Paratype: RGM 428076 from lower Geulhem Member (Danian) in temporary Albertkanaal sections at Vroenhoven/Riemst/Kesselt.

Genus *Ophryaster* Spencer, 1913
Ophryaster? maastrichtensis Umbgrove, 1925
Pl. 3, fig. 4.

Ophryaster Maastrichtensis. spec. nov. – Umbgrove, 1925: 209, fig. 28.
'Ophryaster' maastrichtensis Umbgrove 1925b – Jagt, 1998: 138 fig. 1.
Ophryaster? maastrichtensis Umbgrove, 1925 – Jagt, 2000b: 382, 419, pl. 19, figs. 1-5?, pl. 27, fig. 7.

Holotype: RGM 14209, Umbgrove had this single specimen, found in the upper part of the 'Tufkrijt' in the neighbourhood of Maastricht. The matrix of the fossil is described as rich in bryozoan fragments. Jagt, 2000c, judged from the matrix type that the type specimen is from lower to middle part of the Meerssen Member. He announced a revision of the species.

Genus *Comptoniaster* Breton, 1984
Comptoniaster peetersorum Jagt, 2000

Comptoniaster peetersorum sp. nov. – Jagt, 2000b: 42, pl. 16, figs. 1-6.

Paratype: RGM 428074 (ex Jagt collection no. 7487), a median infero-and superomarginal from the base crinoid level (0-2 m) in the Zeven Wegen Member (Gulpen Formation, Campanian) from CPL SA Quarry in Haccourt, Liège, Belgium).

Plant fossils described by Miquel

The plant fossils are deposited at the Paleobotanical Museum of Utrecht University (numbers prefixed U).

Debeya serrata Miquel, 1853

Debeya serrata in Miquel, 1853: 38-40, pl. 1, fig. 1.

Holotype: U444 = STA 4741 (collected by Bosquet in Kunrade).

Phyllites laevigatus Miquel, 1853

Phyllites laevigatus – Miquel, 1853: 41, pl. 1, fig. 2.

Holotype: Collected by Bosquet at Kunrade.
Remark – Not found during present stocktaking.

Pinites patens Miquel, 1853

Pinites patens – Miquel, 1853: 41-42, pl. 2, fig. 1-7.

Syntypes: U462 = STA 4747. This lot contains four illustrated syntypes among more fragments and some wax casts. A Baculites fragment is also present. Originally collected by Bosquet at Kunrade. (= *Araucarites miqueli* Debey, anon. note).

Cycadopsis cryptomerioides Miquel, 1853

Cycadopsis cryptomerioides – Miquel, 1853: 42-44, pl. 3, fig. 1-6.

Syntypes: Three illustrated type specimens (pl. 3, fig. 1) show a specimen consisting of two fragments. The lower fragment of this figure is U430. The two specimens of figs. 2-3 are stored as U392. All three of them have Staring number 4748. Collected at Kunrade by Bosquet.The specimen of fig. 2 contains a *Baculites* fragment.

Remark – An anonymous remark on a small piece of paper in the library specimen of Miquel's publication at Leiden states that *C. cryptomerioides* could be the same as *Elatocladus elegans* (Corda) and referred to Kräusel, 1922.

Halocharis longifolia Miquel, 1853

Halocharis longifolia – Miquel, 1853: 49-50, pl. 5, fig. 4-6.

Holotype: U1124 = STA 4749 (collected by Bosquet at the St Pietersberg, 'calcaire grossier à Silex gris, système sénonien').

Thalassocharis Bosqueti Debey ex Miquel, 1853

Thalassocharis Bosqueti – Debey, 1850: 586.
Thalassocharis Bosqueti Debey mss. – Miquel, 1853: 50-51, pl. 6 fig. 1.
Thalassocharis Bosqueti, forma *breviarticulata* – Miquel, 1853: 51, pl. 6 fig. 2.
Thalassocharis Bosqueti, forma *lata* – Miquel, 1853: 51, pl. 6, fig. 3.
Thalassocharis bosqueti Debey ex Miquel – Voigt & Domke, 1955.

Holotype: U1126 = STA 4751 (collected by Bosquet from 'strato cretaceo silicifero' at St Pietersberg) is the holotype by monotypy of forma lata Miquel, 1853.

Palmocarpon cretaceum Miquel, 1853

Palmocarpon cretaceum – Miquel, 1853: 51-52, pl. 7.

Holotype: St Pietersberg. Miquel described this specimen from the Van Breda collection. This specimen is probably in London?

Culmites cretaceus Miquel, 1853

Culmites cretaceus – Miquel, 1853: 53.

Holotype: U1125 = STA 4744 ('Culmites met Teredinen', collected by Bosquet at Kunrade).

Delesserites Thierensi Miquel, 1853

Phyllites thierensi Bosquet, mss. – Debey, 1851: 569.
Delesserites Thierensi – Miquel, 1853: 54, pl. 1, fig. 4.

Holotype: STA 4757 (collected by Thierens from the 'Calcaire grossier à silex gris' of the St Pietersberg). This specimen was only mentioned by Debey as Phyllites thierensi Bosquet, mss, but not described. It was only sent on loan to Staring. Staring returned it to Thierens in 1854. No references could be found that Thierens returned it to Staring and no specimen is present in the palaeobotanical collections at Leiden and Utrecht which resembles the plate in Miquel, 1853.

Chondrites Riemsdijcki Miquel, 1853

Chondrites Riemsdijcki – Miquel, 1853: 55.

Type: 'In strato cretaceo silicifero prope Keutenberg apud Wilze (holle weg, bijna op den top van den berg in de hardere nieren van het kiezelig krijt) Van Riemsdijk et Laurent', (Miquel, 1853: 55), it was described without illustration. Wilze is probably an old spelling for Wijlre. It was not mentioned in Staring's catalogue. Specimen(s) not found during present stocktaking.

Specimens of species erected by Bosquet and sent to Staring in 1863

Introduction

In 1863 Staring received a large amount of material from Bosquet. Among this material are a lot of specimens of species erected by Bosquet in 1854, 1857 and 1859. Bosquet gave in his original publications illustrations of one or more specimens and dimensions of only one specimen, often the largest. He also listed the geographic and stratigraphic provenance.

Only those specimens in the Leiden collections that resembled the illustrations of Bosquet to a certain degree could be considered type specimens. Unfortunately no such specimens have been found.

The specimens presented in the list below were all identified by Bosquet as belonging to his new species and they all come from localities and stratigraphic levels mentioned in the original publication of the species. In theory it is possible that they belong to the type series. However, it is not possible to prove this beyond doubt, because Bosquet continued to collect material after publication of his papers. See also chapter 'Important names'.

Phylum Arthropoda Linnaeus, 1753
Subphylum Crustacea Pennant, 1777
Class Thecostraca Gruvel, 1905
Subclass Cirripedia Burmeister, 1834
Superorder Thoracica Darwin, 1854
Order Pedunculata Newman, 1978
Superfamily Scalpelloidea Pilsbry, 1916
Family Scalpellidae Pilsbry, 1916
Subfamily Calanticinae Zevina, 1978
Genus *Brachylepas* Woodward, 1901
Brachylepas guascoi (Bosquet, 1857)

Mitella guascoi nov. spec. 1856 – Bosquet, 1857: 11-14, pl. 1, fig. 8, 9 *non* 10.
Mitella lithotryoïdes nov. spec. 1856 – Bosquet, 1857: 23, pl. 3, fig. 6, 7, 8, 9 *non* 5 and 10.
Mitella lithotryoides Bsq. – Bosquet, 1860. species no. 91.
Mitella Guascoi Bsq. – Bosquet, 1860. species no. 95.
Brachylepas guascoi (Bosquet) – Withers, 1935: 383-387.

Additional material in NNM: RGM 21252 (= STA 13922 '*Mitella lithotryoides* Bsq.' between Sibbe and Vilt, m4, rostrum).

Remarks – Bosquet, 1857, created two new species: *Mitella guascoi* and *M. lithotryoides*. Woodward, 1906, on the basis of Bosquet's illustrations of *M. lithotryoides,* transferred that species to *Brachylepas*. Since he did not find any close analogy between the extant genus *Lithotrya* and Bosquet's *M. lithotryoides* he proposed a new name for this species: *Brachylepas Bosquetii*. According to the Code Art. 11.6 this name was not made available by that act. Withers, 1935: 384 designated the scutum illustrated by Bosquet (1857: pl. 1, fig. 8) lectotype for *B. guascoi*. According to him it is stored in Brussels.He created *Calanthica (Scillaelepas) bosqueti* based on the scutum and an upper latus (which is really a tergum) of *Mitella lithotryoides* Bosquet (1857: pl. 3 figs. 5, 10). He regarded figs. 6 to 9 to belong to *Brachylepas guascoi* (Bosquet, 1857). The originals of Bosquet's pl. 1, figs. 8, 9 and pl. 3, figs. 6, 7 and 9 are stored in Brussels. Since Staring directly associated RGM 21252 with species 91 on Bosquet's list, one may conclude that species 91 is *Brachylepas guascoi*.

Subfamily Scalpellinae Pilsbry, 1916
Genus *Virgiscalpellum* Withers, 1935
Virgiscalpellum darwinianum (Bosquet, 1854)
Pl. 4, fig. 1.

Scalpellum darwinianum nov. spec. – Bosquet, 1854a: 46-49, pl. 3, fig. 6-12.
Scalpellum Darwini Bsq. – Bosquet, 1860, species no. 102.
Scalpellum (Virgiscalpellum) darwinianum (Bosquet) – Withers, 1935: 288-291.
Virgiscalpellum darwinianum (Bosquet, 1854) – Jagt, 1994: 141

Additional material in NNM: RGM 27576 = STA 13928 (St Pietersberg, m17), carina with both ends broken off.

Remark – Withers, 1935, designated the scutum (Bosquet, 1854: pl. 3, fig. 7) lectotype. However, he was unable to trace it in Brussels or in London.

Virgiscalpellum hagenowianum (Bosquet, 1854)
Pl. 4, fig. 3.

Scalpellum hagenowianum nov. spec. 1853 – Bosquet, 1854a: 49-51, pl. 4, fig. 13-16.
S. Hagenowi Bsq. – Bosquet, 1860, species no. 100.
Scalpellum (Virgiscalpellum) hagenowianum (Bosquet) – Withers, 1935: 294-296.
Virgiscalpellum hagenowianum (Bosquet, 1854) – Jagt, 1994: 141.

Additional material in NNM: RGM 79998 (= STA 13927, St Pietersberg, m17, fragment of a left tergum). Bosquet based his description on a single complete right tergum, which he illustrated. He stated to have found many fragmented terga.

Remark – Withers, 1935, designated the carina (Bosquet, 1854: pl. 4, fig. 13) lectotype. He found this specimen in Brussels.

Subfamily Arcoscalpellinae Zevina, 1978
Genus *Arcoscalpellum* Hoek, 1907
Arcoscalpellum gracile (Bosquet, 1854)

Scalpellum gracile nov. spec. 1853 – Bosquet, 1854a: 36-39, pl. 3, fig. 1-9.
S. maximum Sowerby var. *gracile* – Bosquet, 1860, spec. nr. 105.
Scalpellum (Arcoscalpellum) gracile (J. Bosquet) – Withers, 1935: 230-235, pl. 27, fig. 7.
Arcoscalpellum gracile (Bosquet, 1854a) – Jagt, 1998: 124, pl. 15, fig. 20-22.

Additional material in NNM: RGM 27575 (= STA 13930, St Pietersberg, m17, fragment of a carina in matrix).

Remarks – Withers, 1935, designated the carina (Bosquet, 1854: pl. 3, fig. 1) lectotype. He remarked that Bosquet's figures were more idealistic than accurate. He thought to have recognised the carina in the Bosquet collection in Brussels (Withers, 1935: pl. 27, fig. 7).

Arcoscalpellum pulchellum (Bosquet, 1854)
Pl. 4, fig. 2.

Scalpellum pulchellum nov. spec. – Bosquet, 1854a: 44, pl. 4, fig. 1-5.
Scalpellum pulchellum Bsq. – Bosquet, 1860, species no. 103.
Scalpellum (Arcoscalpellum) pulchellum (Bosquet) – Withers, 1935: 274-276, pl. 35, fig. 4-6
Arcoscalpellum pulchellum (Bosquet) 1854a – Jagt, 1998: 124, pl. 15, fig. 10.

Additional material in NNM: RGM 79996 (= STA 13929, St Pietersberg, m17, 'rare', a fragment of a tergum and a scutum. The latter probably represents another species).

Remarks – Withers, 1935, designted the tergum (Bosquet, 1854: pl. 4, fig. 1) lectotype. He could only find the three carinal latera (Bosquet, 1854: pl. 3, fig. 21, pl. 4, figs. 3-4) in Brussels. There he also found three fragmentary scuta, three terga, a broken rostrum and two broken rostral latera that were similar to the illustrations of Bosquet. He stated that Darwin got an upper half of a tergum (= I.15769, British Museum) from Bosquet in 1854. Withers stated that only the scutum, rostrum and tergum of Bosquet belonged to this species. The other valves belong to *Virgiscalpellum darwinianum* Bosquet, 1854.

Class Ostracoda Latreille, 1802
Order Podocopida Müller, 1894
Suborder Platycopina Sars, 1866
Superfamily Kloedenelloidea Ulrich & Bassler, 1908
Family Cytherellidae Sars, 1866
Genus *Cytherelloidea* Alexander 1929
Cytherelloidea denticulata (Bosquet, 1854)

Cytherella denticulata nov. spec. 1853 – Bosquet, 1854a: 61-62, pl. 5, fig. 1a-d.
Cytherella denticulata Bsq. – Bosquet, 1860: species no. 86.
Cytherelloidea denticulata Bosquet – van Veen, 1932: 353.

Additional material in NNM: RGM 79967 (= STA 13918: Gronsveld, m8, a complete carapace and a single right valve, broken into two pieces).

Remarks – Bosquet illustrated a left valve from Gronsveld and a complete carapace from Bemelen. He found

them in the 'Système Maestrichtien à St. Pierre, à Gronsveld et à Bemelen; et dans le calcaire grossier à silex gris (Système Sénonien Dumont) entre St. Pierre et Petit-Lanaye'. In Brussels two cell slides are present I.G 4285.4 (a single valve and a complete carapace from St Pierre) and I.G. 4285.4a (from St Pierre and Gronsveld. However, this slide appeared to be empty). Remark: none of the slides in Brussels or Leiden contains the illustrated specimens. The Riemsdijk slides from Utrecht do not contain this species and Eager, 1967, did not mention it. Neither the Leiden nor the Brussels specimens can be regarded type specimens for certain.

Superfamily Cytheroidea Baird, 1850
Family Bythocytheridae Sars, 1926
Subfamily Leguminocythereidinae Howe, 1961
Genus *Anticythereis* van den Bold, 1946
Anticythereis euglypha (Bosquet, 1854)

Cythere euglypha nov. spec. – Bosquet, 1854a: 84, pl. 5, fig. 7a-d.
Cythere euglypha Bsq. – Bosquet, 1860: species no. 75.
Anticythereis euglypha (Bosquet) – Deroo, 1966: 115.

Additional material in NNM: RGM 79969 = STA 13909 (Bemelen, m8, rare), a left valve and a complete carapace.

Remarks – Bosquet illustrated a left valve and a complete carapace 'du Système Maestrichtien de Nedercanne'. In the text he stated that his material came from 'les couches à Bryozoaires du Système Maestrichtien à Nedercanne, à St. Pierre, à Gronsveld, à Bemelen, à Geulhem et à Fauquemont.' In Brussels there are three slides from the Bosquet collection containing this species, according to identifications of Bonnema in 1935. I.G. 4285.7-13f contains a right valve from 'Gronsveld, Bemelen, Fauquemont et St. Pierre'. I.G. 4285.12-2 contains 2 complete carapaces and a left valve from 'M. St. Pierre' and I.G. 4285.16 contains numerous well preserved single valves and complete carapaces from 'M. St. Pierre, Bemelen, Nedercanne'. The Utrecht collections did not contain this species. If the illustrated specimens of Bosquet survived, they could only be stored in cell slide I.G. 4285.16. The other three cell slides fit into the type series description.

Subfamily Mauritsininae Deroo, 1962
Genus *Kikliocythere* Howe & Laurencich, 1958
Kikliocythere labyrinthica (Bosquet, 1854)

Cythere labyrinthica nov. spec. 1853 – Bosquet, 1854a: 103-104, pl. 7, fig. 3a-d.
Cythereis labyrinthica Bsq. – Bosquet, 1860. species no. 50.
Kikliocythere labyrinthica (Bosquet) – Deroo, 1966: 118.

Material in NNM: RGM 14709 (= STA 13898: 'St. Pietersberg, m4, rare', cell slide with three single valves, one broken. None resemble those illustrated).

Material in Utrecht: UU. IVAU.S3018: cell slide with one left valve from Nedercanne.

Material in KBIN, Brussels: KBIN.IG.4285.12-3 (cell slide with 6 complete carapaces, 3 left valves and 2 right valves from 'M.-St.–Pierre'). KBIN.IG.4285.41 (cell slide with many valves from mixed localities: 'Mont.-St.-Pierre, Nedercanne, Bemelen').

Remarks – The Brussels material is the best preserved. One left valve and a complete carapace from 'du Système Maestrichtien de St. Pierre' are illustrated by Bosquet from his own collection. He described the species as not so rare in 'le Système Maestrichtien à St. Pierre, à Nedercanne, à Gronsveld, à Keer, à Geulhem et à Fauquemont' and as very rare in 'la même Système à Kunraede'.

Subfamily Pectocytherinae Hanai, 1957
Genus *Dolocythere* Mertens, 1956
Dolocythere arenosa (Bosquet, 1854)

Cythere arenosa nov. spec. 1853 – Bosquet, 1854a: 101, pl. 7, fig. 1a-d.
Cythereis? arenosa Bsq. – Bosquet, 1860: species no. 53.
Dolocythere arenosa (Bosquet) – Deroo, 1966: 122.

Material in the NNM: RGM 79962 (= STA 13900: Geulhem, m8, 4 single valves, one of them is broken into three pieces).

Material in Brussels: KBIN. IG. 4285.38 (cell slide with numerous valves from mixed localities: 'Nedercanne, St. Pierre, Bemelen' J.H. Bonnema identified those specimens in 1935 as *Monoceratina arenosa*, another cell slide with number 38a was found to be empty).

Remarks – Bosquet illustrated one left valve and a complete carapace 'du Système Maestrichtien de Gronsveld'. He based the species on material from 'le Système Maestrichtien à Nedercanne, à St. Pierre, à Gronsveld, à Bemelen, à Geulhem et à Vieux-Fauquemont, et dans le Système Sénonien (calcaire grossier à silex gris) entre St. Pierre et Petit-Lanaye'.

Subfamily Protocytherinae Lubimova, 1955
Genus *Veenia* Butler & Jones, 1957
Veenia striatocostata (Bosquet, 1854)

Cythere striato-costata nov. spec. 1853 – Bosquet, 1854a: 87-88, pl. 5, fig. 8a-d.
C. striato-costata Bsq. – Bosquet, 1854: species no. 72.
Veenia striatocostata (Bosquet) – Deroo, 1966: 134.

Material in the NNM: RGM 79994 (= STA 13906: Valkenburg, m8, a cell slide containing two left valves, one of which is either very eroded or represents a different species).

Material in Brussels: KBIN.IG.4285.13-13 (cell slide, containing one left valve, determined by J.H. Bonnema 1935. Coll. Bosquet, between Sibbe and Vilt), KBIN.IG.4285.18-3 (ditto, but from Mont.-St.-Pierre, Bemelen or Gronsveld, not well preserved), KBIN.IG.4285.19 (cell slide, containing 4 complete carapaces and one left valve from Bemelen, these specimens are the best preserved).

Remarks – Bosquet stated that this species is 'assez rare et n'a encore été rencontrée que dans les couches à Bryozoaires du Système Maestrichtien à Bemelen, à Geulhem et à Fauquemont.' He illustrated a left valve and a complete carapace from Bemelen.

Subfamily Trachyleberidinae Sylvester-Bradley, 1948
Genus *Trachyleberis* Brady, 1898
'Trachyleberis' horridula (Bosquet, 1854)

Cythere horridula nov. spec. 1853 – Bosquet, 1854a: 105-106, pl. 7, fig. 5a-d.
Cythereis horridula Bsq. – Bosquet, 1860: species no. 49.
'Trachyleberis' horridula (Bosquet) – Deroo, 1966: 169.

Material in the NNM: RGM 79976 (= STA 13897: Bemelen, m4, 'rare'), a cell slide with a right valve).

Material in Brussels: KBIN.IG.4285.9-4 (cell slide with valve from 'Schin-op-de-Geul'), KBIN.IG.4285.43 (cell slide with several carapaces and valves from mixed localities: 'Mont.-St.-Pierre, Bemelen', fairly well preserved).

Remarks – Bosquet described this species as 'rare, et n'a été trouvée que dans le Système Maestrichtien à St. Pierre et à Bemelen.' He also found it at Ciply, and illustrated a left valve and a carapace from Bemelen from his own collection.

Genus *Curfsina* Deroo, 1966
Curfsina? orchidea (Bosquet, 1854)

Cythere orchidea nov. spec. 1853 – Bosquet, 1854a: 98-99, pl. 6, fig. 9a-d.
Cythereis? orchidea Bsq. – Bosquet, 1860: species no. 57.
Curfsina? orchidea (Bosquet) – Deroo, 1966: 141.

Material in the NNM: RGM 79980 (= STA 13903: Nedercanne, m8, cell slide with a single carapace).

Material in Brussels: KBIN.IG.4285.34 (cell slide with two carapaces from Bemelen and Neerkanne, carapaces identified by J.H. Bonnema).

Remarks – Bosquet found this species only in 'les couches à Bryozoaires du Système Maestrichtien à Nedercanne, à St. Pierre, à Bemelen, à Geulhem et à Fauquemont.' He illustrated a left valve from Neerkanne and a carapace from Valkenburg.

Genus *Kingmaina* Keij, 1957
Kingmaina cristata (Bosquet, 1854)

Cythere cristata nov. spec. 1853 – Bosquet, 1854a: 122-123, pl. 10 fig. 4a-d.
Cythereis cristata Bsq. – Bosquet, 1860, species no. 33.
Kingmaina cristata (Bosquet) – Deroo, 1966: 147.

Material in the NNM: RGM 79966 (= STA 13884, St Pietersberg, m17, 'very rare'), a right valve and an eroded valve of which it was unable to decide whether it was a left or a right valve.

Material in Brussels: KBIN.IG.4285.58 (cell slide with many valves from Neerkanne, Gronsveld, St Pietersberg, Bemelen, Keer, Geulhem, and Valkenburg).

Remarks – Bosquet noted: 'elle se rencontre dans le Système Maestrichtien à Nedercanne, à St. Pierre, à Gronsveld, à Bemelen, à Keer, à Geulhem et à Fauquemont; et dans le calcaire grossier à silex gris du Système Sénonien entre St. Pierre et Petit-Lanaye'. He illustrated a left valve and a carapace 'du terrain Maestrichtien de St. Pierre' from his own collection.

Kingmaina hagenowi (Bosquet, 1854)

Cythere hagenowi nov. spec. 1853 – Bosquet, 1854a: 120-121, pl. 10, fig. 2a-d.
Cythereis Hagenovi Bsq. – Bosquet, 1860. species no. 35.
Kingmaina hagenowi (Bosquet) – Deroo, 1966: 148.

Material in the NNM: RGM 79974 (= STA 13886 Bemelen, m4, 'very rare', cell slide with 4 right valves and 2 left valves).

Material in Brussels: KBIN.IG.4285.7a-17b (cell slide with a left valve from 'St. Pierre'), KBIN.IG. 4285.56 (cell slide with numerous specimens from 'Nedercanne, Gronsveld, Mont.-St.-Pierre, Bemelen, Keer, Fauquemont', identified by J.H. Bonnema in 1935).

Remarks – 'Cette Cythere est peu commune dans le Système Maestrichtien à Nedercanne, à St. Pierre, à Gronsveld, à Bemelen, à Geulhem, à Fauquemont et à Vieux-Fauquemont.' Bosquet illustrated a left valve and a carapace 'du Système Maestrichtien de Gronsveld' from his own collection.

Kingmaina macroptera (Bosquet, 1854)

Cythere macroptera nov. spec. 1853 – Bosquet, 1854a: 121-122, pl. 10, fig. 3a-d.
Cythereis macroptera Bsq. – Bosquet, 1860. species no. 34.
Kingmaina macroptera (Bosquet) – Deroo, 1966: 148.

Material in the NNM: RGM 79982 (= STA 13885, Bemelen, m4, a broken left valve).

Material in Brussels: KBIN.IG.4285.56-1 (cell slide containing one right valve, the label noted: 'déterm. J. H. Bonnema 1935, loc.: Neder-canne, Gronsveld, Mont.-St.-Pierre, Bemelen, Keer, Fauquemont').

Remarks – 'Cette singulière espèce est fort rare et n'a été trouvée qu'à Bemelen dans le Système Maestrichtien'. Bosquet illustrated a left valve and a carapace from his own collection.

Genus *Limburgina* Deroo, 1966
Species *Limburgina semicancellata* (Bosquet, 1854)

Cythere semicancellata nov. spec. 1853 – Bosquet, 1854a: 112-113, pl. 7, fig. 9a-d.
C. semicancellata Bsq. – Bosquet, 1860, species no. 43.
Limburgina semicancellata (Bosquet) – Deroo, 1966: 158.

Material in the NNM: RGM 79992 (= STA 13892, Bemelen, m4, 1 right valve, 1 left valve and a broken valve of which it was unable to decide whether it was a left or a right valve).

Material in Brussels: KBIN.IG.4285.48 (cell slide with several specimens from mixed localities, the label noted: 'Neder-Canne, Bemelen, Mont.-St. Pierre, Geulhem, déterm. J., H. Bonnema 1935'.

Remarks – 'Elle est peu commune et a été trouvée dans la couche à Bryozoaires du terrain Maestrichtien à Nedercanne, à St. Pierre, à Bemelen et à Geulhem. Elle est très-rare dans le même Système à Kunraede'. Bosquet illustrated a left valve du Système Sénonien de St. Pierre and a carapace 'du même Système de Bemelen', both from his own collection.

Genus *Planileberis* Deroo, 1966
Planileberis lepida (Bosquet, 1854)

Cythere lepida nov. spec. 1853 – Bosquet, 1854a: 99-100, pl. 6, fig. 11a-d.
Cythereis? lepida Bsq. – Bosquet, 1860, species no. 55.
Planileberis lepida (Bosquet) – Deroo, 1966: 164.

Material in the NNM: RGM 79980 (= STA 13902, St Pietersberg, m8).

Genus *Spinoleberis* Deroo, 1966
Spinoleberis eximia (Bosquet, 1854)

Cythere eximia nov. spec. 1853 – Bosquet, 1854a: 106-107, pl. 7, fig. 6a-d.
Cythereis eximia Bsq. – Bosquet, 1860: species no. 47.
Spinoleberis eximia (Bosquet) – Deroo, 1966: 165.

Material in the NNM: RGM 79970 (= STA 13896, Valkenburg, m8).

Genus *Spongicythere* Howe, 1951
Spongicythere? celleporacea (Bosquet, 1854)

Cythere celleporacea nov. spec. 1853 – Bosquet, 1854: 111-112, pl. 7, fig. 8a-d.
Cythereis celleporacea Bsq. – Bosquet, 1854: species no. 44.
Spongicythere? celleporacea (Bosquet) – Deroo, 1966: 168.

Material in the NNM: RGM 79964 (= STA 13893, Geulhem, m8).

Phylum: Brachiopoda Dumeril, 1806
Subphylum Linguliformea Williams et al., 1996
Class Craniata Williams et al., 1996
Order Craniida Waagen, 1885
Superfamily Cranioidea Menke , 1828
Family Craniidae Menke, 1828
Genus *Ancistrocrania* Dall, 1877
Ancistrocrania muelleri (Bosquet, 1859)
Pl. 4, fig. 6.

Crania Mülleri nov. spec. 1859 – Bosquet, 1859: 7-8, pl. 1, fig. 2a-d, pl. 2, fig. 7-10.
Crania Mülleri Bosq. – Bosquet, 1860: species no. 539.
Crania (Ancistrocrania) mülleri Bosquet, 1859 – Kruytzer, 1969: 23, fig. 7.
Ancistrocrania muelleri (Bosquet 1859) – Simon, 1998: 130.

Material in the NNM: RGM 27741 (= STA 14007: Neerkanne, m4, 2 valves, one broken, stored in a glass tube).

Remarks – Bosquet did not describe any particular specimen. He illustrated four dorsal valves from his own collection and one ventral valve from the collection of H. de Guasco. Kruytzer, 1969 designated a dorsal valve from the Bosquet collection lectotype (KBIN-IRScNB 84 Brach. Sec. I Crét. Etage Maestrichtien. Coll. Bosquet I.G. 4285).

Ancistrocrania suessi (Bosquet, 1859)

Crania suessi nov. spec. 1859 – Bosquet, 1859: 8-9, pl. 2, fig. 11-15
Crania Suessi Bsq. – Bosquet, 1860: species no. 540.
Crania (Ancistrocrania) suessi Bosquet, 1859 – Kruytzer, 1969: 23-25.
Ancistrocrania suessi (Bosquet, 1859) – Simon, 1998: 130

Material in the NNM: RGM 13518 (= STA 14008, St Pietersberg, m4, 2 valves in modern glass tube).

Remarks – Bosquet based this species on several dorsal valves. He gave the dimensions of the largest specimens that he found and illustrated five dorsal valves from his own collection. Kruytzer, 1969, designated a lectotype (KBIN-IRScNB 84 Brach. Sec. I Crét. Coll. Bosquet I.G. 4295). This lectotype is clearly not one of Bosquet's illustrated specimens.

Genus *Isocrania* Jaekel, 1902
Isocrania paucicostata (Bosquet, 1859)

Crania Ignabergensis var. *paucicostata* Bosquet, 1859 – Bosquet, 1859: 15-18, pl. 1, fig. 5a-c, 6a-c.
Crania ignabergensis Retzius var. *paucicostata* Bosquet – Kruytzer, 1969: 32-33.
Isocrania paucicostata (Bosquet, 1859) – Winkler Prins, 1991: B32, fig. 181.

Material in the NNM: STA 14009 (St Pietersberg, m17). This lot was not found.

Order Terebratulida Waagen, 1883
Suborder Terebratellidina Muir-Wood, 1955
Superfamily Terebratelloidea King, 1850
Family Megathyrididae Dall, 1870
Genus *Argyrotheca* Dall, 1900
Argyrotheca faujasi (Bosquet, 1859)

Argiope faujasi nov. spec. 1859 – Bosquet, 1859: 43-44, pl. 5, fig. 5-7.
Argiope Faujasi Bosq. – Bosquet, 1860: species no. 555.
Argyrotheca faujasi – Winkler Prins, 1991: B32, fig. 185.

Material in the NNM: STA 14017 (Neerkanne, m8), this lot was not found.

Argyrotheca megatremoides (Bosquet, 1859)
Pl. 4, fig. 4.

Argiope megatremoides nov. spec. 1859 – Bosquet, 1859: 44-46, pl. 2, fig. 8-9.
Argiope megatremoides Bosq. – Bosquet, 1860: species no. 556.
Argyrotheca megatremoides (Bosquet) – Muir-Wood et al., 1965: H831.

Material in the NNM: RGM 13506 (= STA 14018, St Pietersberg, m8, 1 dorsal and 3 ventral valves in an original Staring slide. Not illustrated by Bosquet).

Family Terebratellidae King, 1850
Genus *Terebratella* Orbigny, 1847
'Terebratella' koninckі (Bosquet, 1854)
Pl. 4, fig. 7.

Rhynchora koninckі nov. spec. 1854 – Bosquet, 1854b: 201-203, fig. 7a-d, 8a-c.
Terebratella Koninckі Bosq – Bosquet, 1860: species no. 566.
'Terebratella' koninckі (Bosquet 1854b) – Simon, 1998: 132.

Material in the NNM: RGM 27733 (= STA 14028*, St Pietersberg, m4, 4 complete specimens, two dorsal valves and one ventral valve in a glass tube).

Family Platidiidae Thomson, 1927
Genus *Platidia* Costa 1852
Platidia? suessi (Bosquet, 1859)

Terebratella (*Morrisia?) suessi* nov. spec. 1859 – Bosquet, 1859: 49-50, pl. 5, fig. 15-18.
Morrisia? Suessi Bosq. – Bosquet, 1860: species no. 558.

Material in the NNM: RGM 21237 (= STA 14020, between Sibbe and Vilt, m4).

Remark – According to Muir-Wood et al., 1965: H833, *Morrisia* Davidson, 1852 is a subjective junior synonym of *Platidia* Costa, 1852.

Subphylum Rhynchonelliformea Williams et al., 1996
Class Rhynchonellata Williams et al., 1996
Order Spiriferida Waagen, 1883
Suborder Thecideidina Elliott, 1958
Superfamily Thecideoidea Gray, 1840
Family Thecideidae Gray, 1840
Subfamily Lacazellinae Backhaus, 1959
Genus *Eolacazella* Elliott, 1953
Eolacazella affinis (Bosquet, 1859)

Thecidium affine nov. spec. 1859 – Bosquet, 1859: 25-26, pl. 3 fig. 2, 3a-b.
Thecidium affine Bosq. – Bosquet, 1860: species no. 547.
Lacazella (Vermiculothicidea) affinis (Bosquet, 1859) – Backhaus, 1959: 44-46, pl. 3 fig. 7, pl. 6 fig. 10.
Eolacazella affinis – Elliott, 1965: H859 (type species).

Material in the NNM: RGM 13507 (= STA 14011, Valkenburg, m8, a cell slide containing one ventral and one dorsal valve).

Material in Brussels: KBIN.IG.4285 (a glass tube containing several valves, the label noted: '*L. affinis*?, Maestrichtien, Mont.-St.-Pierre').

Remarks – Bosquet, 1859, based this species on material, which he head collected from the 'couches à Bryozoaires moyenne et supérieure du Système Maestrichtien à St. Pierre, à Nedercanne, à Bemelen, à Geulheim et à Fauquemont'. He illustrated a complete specimen (fig. 2) and a ventral view of a dorsal valve (fig. 3). He gave the dimensions of the specimen of fig. 2. He did not indicate the provenance of that specimen. Backhaus, 1959, could not find any of Bosquet's specimens and therefore designated a neotype (Geol. Staatsinst. Hamburg, Typ. Cat. no. 696).

Genus *Parathecidea* Backhaus, 1959
Parathecidea? suessi (Bosquet, 1859)
Pl. 4, fig. 5.

Thecidium suessi n. sp. 1859 – Bosquet, 1859: 29-30, pl. 3, fig. 12-14a-b.
Thecidium Suessi Bosq. – Bosquet, 1860: species no. 549.
Thecidiopsis (Parathecidea?) suessi (Bosquet, 1859) – Backhaus, 1959: 66-67, pl. 7, fig. 1-4.

Material in the NNM: RGM 13510 (= STA 14013, St Pietersberg, m8, 1 dorsal and 2 ventral valves in a Staring cell slide). The original illustrations of Bosquet are somewhat idealised in comparison to the fossils. The ventral valves resemble figs 12, 13, however not convincingly. The dorsal valve does not resemble the illustration at all.

Remarks – Bosquet illustrated two ventral valves and a dorsal one. He found this species at all localities where the 'Couche à Bryozoaires moyenne et supérieure de la Système Maestrchtien' outcrops. He gave dimensions of one specimen: 'Longueur 5 mm, largeur et hauteur environ 3 mm. Backhaus could not find Bosquet's specimens and designated a neotype (Geol. Staatinst. Hamburg, Typ. Kat. no. 697).

Family Thecidellinidae Elliott, 1958
Subfamily Thecidellininae Elliott, 1958
Genus *Bifolium* Elliott, 1948
Bifolium longirostre (Bosquet, 1859)

Thecidium longirostre nov. spec. 1859 – Bosquet, 1859: 33-34, pl. 4 fig. 4-6.
Thecidium longirostre Bosq. – Bosquet, 1860: species no. 551.
Lacazella (Bifolium) longirostris longirostris (Bosquet, 1859) – Backhaus, 1959: 37-39, pl. 2 fig. 5-6.

Material in the NNM: STA 14015 (Geulhem, m4), object not found in the NNM collections.

Material in Brussels: KBIN.IG.4285.22 (two glass tubes together with a handwritten label: '*Thecidium longirostre Bosq xxxnt figure. St. Pierre, etc: Syst. Maestrichtien*', which suggest that at least one of the specimens in these tubes is an illustrated specimen of Bosquet. If so, then the illustrations of Bosquet are truly very exaggerated. The two complete specimens in these tubes are less elongated than Bosquet's fig. 4 suggests).

Remarks – Bosquet based his description on material from Neerkanne, St Pietersberg, Gronsveld, Bemelen, Geulhem and Valkenburg. He illustrated two specimens from his own collection and gives dimensions of one specimen. Backhaus, 1959, found the specimen illustrated in Bosquet, 1859: fig. 4a in the KBIN- IRScNB, Brussels: Cat. Types IST 9590. He erroneously thought this specimen to be the holotype. Backhaus, 1959, described a new subspecies *L. (B.) longirostris parva* with the Curfs quarry at Geulhem as type locality. He did not mention this locality for *L. (B.) longirostris longirostris*

References

Adrichem Boogaert, H.A. van & W.F.P. Kouwe, 1993-1994. Stratigraphic nomenclature of the Netherlands, revision and update by RGM and NOGPA Section H. Upper Cretaceous and Danian (Chalk Group). – Meded. Rijks Geol. Dienst, 50 (1994): 1-19, annex H1-H3.

Alber, H.J. & W.M.F., 1979. Litho-, Biostratigraphie und Palökologie der Oberkreide und Altteriärs (Präobersanton-Dan/Paläozän) von Aachen-Südlimburg (Niederlande, Deutschland, Belgien), Aspecte der Kreide Europas. – IUGS, A: 47-84.

Backhaus, E., 1959. Monographie der cretacischen Thecideidae (Brach.). – Mitt. Geol. Staatsinst. Hamburg 28: 5-90, pls. 1-7.

Baker, P.G., 1990. The classification, origin and phylogeny of thecideidine brachiopods. – Palaeontology 33, 1: 175-191.

Boekschoten, G.J., 1961. De verzameling van Riemsdijk. – Natuurhist. Maandbl., 50, 5-6: 57-60.

Bolli, H.M. & J.B. Saunders, 1954. Discussion of some Thecamoebina described erroneously as Foraminifera. – Contr. Cushman Found. Foram. Res., 5, 2: 45-52.

Bosquet, J.A.H., 1852. Description des Entomostracés fossiles des terrains tertiaires de la France et de la Belgique. – Mém. Cour. Mém. savants étr. pub. Acad. roy. Belg., 24: 1-142, 6 pls.

Bosquet, J.A.H., 1854a. Monographie des Crustacés fossiles du Terrain Crétacé du Limbourg. – Verh. Commissie vervaardigen geol. Beschrijving Kaart Nederland, 2: 13-138, 10 pls (Kruseman, Haarlem).

Bosquet, J.A.H., 1854b. Nouveaux brachiopodes du système Maestrichtien. – Verh. Commissie vervaardigen geol. Beschrijving Kaart Nederland, 2: 197-203 (Kruseman, Haarlem).

Bosquet, J.A.H., 1857. Notice sur quelques cirripèdes recemment découverts dans le terrain crétacé du duché de Limbourg. – Les Heritiers Loosjes, Haarlem: ii+ 1-36, 3 pls.

Bosquet, J.A.H., 1859. Monographie des Brachiopodes fossiles du terrain Crétacé supérieur du Duché de Limbourg. Première Partie. Craniadae et Terebratulidae (Subfamilia Thecidiidae). – Mém. description géol. Néerlande, 3: 1-50, 5 pls (Kruseman, Haarlem).

Bosquet, J.A.H., 1860. Krijt van Limburg. Versteeningen. In: W.C.H. Staring, De Bodem van Nederland. De zamenstelling en het ontstaan der Gronden in Nederland ten behoeve van het algemeen beschreven. – Kruseman, Haarlem: 362-418.

Bruijn, G.J. de, 1969. J.G.S. van Breda (1788-1867), een vroeg Nederlands geoloog. – Grondboor & Hamer, 23, 2: 74-77.

Bruijn, G.J. de, 1974. Vroege beoefenaars van de geologie van Nederland. – Grondboor & Hamer 28, 2: 1-80.

Deroo, G., 1966. Cytheracea (Ostracodes) du Maastrichtien de Maastricht (Pays-Bas) et des régions voisines; résultats stratigraphiques et paléontologiques de leur étude. – Med. Geol. Stichting, C, 2, 2: 11-197, 27 pls.

Dhondt, A.V., 1971. Systematic revision of *Entolium*, *Propeamussium* (Amussidae) and *Syncyclonema* (Pectinidae, Bivalvia, Mollusca) of the European Boreal Cretaceous. – Bull. Kon. Belg. Inst. Natuurwet., 47, 32: 1-95, 4 pls.

Dhondt, A.V., 1972. Systematic revision of the Chlamydinae (Pectinidae, Bivalvia, Mollusca) of the European Cretaceous Part 1: *Camptonectes.* – Bull. Kon. Belg. Inst. Natuurwet., 48, 3: 1-60, 2 pls.

Dhondt, A.V., 1972. Systematic revision of the Chlamidinae (Pectinidae, Bivalvia, Mollusca) of the European Cretaceous part 2: *Lyropecten.* – Bull. Kon. Belg. Inst. Natuurwet., 48, 7: 1-81, 3 pls.

Dhondt, A.V., 1973. Systematic revision of the subfamily Neitheinae (Pectinidae, Bivalvia, Mollusca) of the European Cretaceous. – Kon. Belg. Inst. Natuurwet. Verh., 176: 1-101, 5 pls.

Dhondt, A.V., 1973. Systematic revision of the Chlamydinae (Pectinidae, Bivalvia, Mollusca) of the European Cretaceous part 3: *Chlamys* and *Mimachlamys.* – Bull. Kon. Belg. Inst. Natuurwet., 49, 1: 1-134, 9 pls.

Dhondt, A.V., 1975. Systematic revision of the Chlamydinae (Pectinidae, Bivalvia, Mollusca) of the European Cretaceous part 4: *Merklinia.* – Bull. Kon. Belg. Inst. Natuurwet., 51, 7: 1-38, 2 pls.

Dhondt, A.V., 1979. *Tenuipteria geulemensis* (Mollusca: Bivalvia), an inoceramid species from the Upper Maastrichtian of the Sint Pietersberg Area, The Netherlands. – Ann. Soc. R. Zool. Belg., 108, 3-4: 141-149, 1 pl.

Dhondt, A.V., 1983a. An inoceramid-like limid of Late Maastrichtian age from Maastricht. – Bull. Kon. Belg. Inst. Natuurwet., 55, 3: 1-10, 1 pl.

Dhondt, A.V., 1983b. Tegulated inoceramids and Maastrichtian biostratigraphy. – Newsletter Strat., 12, 1: 43-53, 1 pl.

Dumont, A.H., 1849. Rapport sur la géologique du Royaume. – Bull. Acad. R. Sci. Lettres Beaux-Arts Belg., 16, 2: 351-373.

Eagar, S.H., 1967. Cretaceous and Tertiary Ostracoda from the collection of J. Bosquet. – Revue Micropal., 10, 1: 15-21.

Felder, W.M. & P.W. Bosch, 1998. Geologie van de St. Pietersberg bij Maastricht. – Grondboor & Hamer, 52, 3: 53-63.

Geyn, W.A.E. van de, 1944. Staring's medewerkers uit Limburg. – Verh. Geol.-Mijnb. Genoot. Nederland Kol., Geol. Ser., 14: 205-214.

Goldfuss, A., 1835. Petrefacta Germaniae tam ea, quae in Museo Universtatis regiae Borussicae Fridericiae Wilhelmiae Rhenanae servantur quam alia quaecunque in Museis Hoeninghusiano, Muensteriano Aliisque extant, iconobus et describtionibus illustrata. Abbildungen und Beschreibungen der Petrefacta Deutschlands und der angränzenden Länder unter Mitwerkung des Herrn Grafen Georg zu Münster herausgegeben von August Goldfuss, Zweiter Theil. – Arnz & Comp., Düsseldorf, 1834-1840: 1-312.

Gorsel, J.T. van, 1978. Late Cretaceous orbitoidal foraminifera. In: R.H. Hedley & C.G. Adams (eds) Foraminifera, vol. 3. Academic Press, London etc.: 1-120.

Hartog, J. C. den, in prep. Biographical notes on Dr. J. Hofker 1898-1991 and a list of his publications. – Zool. Meded.

Heijden, A.A. van der, W. in 't Hout, C. Homburg & J. Idema. 1989. Koralen uit het Maastrichtien. In: Fossielen uit de Formatie van Maastricht deel 2. – Geode, 22, 2: 34-49.

Hofker, J. sr, 1926. Die Foraminiferen aus dem Senon Limburgens. V. – Natuurhist. Maandbl., 15, 7: 79-82.

Hofker, J. sr, 1951. On Foraminifera from the Dutch Cretaceous. – Publ. Natuurhist. Genoot. Limburg, 4: 1-40.

Hofker, J. sr, 1955a. Foraminifera of Southern Limburg, Netherlands. I. *Lockhartia roestae* (Visser). – Natuurhist. Maandbl., 44, 1: 4-5.

Hofker, J. sr, 1955b. Foraminifera of Southern Limburg, Netherlands. II, *Pseudoparrella alata* (Marsson). – Natuurhist. Maandbl., 44, 3-4: 25-27.

Hofker, J. sr, 1955c. Foraminifera of Southern Limburg, Netherlands. VII, *Nonionella cretacea* (Reuss) (non Cushman). – Natuurhist. Maandbl., 44, 9-10: 99-101.

Hofker, J. sr, 1957. Foraminifera of Southern Limburg, Netherlands. XXX, *Rotorbinella mariei* (Van Bellen). – Natuurhist. Maandbl., 46, 9-10: 123-124.

Hofker, J. sr, 1958. Foraminifera of Southern Limburg, Netherlands. XXXVII, *Linderina visserae* nov. spec. – Natuurhist. Maandbl., 47, 9-10: 125-127.

Hofker, J. sr, 1959. Les Foraminifères des craies tuffoides de Charente et Dordogne de l'Aquitaine, France du Sud-Ouest. – Congr. Soc. savantes, Dijon, 1959: 253-368.

Hofker, J. sr, 1961. Foraminifera of Southern Limburg, Netherlands. LIII, Some smaller Rotaliid species from the holes in the hardground over the Md in the quarry Curfs, near Houthem, Westside. – Natuurhist. Maandbl., 50, 5-6: 63-67.

Hofker, J. sr, 1962. Foraminifera of Southern Limburg, Netherlands. LIX, The genus *Nonionella* in the Upper Cretaceous of Holland. – Natuurhist. Maandbl., 51: 35-37.

Hofker, J. sr., 1966. Maestrichtian, Danian and Paleocene Foraminifera. – Palaeontographica, A, Suppl.-Bd, 10: 1-375, 86 pls.

International Commission on Zoological Nomenclature, 1999. International code of zoological Nomenclature. – Intern. Trust Zool. Nomencl., c/o The Natural History Museum: 1-306.

Jagt, J.W.M., 1994. Nogmaals Joseph de Bosquet en zijn cirrips. – Natuurhist. Maandbl., 83, 7-8: 140-144.

Jagt, J.W.M. & Mart J.M. Deckers, 1998. Zeelelies, slangsterren en zeesterren. – Grondboor & Hamer, 52, 4/5: 138-139, pl. 22.

Jagt, J.W.M., 1998. Eendenmossels en zeepokken. – Grondboor & Hamer, 52, 4/5: 124-125, pl. 15.
Jagt, J.W.M., 1999. Late Cretaceous - Early Palaeogene echinoderms and the K/T boundary in the southeast Netherlands and northeast Belgium. Part 1: Introduction and stratigraphy; Part 2: Crinoids. – Scripta Geol., 116: 1-255, 46 pls.
Jagt, J. W. M., 2000a. Late Cretaceous - Early Palaeogene echinoderms and the K/T boundary in the southeast Netherlands and northeast Belgium. Part 4: Echinoids. – Scripta Geol., 121: 181-375, 30 pls.
Jagt, J. W. M., 2000b. Late Cretaceous - Early Palaeogene echinoderms and the K/T boundary in the southeast Netherlands and northeast Belgium. Part 5: Asteroids. – Scripta Geol., 121: 376-503, 27 pls.
Jagt, J.W.M. & A.W. Janssen, 1988. *Jouannetia* (Bivalvia, Pholadidae) and *Neritopsis* (Gastropoda, Neritopsidae), two molluscs from the Danian (Paleocene) of the Maastricht area (SE Netherlands and NE Belgium). – Meded. Werkgr. Tert. Kwart. Geol., 25, 2-3: 163-174, 2 pls.
Kennedy, W.J. & J.W.M. Jagt, 1995. Lower Campanian heteromorph ammonites from the Vaals Formation around Aachen, Germany and adjacent parts of Belgium and The Netherlands. – N. Jahrb. Geol. Paläont., Abh. 197: 275-294.
Kruytzer, E.M. & M. Meijer, 1958. On the occurrence of *Crania brattenburgica* (v. Schotheim 1820) in the region of Maastricht (Netherlands)(Brachiopoda, Inarticulata). – Natuurhist. Maandbl., 47, 11-12: 135-141.
Kruytzer, E.M., 1963. J. Bosquet Apotheker en Paleontoloog 1814-1880. – Natuurhist. Maandbl., 52, 7-8: 95-103.
Kruytzer, E.M., 1969. Le genre *Crania* du Crétacé supérieur et du Post-Maastrichtien de la province de Limbourg Néerlandais (Brachiopoda, Inarticulata). – Publ. Natuurhist. Genoot. Limburg, 19, 3: 1-42.
Loeblich, A.R. jr & H. Tappan, 1988. Foraminiferal genera and their classification, v. 1. – Van Nostrand Reinhold, New York: i-x, 1-970.
Mac Gillavry, H.J., 1963. Phylomorphogenesis and evolutionary trends of Cretaceous orbitoidal Foraminifera. In C.W. Wagner et al. (eds), Evolutionary trends in Foraminifera. A collection of papers dedicated to I. M. van der Vlerk on the occasion of his 70th birthday. – Elsevier Publ. Co., Amsterdam, London, New York: 139-197.
Miquel, F. A. W., 1853. De fossiele planten van het Krijt in het Hertogdom Limburg. – Verh. Commissie geol. beschrijving kaart Nederland, v. 1, Kruseman, Haarlem: 33-56, 7 pls.
Muir-Wood, H.M., F.G. Stehli, G.F. Elliott & K. Hatai, 1965. Terebratulida. In: A. Williams et al. H: Brachiopoda. Treatise on Invertebrate Paleontology. – Geol. Soc. America & Univ. Kansas Press, New York: H728-H857.
Raadshoven, B. van, 1940. Foraminiferen uit het Senoon van Limburg. – Natuurhist. Maandbl., 29, 1: 11-12.
Roelofs, M., (1981). François Frederik Thierens' werkzaamheden ten behoeve van de commissie voor de Geologische Kaart van Nederland, alsmede twee catalogi van de door hem verzamelde fossielen, Biologie. – Mscrt. Thesis, Katholieke Univ. Nijmegen: 1-297.
Simon, E., 1994. *Kingenella pseudohebertiana* (Peron, 1894), a widely distributed Maastrichtian species. – Bull. Kon. Belg. Inst. Natuurwet., 64: 159-175, 4 pls.
Simon, E., 1998. Brachiopoden. – Grondboor & Hamer, 52, 4/5: 130-133, pls 18-19.
Staring, W.C.H., 1852-1864. Lijst der Voorwerpen ten behoeve der Geologie van Nederland op het Paviljoen te Haarlem van 1852 tot 1864 bijeengebragt door Dr. W. C. H. Staring.
Staring, W.C.H., 1860. De bodem van Nederland : de zamenstelling en het ontstaan der gronden in Nederland ten behoeve van het algemeen beschreven, v. 2. – Kruseman, Haarlem: 1-480.
Tuuk, L.A. van der, 1982. A Maastrichtian Conchorynch (*Conchorhynchus limburgicus* n. sp., Cephalopoda) from Limburg, The Netherlands. – Geol. & Mijnbouw 61: 179-182.
Tuuk, L.A. van der, 1985. Note on a new rhyncholite from the Maastrichtian of Limburg, The Netherlands. – Geol. & Mijnbouw, 64, 2: 205-209.
Ubaghs, C., 1881. Notice biographique sur J.-A.-H. Bosquet. – Ann. Soc. géol. Belg., 8: 20-26.
Umbgrove, J.H.F., 1925a. De Anthozoa uit het Maastrichtsch Tufkrijt. – Leidse Geol. Meded. 1, 1: 83-126, pls 8-11.
Umbgrove, J.H.F., 1925b. Asteroidea uit het Maastrichtsche Tufkrijt. – Verh. Geol.-Mijnb. Genoot. Nederland Kol., Geol. Ser., 7: 207-212, 1 pl.
Umbgrove, J.H.F., 1926. Die Korallenfauna der Maastrichter Tuffkreide. – Centralbl. Min. Etc., B, 11: 414-416.
Umbgrove, J.H.F., 1956. Ons land zeventig millioen jaar geleden. Levensschetsen uit de Krijtperiode. – M. Nijhoff, The Hague: 1-150.
Vaught, K.C., 1989. A classification of the living Mollusca. – Amer. Malacol. Inc., Melbourne: i-xii, 1-195.
Veen, J.E. van, 1932. Die Cytherellidae der Maastrichter Tuffkreide und des Kunrader Korallenkalkes von Süd-Limburg. – Verh. Geol.-Mijnb. Genoot. Nederland Kol., Geol. Ser., 9, 5: 317-364.
Veldink, J.G., 1970. W.C.H. Staring 1808-1877 geoloog en landbouwkundige. – Centrum Landbouwpubl. Landbouwdoc., Wageningen: 1-206 (Doctor's Thesis Univ.Wageningen)
Visser, W.A., 1937. De stratigraphische verspreiding der Foraminiferen in het Limburgse Senoon. – Natuurhist. Maandbl., 26: 72-74, 87, 88, 96-99, 111-114.
Visser, A.M., 1950. Monograph on the foraminifera of the Type-Locality of the Maestrichtian (South-Limburg, Netherlands). – Leidse Geol. Meded., 16 (1951): 197-359, 11 pls (Doctor's Thesis Leiden University).
Vlerk, I.M. van der & Ph.H. Kuenen, 1954. Levensbericht van Johannes Herman Frederik Umbgrove (5 Februari 1899 - 14 Juni 1954). – Geol. & Mijnbouw, N.S., 16, 8: 339-346.
Vogel, F. 1892. Das Ober-Senoon von Irnich am Nordrand der Eifel. – Dissertation Univ. Bonn, 1-106.
Vogel, F., 1895. Beiträge zur kenntniss der Holländischen Kreide I. Lamellibranchiaten aus der Oberen Mucronatenkreide von Holländisch Limburg. – Samml. Geol. Reichsmus. Leiden, neue Folge, 2, 1: 1-49, pls 1-2.
Voigt, E. & W. Domke, 1955. *Thalassocharis bosqueti* Debey ex Miquel, ein strukturell erhaltenes Seegras aus der holländischen Kreide. – Mitt. Geol. Staatsinst. Hamburg, 24: 87-102.
Weijden, W.J.M. van der, 1943. Die Macrofauna der Hervenschen Kreide mit besonderer Berücksichtigung der Lammellibranchiaten. – Meded. Geol. Stichting, C, 4, 2, 1: 3-139, 15 pls.
Williams, A., S.J. Carlson, C.H.C. Brunton, *et al.*, 1996. A supra-ordinal classification of the Brachiopoda. – Philosophical Transactions of the Royal Society of London B351: 1171-1193.
Winkler Prins, C.F., 1989-1991. Brachiopoden. – Gea, 24, 2: B29-B36.

Withers, T.H., 1935. Catalogue of Fossil Cirripedia in the Department of Geology. Vol. II. Cretaceous, v. 2. – Br. Mus. (Nat. Hist.), London: 1-535.

Woodward, H., 1906. Cirripedes from the Trimmingham Chalk and other localities in Norfolk. – Geol. Mag., N.S., V, 3, 8: 337-353.

Zullo, V.A., E.E. Russell & F.F. Mellen, 1987. *Brachylepas* Woodward and *Virgiscalpellum* Withers (Cirripedia) from the Upper Cretaceous of Arkansas. – Jour. Paleont., 61, 1: 101-111.

Revised manuscript received 21 January 2001.

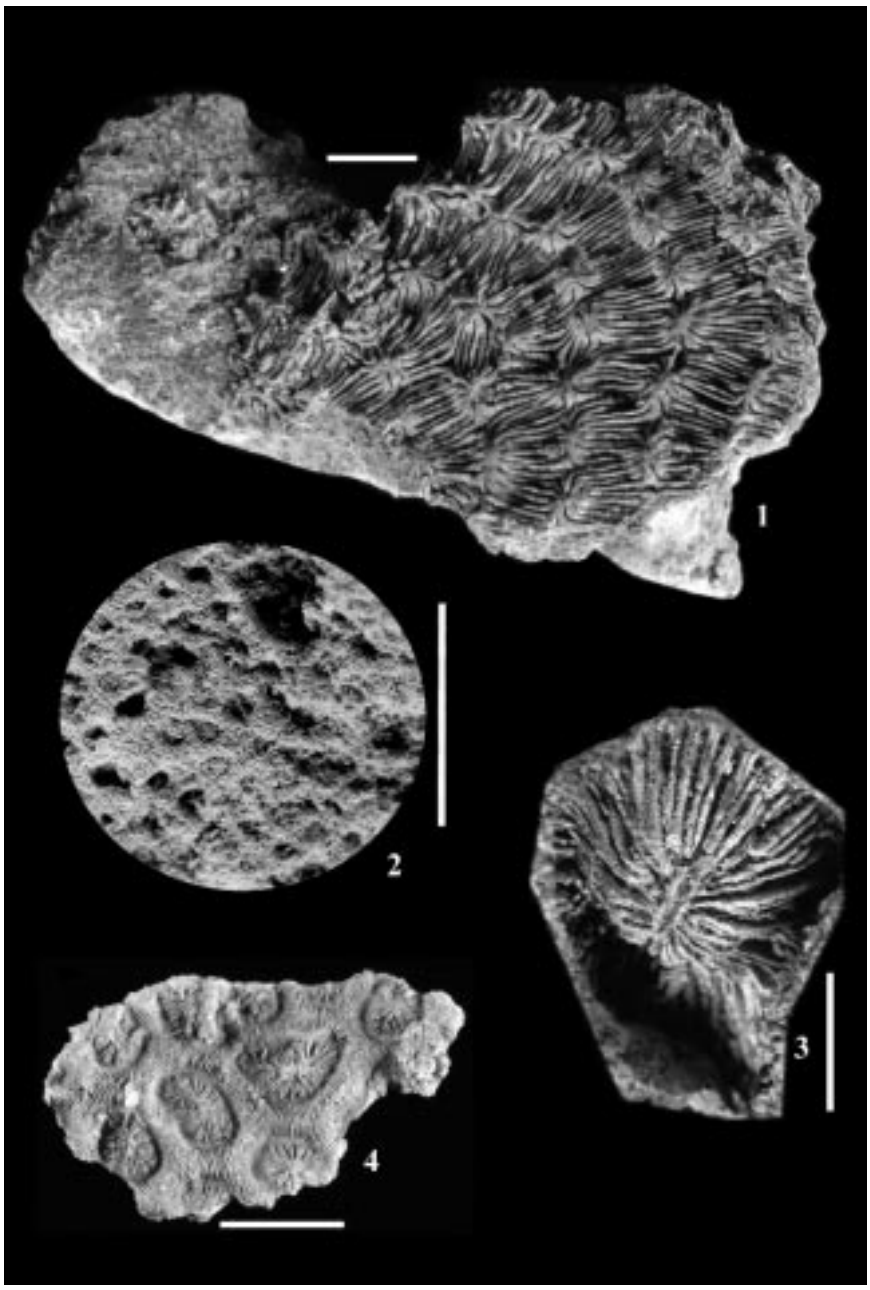

Plate 1

Corals

Fig. 1. *Dimorphastrea solida* Umbgrove, 1925 **(syntype)**, RGM 29059, collected by Umbgrove; the bar just above the picture is 1 cm.

Fig. 2. *Montipora cretacea* Umbgrove, 1925 **(holotype by monotypy)**, RGM 29072, collected by Umbgrove at Maastricht; the bar right from the picture is 1 mm.

Fig. 3. *Placosmilia robusta* Umbgrove, 1925 **(syntype)**, RGM 29036, St. Pietersberg; the bar is 1 cm.

Fig. 4. *Favia maastrichtensis* Umbgrove, 1925 **(holotype by monotypy)**, LH Wageningen 1227, collected at Keerderberg in 1910; the bar is 1 cm.

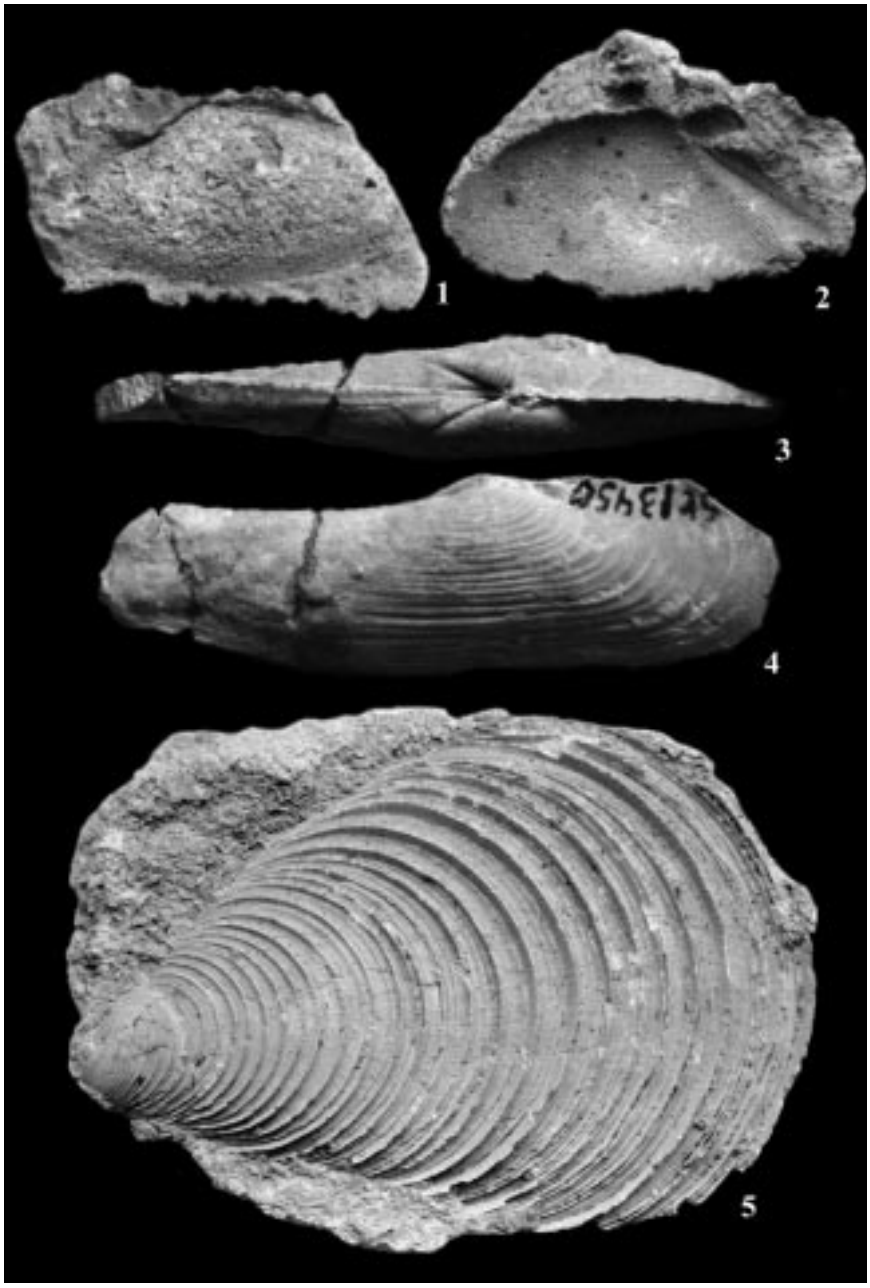

Plate 2

Bivalves

Figs. 1-2. *Tellina geulemensis* Vogel, 1895 **(syntype)**, RGM 13580 (= STA 10780), Geulhem, collected by Thierens. height of valve: 19.2 mm, length: 39.2 mm, 1: interior cast, 2: exterior cast.

Figs. 3-4. *Anatina millepunctata* Vogel, 1895 **(syntype)**, RGM 13450 (= STA 5184), Kunrade, collected by Thierens, interior cast of a pair; 3: height: 12.2 mm, length: 78.2 mm; 4: height: 22.7 mm.

Figs. 5. *Ctenoides? vogeli* Dhondt, 1983 **(neotype)**, RGM 13550 (= STA 12732), collected by Henkelius at St. Pietersberg, the valve is 114.2 mm x 76.9 mm.

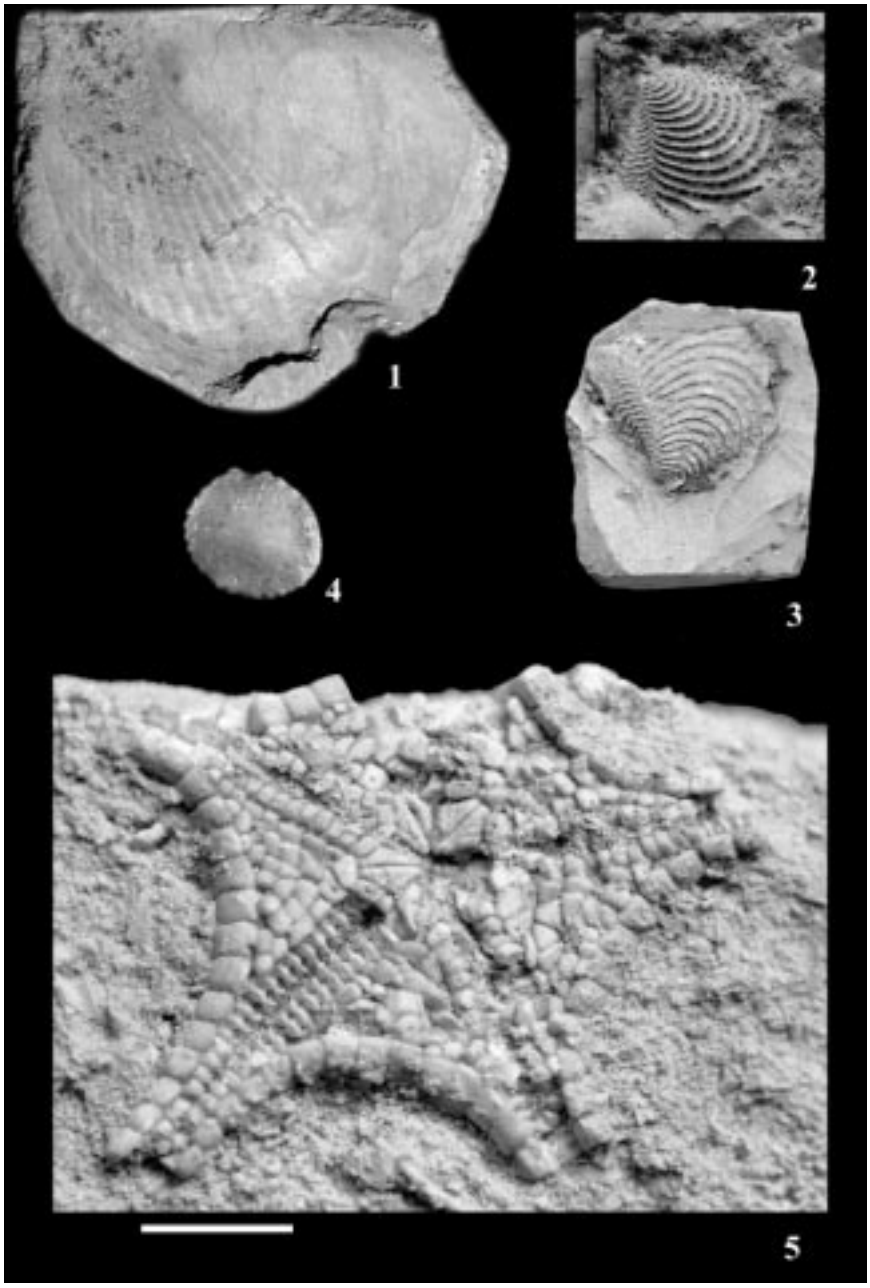

Plate 3

Bivalves (continued)
Fig. 1. *Tenuipteria argentea* (Conrad, 1858), RGM 13569 (= STA 10790), *Avicula geulemensis* Vogel, 1895 **(lectotype)** (*A. geulemensis* is subjective junior synonym for *T. argentea*), collected by Thierens at Geulhem., height of valve: 35.2 mm, width: 44.6 mm.

Figs. 2-3. *'Trigonia' maastrichtiana* Briart, 1888, RGM 13573: *Trigonia geulemensis* Vogel, 1895 **(syntype)** (this is a subjective junior synonym for *'T.' maastrichtiana*), Geulhem, Maastricht Formation; 2: exterior cast of a right valve, height of valve: 19.5 mm; 3: plaster cast made illustrated by Vogel (1895: pl. 2, fig. 16), height of total plaster cast: 31.4 mm.

Foraminifera
Fig. 4. *Orbitoides apiculata* Schlumberger, 1901, RGM S18820: *Orbitoides brinkae* Visser, 1950 **(holotype)**, which is a subjective junior synonym for *O. apiculata*. Collected by C. Kruit from a pit under Fortrtess St. Pieter, 8.15 m depth (sample VAM K.4). Illustrated in Visser, 1950, pl. 8, fig. 5. diameter: 1.4 mm.

Echinoderms
Fig. 5. *Ophryaster? maastrichtensis* Umbgrove, 1925 **(holotype)**, RGM 14209, neighbourhood of Maastricht, Meerssen Member; the bar is 1 cm.

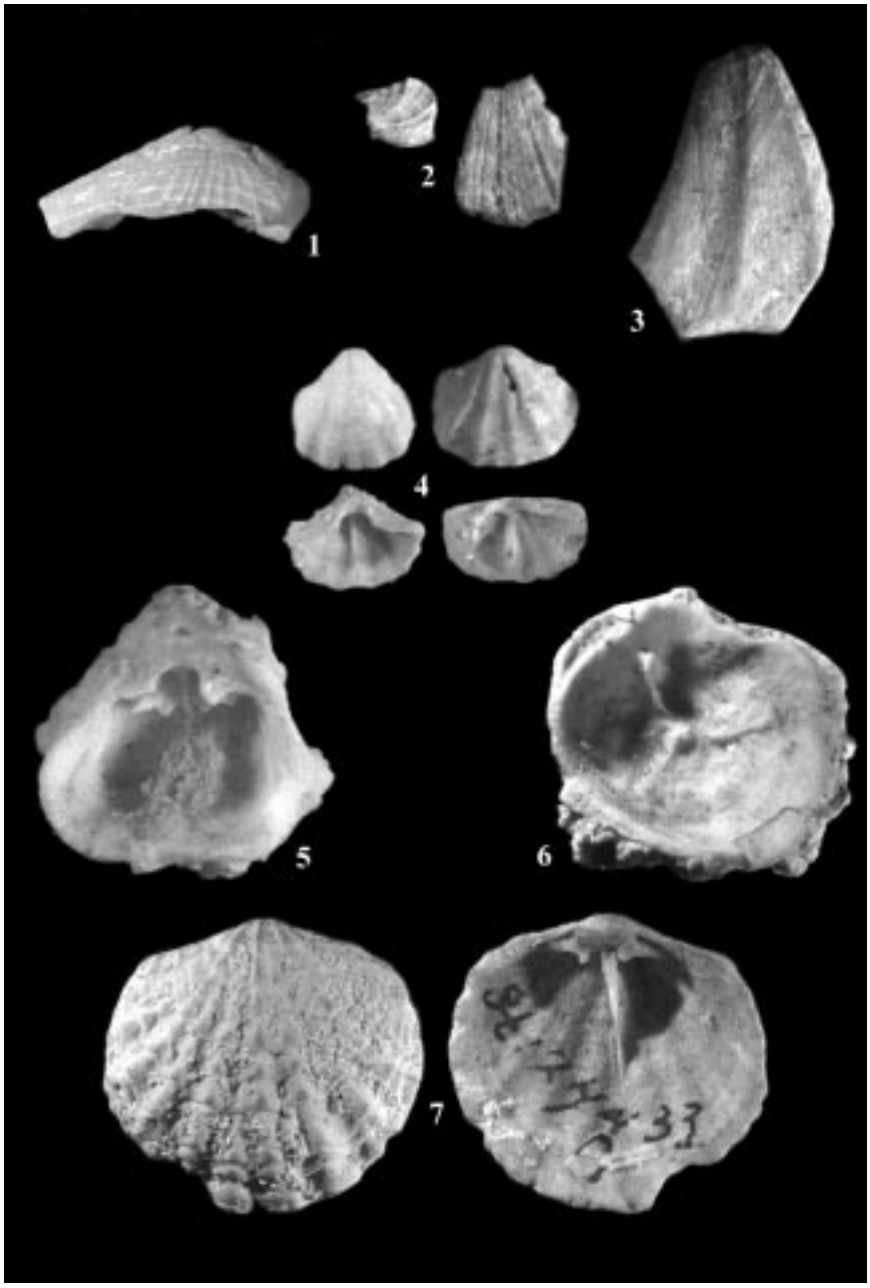

Plate 4

Specimens Bosquet sent to Staring in 1863 of species he erected in 1854, 1859.

Cirripedes

Fig. 1. *Virgiscalpellum darwinianum* (Bosquet, 1854), carina, RGM 27576 (= STA 13928), St Pietersberg, m17, width: 4.69 mm, height: 2.07 mm.

Fig. 2. *Arcoscalpellum pulchellum* (Bosquet, 1854), RGM 79996 (= STA 13929), St Pietersberg, m17; tergum (left), hight: 1.6 mm; fragmented scutum (right), height: 3.5 mm.

Fig. 3. *Virgiscalpellum hagenowianum* (Bosquet, 1854), scutum, RGM 79998 (= STA 13927), St Pietersberg, m17, width: 3.6 mm, height: 5.5 mm.

Brachiopods

Fig. 4. *Argyrotheca megatremoides* (Bosquet, 1859), 3 ventral and 1 dorsal valves, RGM 13506 (= STA 14018), St Pietersberg, m8, all valves at same scale, width dorsal valve: 5.0 mm.

Fig. 5. *Parathecidea? suessi* (Bosquet, 1859), ventral valve interior, RGM 13510 (= STA 14013), St Pietersberg, m8, height: 4.25 mm.

Fig. 6. *Ancistrocrania muelleri* (Bosquet, 1859), dorsal valve interior, RGM 27741 (= STA 14007), Neerkanne, m4, height: 10.9 mm.

Fig. 7. *'Terebratella' koninckı* (Bosquet, 1854), dorsal valve, RGM 27733 (= STA 14028), St Pietersberg, m4, internal and external views, height: 13.4 mm.

Index: (sub)species names in alphabetic order

affine, Thecidium ... 30
affinis, Eolacazella ... 30
affinis, Lacazella (Vermiculothididea) ... 30
alata, Pseudoparrella ... 7, 9
angusticostata, Montlivaltia ... 13
angusticostata, Montlivaultia ... 13
apiculata, Orbitoides ... 12, 37
approximata, Pteria ... 17
arachnoides, Montastrea ... 13
arenosa, Cythere ... 26
arenosa, Cythereis? ... 26
arenosa, Dolocythere ... 26
arenosa, Monoceratina ... 26
argentea, Tenuipteria ... 16, 37
bienfaiti, Lamarckina ... 8
bienfaiti, Trochulina ... 8
bosqueti, Calanthica (Scillaelepas) ... 24
bosqueti, Thalassocharis ... 23
brinkae, Orbitoides ... 12, 37
brotzeni, Sigmomorphina ... 7
bulloides, Sphaeroidina ... 8
celleporacea, Cythere ... 29
Celleporacea, Cythereis ... 29
celleporacea, Spongicythere? ... 29
conferta, Montastrea ... 13
conferta, Orbicella ... 13
conica, Montastrea arachnoides ... 13
conica, Orbicella Riemsdijcki ... 13
continuus, Metopaster ... 22
cretacea, Montipora ... 15, 35
cretaceum, Palmocarpon ... 23
cretaceus, Culmites ... 23
cristata, Cythere ... 27
cristata, Cythereis ... 27
cristata, Kingmaina ... 27
cryptomerioides, Cycadopsis ... 23
darwini, Scalpellum ... 24
darwinianum, Scalpellum ... 24
darwinianum, Virgiscalpellum ... 24, 25, 38
degraafi, Birgelenocrinus ... 21
denticulata, Cytherella ... 25
denticulata, Cytherelloidea ... 25
douvillei, Linderina ... 12
elegans, Elatocladus ... 23
euglypha, Anticythereis ... 26
euglypha, Cythere ... 26
eximia, Cythere ... 29
eximia, Cythereis ... 29
eximia, Spinoleberis ... 29
fallax, Columnastraea ... 14
fallax, Columnastrea ... 14
faujasi, Orbitoides ... 12
faujasi, Argiope ... 30
faujasi, Argyrotheca ... 30
fleuriausi, Amphistegina ... 12
fleuriausi, Daviesina ... 12
geulemensis, Arca ... 16
geulemensis, Avicula ... 16, 37
geulemensis, Tellina ... 20, 34
geulemensis, Tenuipteria ... 16
geulemensis, Trigonia ... 18, 37
gracile, Arcoscalpellum ... 25
gracile, Scalpellum ... 25
guascoi, Brachylepas ... 24
guascoi, Mitella ... 24
hagenowi, Cythere ... 28
hagenowi, Cythereis ... 28
hagenowi, Kingmaina ... 28
hagenowi, Scalpellum ... 25
hagenowianum, Scalpellum ... 25
hagenowianum, Virgiscalpellum ... 25, 38
horridula, Cythere ... 27
horridula, Cythereis ... 27
horridula, 'Trachyleberis' ... 27
irnichensis, Dosinia (Pectunculus) ... 19
irnichensis, Pectunculus ... 19
konincki, Rynchora ... 30
konincki, 'Terebratella' ... 30, 38
kronenburgae, Sigmomorphina ... 7
kunraediensis, 'Limopsis' ... 20
labanae, Daviesina ... 12
labanae, Operculina ... 12
labyrinthica, Cythere ... 26
labyrinthica, Cythereis ... 26
labyrinthica, Kikliocythere ... 26
laevigatus, Phyllites ... 22
lammersmaxi, Plagiochasma ... 21
lepida, Cythere ... 28
lepida, Cythereis? ... 28
lepida, Planileberis ... 28
limburgensis, Pseudoparella ... 9
limburgicus, Conchorhynchus ... 15
lithotryoides, Mitella ... 24
longifolia, Halocharis ... 23
longirostre, Bifolium ... 31
longirostre, Thecidium ... 31
longirostris, Lacazella (Bifolium) longirostris ... 31
lunatus, Eponides ... 7
maastrichtiana, 'Trigonia' ... 18, 37
maastrichtensis, Favia ... 14, 35
maastrichtensis, 'Ophryaster' ... 22, 37
macroptera, Cythere ... 28
macroptera, Cythereis ... 28
macroptera, Kingmaina ... 28
maestrichtiensis, Leptodermella ... 6
marcellae, Rhyncolites ... 15
mariei, Rotorbinella ... 8
mastrichtiensis, Dosinia ... 19
maxima, Montastrea ... 13
maxima, Orbicella ... 13
maximum, Scalpellum ... 25
meeterenae, Pseudoparrella ... 7

megatremoides, Argiope 30
megatremoides, Argyrotheca 30, 38
millepunctata, Anatina 20, 36
minisae, Pseudoparella 9
minor, Lepidorbitoides 11
miqueli, Araucarites 21
muelleri, Ancistrocrania 29, 38
mülleri, Crania 29
nobilis, Inoceramus 17
nobilis, Lima 17
orchidea, Curfsina? 27
orchidea, Cythere 27
orchidea, Cythereis? 27
ornamentata, Daviesina 12
parva, Lacazella (Bifolium) longirostris 31
patens, Pinites 22
paucicostata, Crania ignabergensis var. 29
paucicostata, Isocrania 29
peetersorum, Comptoniaster 22
planissima, Favia 14
pulchellum, Arcoscalpellum 25, 38
pulchellum, Scalpellum 25
riemsdijcki, Chondrites 23
robusta, Placosmilia 14, 35
roestae, Cibicides 10
roestae, Eoconuloides 10
roestae, Lockhartia 10
roestae, Tremastegina 10
saskiae, Semiometra 21
semicancellata, Cythere 28
semicancellata, Limburgina 28
senoniensis, Chilostomellina 8
senoniensis, Pullenoides 8
serrata, Debeya 22
solida, Diorphastrea 14, 35
striatocostata, Cythere 27
striatocostata, Veenia 27
subalternatum, Cardium 19
suessi, Ancistrocrania 29
suessi, Crania 29
suessi, Morrisia 30
suessi, Parathecidea 31, 38
suessi, Platidia? 30
suessi, Terebratella (Morrisia) 30
suessi, Thecidiopsis 31
suessi, Thecidium 31
symmetrica, Crassatella 18
thierensi, Delesserites 23
thierensi, Phyllites 23
toulmini, Eponides 7
troostae, Nonion 11
troostae, Nonionella 11
troostae troostae, Nonionella 11
tubuliferum, Cardium 19
vaalsensis, Baculites 15
visserae, Hellenocyclina 12
visserae, Linderina 12
vogeli, Ctenoides? 17, 36