

**A MAASTRICHTIAN CONCHORHYNCH (*Conchorhynchus limburgicus*
n.sp., Cephalopoda) FROM LIMBURG, THE NETHERLANDS¹**

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ABSTRACT

Van der Tuuk, L. A. 1982 A Maastrichtian conchorhynch (*Conchorhynchus limburgicus* n.sp., Cephalopoda) from Limburg, The Netherlands – Geol. Mijnbouw 61: 179-182.

Conchorhynchs (calcareous parts of cephalopod lower jaws) are reported for the first time from the Maastrichtian of Limburg, The Netherlands. These fossil remains are described as *Conchorhynchus limburgicus* n.sp.

INTRODUCTION

Conchorhynchs are calcified elements, which, together with lamellar chitinous plates for muscle attachment, formed the lower mandibles of cephalopods. They perform, together with the calcareous arrow-shaped extremity of the upper jaw (the rhyncholite), a cutting movement. Usually only the rhyncholites are fossilized. Fossil conchorhynchs, which are placed in the form genus *Conchorhynchus* De Blainville, 1827, are much more scarce than rhyncholites. Apart from the Muschelkalk only a few specimens are known from other formations.

This article deals with the first conchorhynchs found in the Maastrichtian type area of Limburg. Outside Limburg Cretaceous conchorhynchs are only reported from the Lower Chalk of Dover (FOORD, 1891), the Santonian of Germany (MÜLLER, 1968) and the Turonian to Campanian of Japan and the U.S.S.R. (KANIE ET AL., 1978).

SYSTEMATIC PART

Class: Cephalopoda Cuvier, 1798
Order and family: Uncertain
Genus: *Conchorhynchus* De Blainville, 1827
Type species: *Conchorhynchus ornatus* De Blainville, 1827
Conchorhynchus limburgicus n. sp.
Plate 1.

MATERIAL EXAMINED

Two specimens with well preserved rostra and internal surfaces. However, the ventral parts of the triangular flanges are not complete. The ventral extrusions of the oral rostra are only partly preserved. The material was collected from a layer of fossil grit at the base of the Emael Chalk Member of the Maastricht Formation (lithostratigraphic division: FELDER, 1975) in the Nekami quarry ('t Rooth, province of Limburg, The Netherlands). This part of the Maastricht Formation can be correlated with the *Belemnitella junior* Partical-range-zone and is therefore believed to be late Maastrichtian age (VAN DER TUUK & BOR, 1980).

The two specimens (Table I), of which the largest is the holotype, were donated to the author to the National Museum of Geology and Mineralogy, Leiden, The Netherlands, no. RGM 160229 (holotype) and no. RGM 160230 (paratype).

DESCRIPTION

A broadly scalloped conchorhynch, which comprises two distinct parts: a calcareous layer, which forms the anterior portion on the inner lamellar surface of the lower jaw; and a thick oral rostrum, which forms the dorsal, biting part of the lower jaw. The anterior surface has a broadly rounded median ridge, which runs over the entire length, i.e. from the apex to the ventral side of the conchorhynch. The surface of the ridge is smooth. It is slightly convex in lateral view and widens towards the venter, forming a long, narrow triangle, which encloses an

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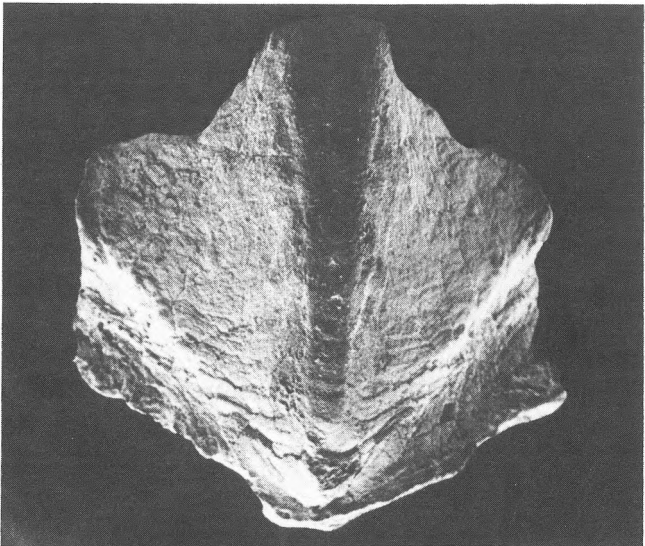
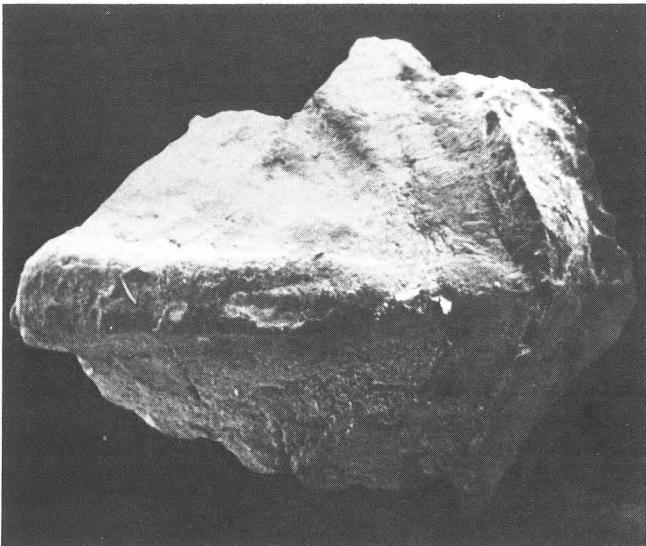
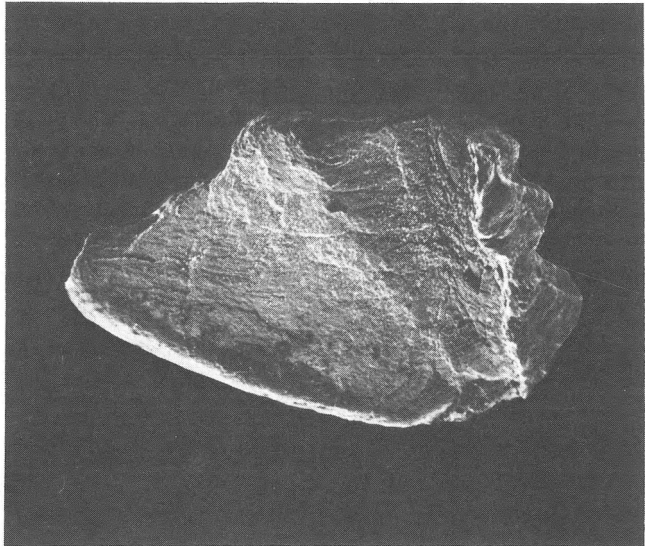
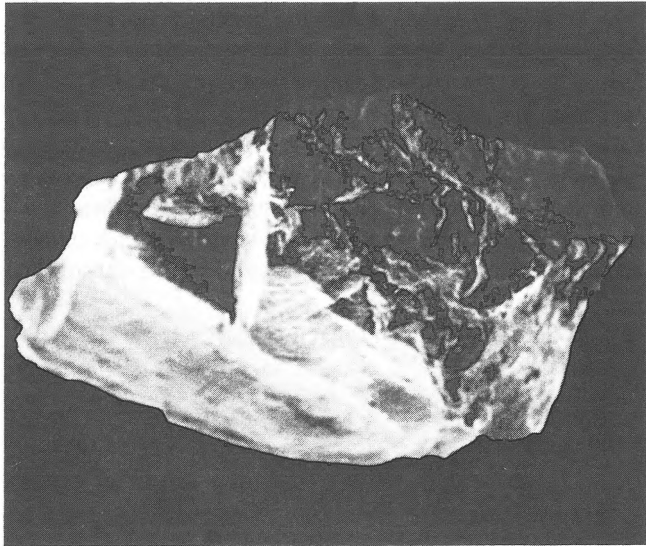
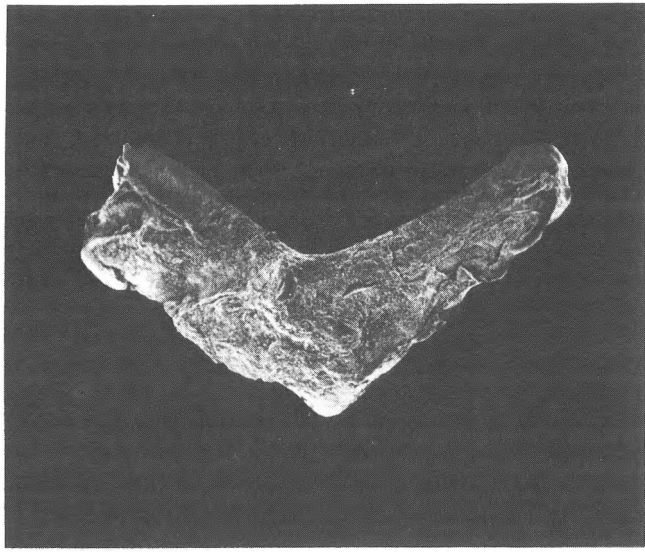
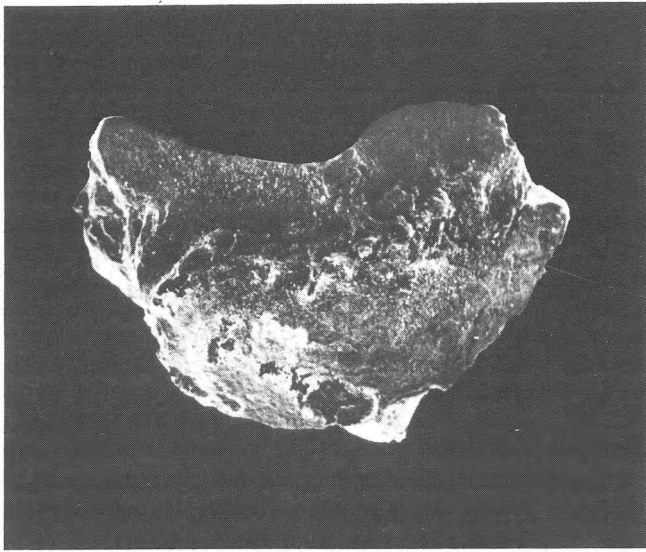


TABLE I
Dimensions and angular measurements of *Conchorhynchus limburgicus* n. sp.*

	length	width	height	angle enclosed by median ridge	apical angle	angle cutting edge
holotype RGM 160229	3.9 mm	3.7 mm	2.4 mm	10°	115°	120°
paratype RGM 160230	3.4 mm	2.5 mm	2.0 mm	10°	—	120°

* For conchorhynch terminology and general descriptions see Müller, 1963; Rutte, 1962 and Teichert et al., 1964.

angle of 10°. On each side of the median ridge is a triangular flank, which is unequally divided into two parts by a rounded edge, running from the apex to the ventral side. The two surfaces of the triangular flanks are concave. They are limited towards the dorsum by two ventral extrusions of the oral rostrum, forming the outer flanks, which enclose an apical angle of 115°. Parallel growth lines can be observed on the anterior surface. The posterior surface of the conchorhynch has no sculpture. The oral surface is worn, but shows some traces of denticles. The posterior side of the oral surface forms the cutting edge, which encloses an angle of 120°. The holotype shows a posterior furrow. Both specimens have strong ventral extrusions of the oral surface, which are the remains of calcareous deposits that cover the outer lamellar surface.

COMPARISONS WITH OTHER CONCHORHYNCHS

Conchorhynchus avirostris (Schlotheim, 1820), from the Muschelkalk (Triassic) of Germany (MÜLLER, 1963; RUTTE, 1962) and France (GAILLARDOT, 1824) differs from the described specimens by a well developed oral surface with large denticles and by a median furrow. Besides, the median ventral ridge shows a chevron pattern of biserial grooves. A related form, *C. freieslebeni* Böhm, 1912, from the Zechstein (Permian) of Milblitz, Germany, which also has a median ventral ridge with the same chevron pattern as *C. avirostris*, but it shows a smaller apical angle than *C. limburgicus*. Unfortunately the oral surface of the only known specimen of *C. freieslebeni* is not present.

The conchorhynch from the Lias of Lyme Regis, England, figured by FOORD (1891; figure 78), shows a chevron pattern on the median ventral ridge and its apical angle seems to be smaller than that of *Conchorhynchus limburgicus*.

Conchorhynchus massylus Geysant, 1976, from the early Oxfordian of Tunisia has a smaller apical angle and a broader

ventral median ridge than the studied specimens. Besides, the oral surface of *C. massylus* is completely smooth.

The conchorhynch from the Lower Chalk of Dover, England, figured by FOORD (1891; figure 80), has an oral surface with four or five pairs of denticles, by which it differs from the new species under description.

Conchorhynchus similis Müller, 1968, from the Santonian of Heudeber near Halberstadt, Germany, can be distinguished from *C. limburgicus* by an oral surface with five or six pairs of denticles. Moreover, the median ventral ridge has a characteristic chevron pattern of biserial grooves.

Conchorhynchus vincenti Geysant, 1976, described by VINCENT (1900) from the Eocene near Brussels, Belgium, is characterised by a strong median central ridge. In contrast with *C. limburgicus* this ridge is sculptured by five to seven ribs which diverge and disappear towards the venter. A similar ventral ridge is known from *C. oppenheimi* Till, 1911, from the early Eocene of Egypt, which closely resembles and is probably conspecific with *C. vincenti*, although the only known specimen of *C. oppenheimi* is very much compressed.

The calcified part of the lower mandible of *Nautilus pompilius* Linné, 1758, referred to as conchorhynch, differs from *C. limburgicus* by a small apical angle, whereas the oral surface shows a strong, T-shaped ridge (SAUNDERS ET AL., 1978).

DISCUSSION

The resemblance between *Conchorhynchus limburgicus* n. sp. and the late Cretaceous (Turonian to Campanian) conchorhynchs of Japan and the U.S.S.R. described by KANIE ET AL. (1978) is striking. The latter are like the Limburg specimens characterised by a broad and rounded median ridge without sculpture and a large apical angle. They are believed to be jaw apparatuses of representatives of the ammonite families Phylloceratidae Zittel, 1884, and Tetragnostidae Hyatt, 1900, on account of their occurrence *in situ* in the body chamber of these ammonoids or in close proximity to ammonite shells (TANABE ET AL., 1980). Therefore it is well possible that also the conchorhynchs described here from Limburg belong to the order Ammonoidea. The families Phylloceratidae and Tetragnostidae are represented in the Maastrichtian of Limburg by *Neophylloceras velledaeforme* (Schlüter, 1876) and *Gaudryceras kayei* (Forbes, 1845), respectively. TANABE ET AL. (1980) taxonomically treated the conchorhynchs pre-

Plate 1 (facing page)

The photographs were prepared with an electron scanning microscope.

1. *Conchorhynchus limburgicus* n. sp. (holotype) RGM 160229 Emael Chalk, Upper Maastrichtian, quarry Nekami, 't Rooth a. anterior view - b. lateral view - c. dorsal view.
2. *Conchorhynchus limburgicus* n. sp. (paratype) RGM 160230 Emael Chalk, Upper Maastrichtian, quarry Nekami, 't Rooth a. anterior view - b. lateral view - c. dorsal view

served *in situ* in the conchs of ammonoids as Phylloceratidae and Tetragonitidae. The present author, however, describes the conchorhynchids from Limburg as a parataxon, because of their isolated mode of occurrence.

The angle, enclosed by the cutting edge of the oral surface of *Conchorhynchus limburgicus* is much too wide for cutting up food in combination with the in Limburg occurring *Rhyncholites minimus* Binckhorst, 1861, which has a much smaller angle between the anterior hood margins (cf. VAN DER TUUK, 1980).

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