

MEDDELELSER OM GRØNLAND
UDGIVNE AF
KOMMISSIONEN FOR VIDENSKABELIGE UNDERSØGELSER I GRØNLAND
Bd. 171 • Nr. 3

SOME LOWER CRETACEOUS
BRACHIOPODS FROM EAST GREENLAND

BY
ELLIS F. OWEN

WITH 7 FIGURES AND 3 PLATES



Nyt Nordisk Forlag Arnold Busck
København 1976

Abstract

The paper includes a brief description of brachiopods collected from two contemporaneous localities in East Greenland which appear to represent different facies. One brachiopod assemblage from Wollaston Forland shows distinct affinities to boreal Valanginian genera and species previously described from north Germany and northern England, while the other assemblage, from Traill Ø, shows a remarkable similarity to the very distinctive Tethyan fauna of middle European "Alpine" facies containing *Pygope* and *Lacunosella* spp.

ELLIS OWEN
Department of Palaeontology
British Museum
London SW 7
England

ISBN 87-17-02124-3

BIANCO LUNOS BOGTRYKKERI A/S

Contents

	Page
Introduction	5
Systematic Descriptions	6
Family Rhynchonellidae	6
Genus Lamellaerhynchia	6
Genus Lacunosella	7
Family Terebratulidae	11
Genus Praelongithyris	11
Genus Cyrtothyris	13
Family Pygopidae	14
Genus Pygope	14
Genus Nucleata	15
Family Dallinidae	16
Genus Ismenia	16
Genus Rugitela	17
Conclusions	17
References	19

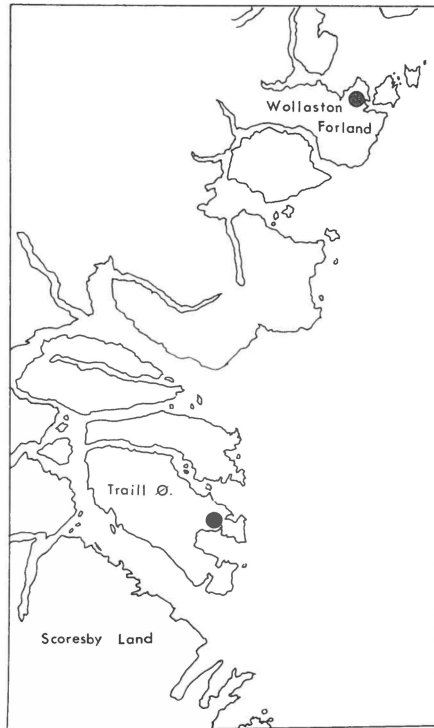


Fig. 1. The black dots on the sketch-map indicate the area representing MAYNC's (1949) localities from Falskebugt, Wollaston Forland and DONOVAN's (1953, 1957) localities at Mols Bjerge, Traill Ø, East Greenland.

INTRODUCTION

In 1956 Professor DESMOND DONOVAN presented a collection of brachiopods to the British Museum (Natural History) which he had collected during an expedition to Traill Ø, East Greenland, in 1950–1952 under the leadership of the late Dr. LAUGE KOCH. In addition, brachiopod specimens, previously collected by Dr. WOLF MAYNC from Wollaston Forland between 1936 and 1938, were also presented. Both collections are stated to have come from rocks of Valanginian age within the Lower Cretaceous. Some of these specimens are described in this paper and are clearly representative of two distinct facies within the Lower Cretaceous. Some of the species described here are comparable to faunas of similar age described from southern France, the Caucasus, north Germany and northern England.

Few records exist of brachiopods from the Lower Cretaceous of East Greenland but, MAYNC (1949:50) listed rhynchonelloid and terebratuloid species from the Valanginian of Wollaston Forland, south of Kuhn Ø. It is probable that the specimens described here from Wollaston Forland are, in fact, those referred to by MAYNC.

The most recent records of brachiopods of Valanginian age from East Greenland are those of DONOVAN (1955:22) who cited *Pygope* sp. and (1957:208) "*Rhynchonella*" spp. and "*Terebratula*" spp. from Mols Bjerger, Traill Ø.

Previously, MUIR-WOOD (1953:8) had described and figured a "*Rhynchonella*" cf. *decipiens* D'ORBIGNY from Rold Bjerger, northern Traill Ø (Loc. 80 of DONOVAN, 1953) which were stated to be of Infravalanginian age. MUIR-WOOD's specimen does not agree with *Rhynchonella decipiens* originally described and figured by d'ORBIGNY (1847:25, pl. 494, figs. 13–16) from the Neocomian of Barrême, Basses Alpes and is considered to be a junior synonym of *Lacunosella groenlandica* sp. nov. described here.

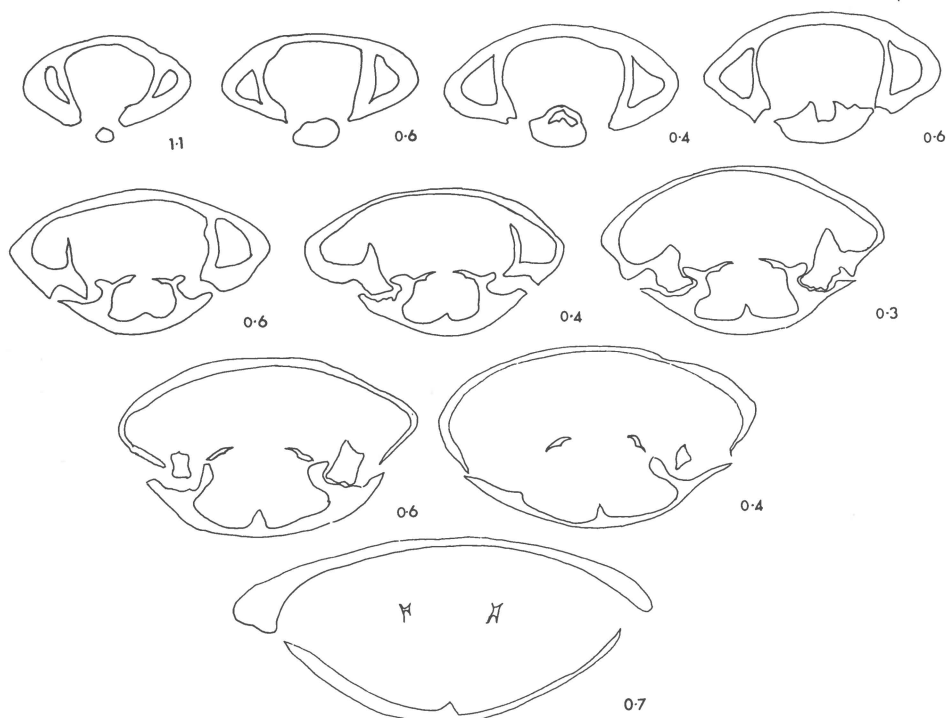


Fig. 2. A series of ten transverse sections through the umbo of a duplicate specimen of *Lamellaerhynchia* cf. *rostriformis* (ROEMER) from the "Falskebugt Beds" of Wollaston Forland, East Greenland, showing the characteristic hinge-plates, short dental lamellae and "diabolo" distal ends of the crura.

SYSTEMATIC DESCRIPTIONS

Family **Rhynchonellidae** GRAY, 1848

Subfamily **Cyclothyridinae** MAKRIDIN, 1955

Genus **LAMELLAERHYNCHIA** BURRI, 1953

Lamellaerhynchia cf. *rostriformis* (ROEMER)

Pl. 1, figs. 1-3; Fig. 2

Thirteen specimens, mainly decorticated internal moulds in a coarse-grained ironstained, crystalline limestone, varying in general outline from broadly circular to oval, acutely biconvex to globose, with a low, almost imperceptible median fold and broad, shallow median sulcus. A wide uniplicate anterior margin with a plain to, sometimes asymmetrical, anterior commissure. The shell surface is ornamented by an average of twenty strong, deeply incised, radiating costae originating from faint umbonal costellae. The slightly produced pedicle umbo has a sharp, suberect to incipiently incurved beak, bounded by distinct beak-ridges and dominated by a circular foramen. The interarea is extensive and faintly concave.

Internal structure. In spite of the partially leached matrix and the generally poor preservation of the material from this locality, it was possible to obtain serial sections through the umbonal region of one duplicate specimen. The serial sections obtained from this examination are figured here, fig. 2, and can be compared to those obtained from specimens of the type-species, *Lamellaerhynchia rostriformis* (ROEMER) collected from beds of a condensed sequence within the Lower Cretaceous involving Valanginian and Hauterivian deposits at Nettleton, Lincolnshire, and from Hanover and Brunswick areas of north Germany, figured by OWEN & THURRELL (1968:110, fig. 3:11, fig. 5).

Although the specimen described here is compared to the type-species of *Lamellaerhynchia*, there are certain morphological differences which are noted as follows. They consist largely of minor details of shell ornament and overall dimensions. The largest specimen found at Falskebugt is 324 mm long, 37 mm wide and 28 mm in thickness. It is larger than any of the specimens quoted by ROEMER or BURRI from either Germany or Switzerland. The species appears to maintain a slightly more constant oval to subcircular outline than is seen in the type-species.

Material. The figured specimens BB. 60942, BB. 60913-14 and ten other specimens, mainly fragmentary, all in the collections of the British Museum (Natural History) and registered as BB. 60915-23, BB. 60925. They form part of the MAYNC Collection from Falskebugt, Wollaston Forland, East Greenland. The whereabouts of other specimens belonging to this collection is unknown to the writer.

Age of material. According to MAYNC (1949:55) the "Falskebugt Beds" of Wollaston Forland are considered to be of Valanginian age. He based his assumptions on the presence of *Buchia piriformis* LAHUSEN, *B. keyserlingi* (LAHUSEN) and *B. crassicollis* (KEYSERLING).

Genus *LACUNOSELLA* WISNIEWSKA, 1932

Lacunosella groenlandica sp. nov.

Pl. 2, figs. 4a-c; Fig. 3.

1953 "*Rhynchonella*" cf. *decipiens* d'ORBIGNY; MUIR-WOOD: 3, pl. 1, fig. 4.

1957 "*Rhynchonella*" cf. *decipiens* d'ORBIGNY; DONOVAN: 206.

1973 "*Rhynchonella*" cf. *decipiens* d'ORBIGNY; OWEN: 123.

Well preserved, smooth, acutely biconvex, subacuminate rhynchonelloids. Brachial valve with low median fold and steep flanks. Pedicle valve with wide, shallow sulcus originating from extreme posterior end of the low massive umbo and sometimes exhibiting 1-5 very faint median ridges or costae which fade towards the flattened anterior part of the shell. No additional ornament observed. Delthyrium obscured by sharp, incurved beak with circular foramen. The beak-ridges are rounded and indistinct.

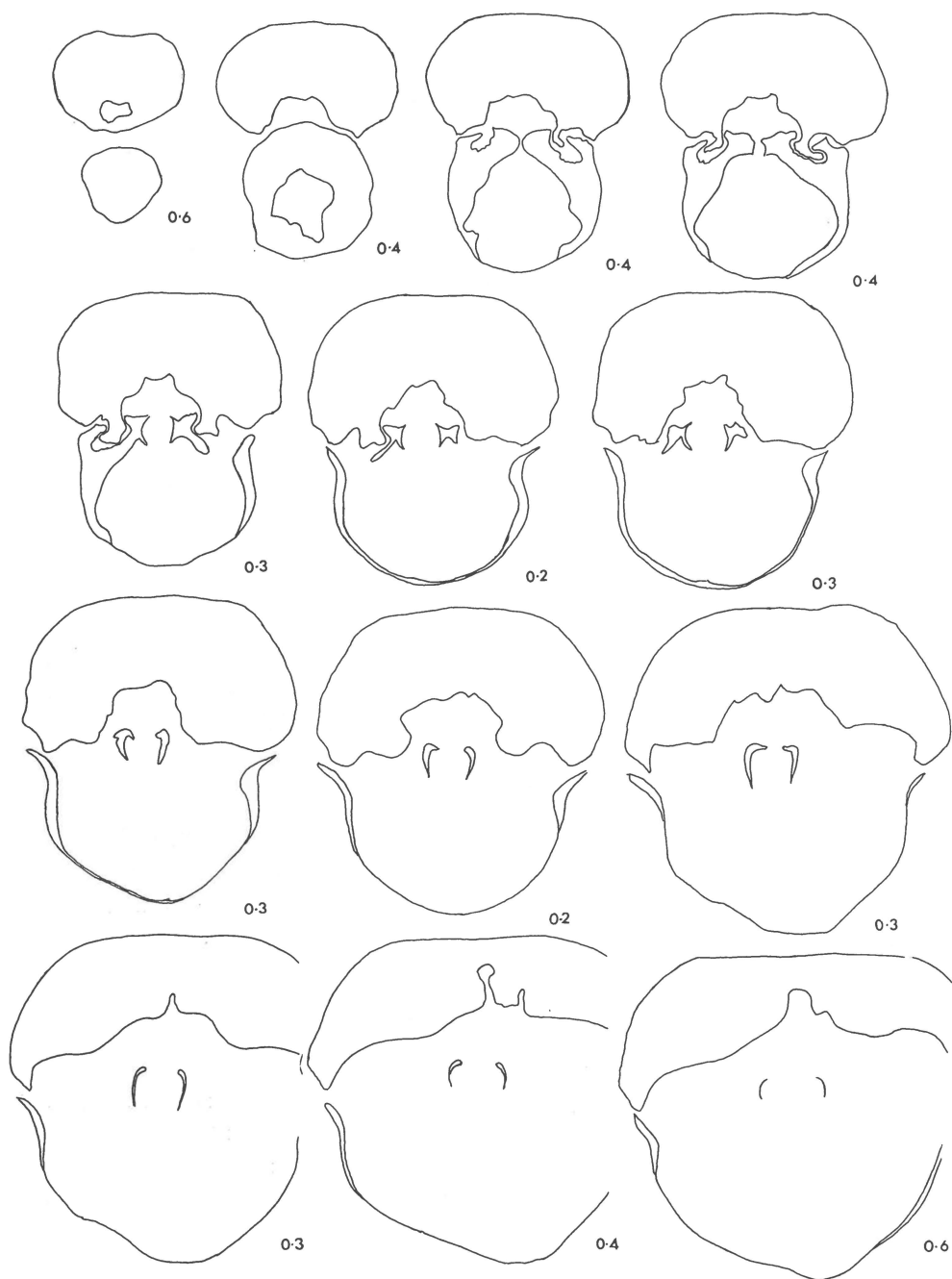


Fig. 3. Transverse serial sections of *Lacunoseella groenlandica* sp. nov. from Mols Bjerge, Traill Ø, illustrating the thickened shell walls and typical crural appendages.

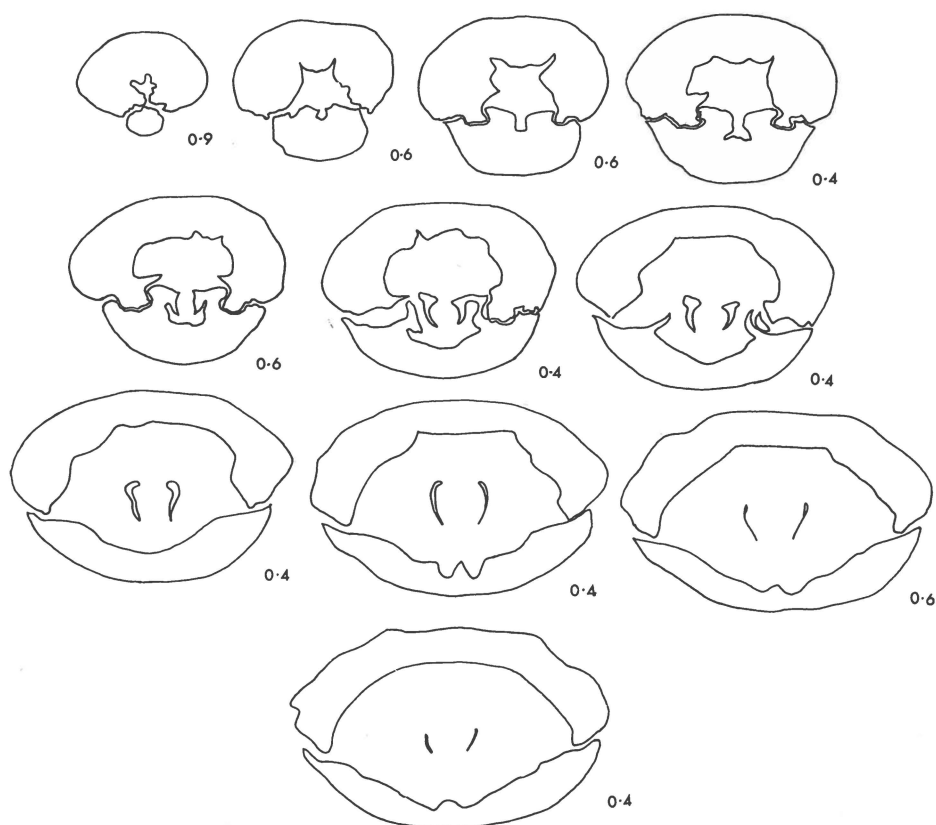


Fig. 4. Serial sections of a typical example of *Lacunosella contracta* (HOMBRE-FIRMAS) from the Valanginian of Berrias, southern France, for comparison with sections of *L. groenlandica* sp. nov. (see fig. 3).

Internal structure. The series of thirteen transverse serial sections figured here as fig. 3 are from a single specimen selected from a total of eleven from locality 185. From these sections it is possible to distinguish certain diagnostic characters which, in the main, agree with the description and sections made of the type-species, *Lacunosella arolica* (OPPEL) from the Upper Jurassic of Switzerland and from localities in the central French Jura mountains figured by CHILDS (1969:32, 33). There were characters, however, which did not exactly match the sections available. These amounted to the general shape and inclination of the hinge-plates which, in the case of the type-species, tend towards a ventral and somewhat more angular inclination into the pedicle umbonal cavity. Furthermore, the strict falciform crural appendages or plates are developed earlier in *L. arolica* and appear to extend further into the brachial visceral cavity. There is no doubt that the two forms are very closely related and the differences which have been enumerated here

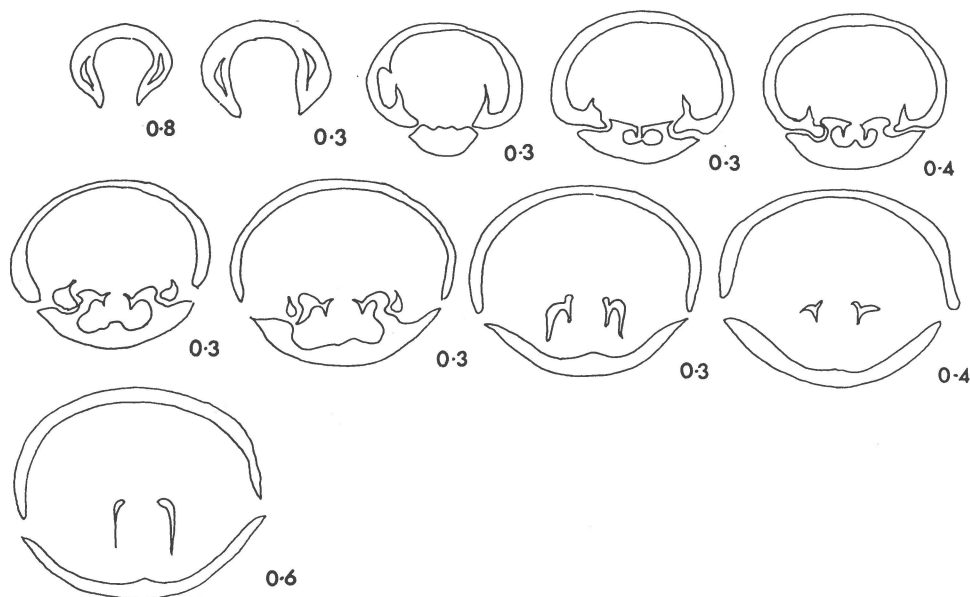


Fig. 5. Transverse serial sections through a specimen of "*Rhynchonella*" *decipiens* d'ORBIGNY, showing the comparatively thin shell wall, short, but well developed, dental lamellae.

may be of a specific rather than of generic significance. A species which closely resembles the Greenland species is *Lacunosella contracta* (HOMBRE-FIRMAS) from the Barremian of southern France. A series of eleven serial sections of the internal structure of a specimen of *L. contracta* from Berrias, southern France, is given here for comparison, fig. 4. From these sections it will be seen that both species have a massive or greatly thickened shell with fused dental lamellae in the pedicle umbo and a similar plan of hinge-plate and crural development.

The species described here as *L. groenlandica* sp. nov., was originally described from the Infravalangian of Rold Bjerger, northern Traill Ø by MUIR-WOOD (1953:8) who compared it to d'ORBIGNY's species *Rhynchonella decipiens* from the Neocomian of Barrême, Basses Alpes, and described and figured it as "*Rhynchonella*" cf. *decipiens* d'ORBIGNY. As will be seen in the series of serial sections figured here, fig. 5, taken from a duplicate specimen of *Rhynchonella decipiens* from the type area, it lacks the thickened shell of *L. groenlandica*, having quite clearly developed dental lamellae in the pedicle valve which are not fused with the shell wall. It can be further distinguished from *L. groenlandica* by its sub-circular general outline, more produced umbo, less incurved beak, less developed median fold in the dorsal valve, lower, or more broadly arcuate, anterior commissure and less extensive linguiform extension. The shell surface of *Rhynchonella decipiens* is ornamented with very fine

radiating striae and the concentric growth lines are a little more in evidence than in *L. groenlandica* but these features may be due to a difference in the mode or preservation of the specimens examined.

Material. The holotype BB. 60945 and thirteen paratypes BB. 60932-33 all preserved in the DONOVAN Collection, British Museum (Natural History).

(Locality 92 of DONOVAN, 1953).

Age of material. According to DONOVAN (1953:33) the beds at Mols Bjerge are of Valanginian age. The beds at Loc. 92 on the southwestern flank of Mols Bjerge are said to contain a fauna including *Buchia crassicolis* (KEYSERLING) and the ammonites *Phylloceras* and *Lytoceras* which, accordingly, should be placed into the Polyptychitan of the Valanginian.

Family Terebratulidae GRAY, 1840

Subfamily Rectithyridinae MUIR-WOOD, 1965

Genus *PRAELONGITHYRIS* MIDDLEMISS, 1959

"Praelongithyris" borealis sp. nov.

Pl. 2, figs. 2a-c; Fig. 6

Four specimens of elongate-oval, biconvex, faintly uniplicate praelongithyrids with slightly produced umbo and suberect, labiate beak; large, circular foramen with poorly defined beak-ridges. Shell surface smooth with faint concentric growth-lines, more numerous near the margins.

Internal structure. Umbonal cavity of pedicle valve with pedicle collar. Hinge-plates concave, acutely deflected towards ventral valve, anteriorly keeled. Crural processes long, gently curved towards one another at the distal ends. Transverse band of loop, low arcuate. Dimensions of holotype. 28 mm long, 21.2 mm wide and 25 mm thick.

Material. The holotype, BB. 60901 and three other specimens registered as BB. 60900, BB. 60902, and BB. 60903, all in the MAYNC Collection of the British Museum (Natural History), collected by Dr. WOLF MAYNC from Falskebugt, Wollaston Forland, East Greenland. Locality recorded as 1757, 1761 by MAYNC, 1949.

Age of material. Valanginian (see MAYNC, 1949:55).

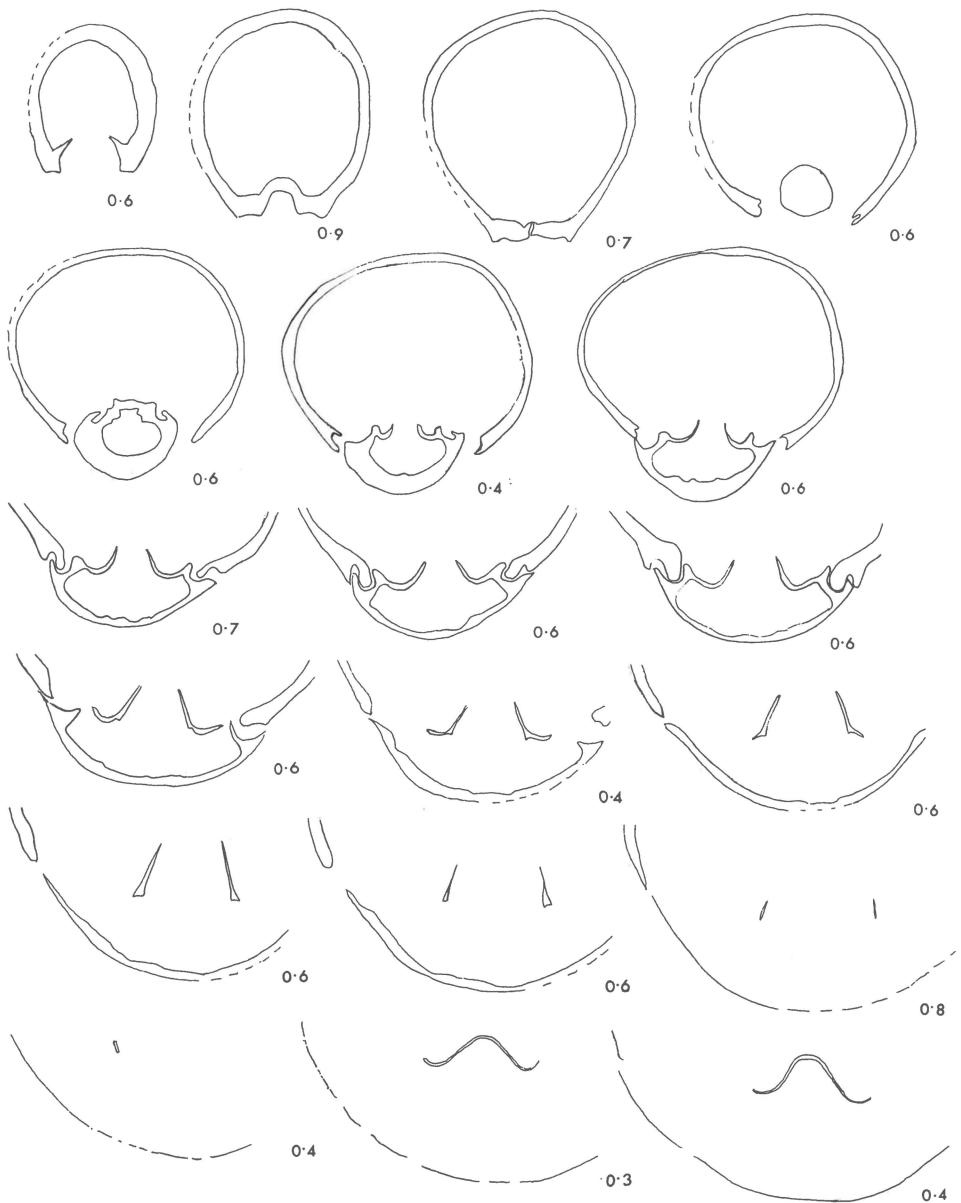


Fig. 6. "*Praelongithyris*" *borealis* sp. nov. from the "Falskebugt Beds" of Wollaston Forland. A series of nineteen sections showing most of the diagnostic characters of *Praelongithyris* sensu stricto.

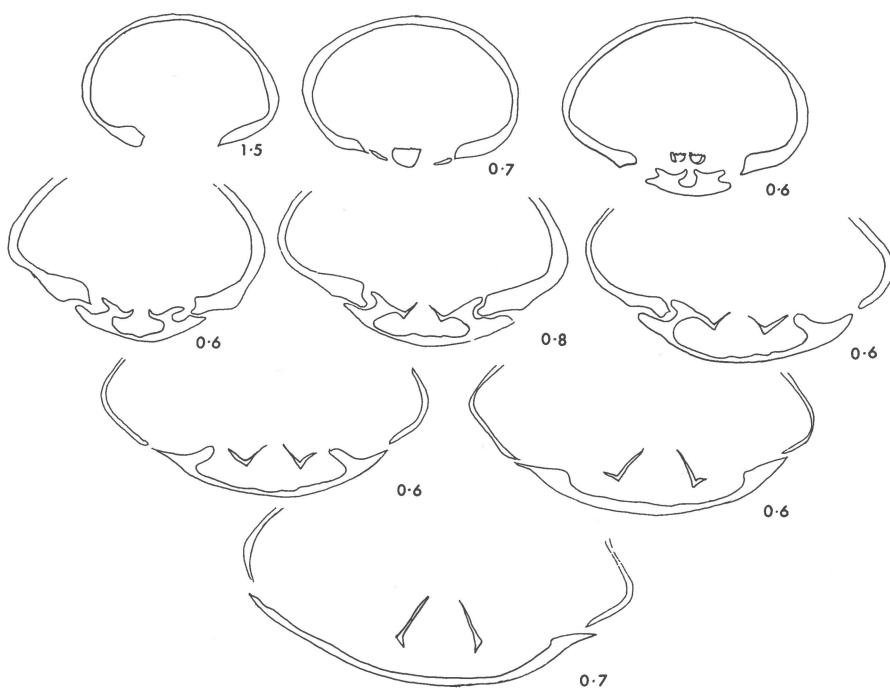


Fig. 7. "*Cyrtothyris*" *maynci* sp. nov. from Wollaston Forland, showing typical hinge-plates and crural processes.

Genus *CYRTOTHYRIS* MIDDLEMISS, 1959

"*Cyrtothyris*" *maynci* sp. nov.

Pl. 2, figs. 1a-c; Fig. 7

Pl. 3, figs. 4a-c.

Nine specimens, mainly internal moulds in fine grained iron-stained limestone. Subcircular to oval in general outline with slightly produced, suberect, massive umbo dominated by large circular foramen. Mesothyridid beak-ridges clearly defined and bordering a moderately extensive, slightly concave interarea. Delthyrium conjunct, fairly well exposed. Lateral margins straight, anterior commissure incipiently uniplicate. Shell surface smooth with well marked concentric growth-lines.

Internal structure. Low oval cardinal process. Slightly ventrally concave, dorsally deflected hinge-plates becoming V-shaped, keeled. Elongate crural processes. Transverse band of loop not seen.

Dimensions of holotype. 32.7 mm long, 32 mm wide, 19.1 mm thick.

Material and locality. The holotype, BB. 60906 and eight other specimens in the MAYNC Collection, British Museum (Natural History) registered as BB. 60904, BB. 60905, BB. 69907, BB. 60907, BB. 69948-51, from the Valanginian of Falskebugt, Wollaston Forland, East Greenland. This locality is recorded as 1750, 1757, 1760, 1762 by MAYNC, 1949.

The terebratulidae described here as "*Praelongithyris*" *borealis* sp. nov. and "*Cyrtothyris*" *maynci* sp. nov., have been broadly assigned to their respective genera on the advice of Dr. F. A. MIDDLEMISS.

Family **Pygopidae** MUIR-WOOD, 1965

Genus *PYGOPE* LINK, 1830

Pygope janitor (PICTET)

Pl. 3, fig. 3

1955 *Pygope* sp.; DONOVAN: 21.

1957 *Pygope* sp.; DONOVAN: 208.

1967 *Pygope* sp.; AGER: 137.

One partly damaged specimen showing the characteristic bilobate valves, central perforation, short massive umbo, small circular foramen. Short, low fold in pedicle valve without sulcation. Smooth sulcus in posterior part of brachial valve. Dimensions of figured specimen: Length 40.1 mm, width approximately 38 mm, thickness 18.9 mm.

Material and locality. One specimen in the DONOVAN Collection, British Museum (Natural History) registered as BB. 43365, from Mols Bjerge, Traill Ø, East Greenland (Locality 185 of DONOVAN, 1957).

Age of material. The beds at locality 185 are stated to be of Valanginian age by DONOVAN (1955:22).

Remarks. Distinguishing characters which separate *Pygope* from *Pygites* deal with comparatively minor differences in the pedicle fold and brachial sulcus. Whether or not these are to be regarded as true generic characters, the species described here does not exhibit any sulcus in the fold of the umbonal region of the pedicle valve and the brachial sulcus is completely smooth. These characters are in keeping with the accepted definition of *Pygope* as stated in the Treatise on Invertebrate Paleontology (MUIR-WOOD, 1965: H 802).

The specimen figured here is a unique example of the genus *Pygope* occurring in beds in East Greenland which are considered to be younger in age than Infravalanginian. It is the specimen referred to by DONOVAN (1955:21) as *Pygope* sp. and was listed by the same author (1957:208) with "*Rhynchonella*" spp. and "*Terebratula*" spp. from the Valanginian of Mols Bjerge, Traill Ø. The specimen was also quoted by AGER (1967: 137) as from the supposed Valanginian of Wollaston Forland, but this locality was incorrectly quoted due to confused information in curating the specimen and was not due to any error on the part of Professor AGER.

KARAKASCH (1907:220) described and figured specimens (pl. 20, figs. 1, 2, 10, 11) as *Pygope janitor* (PICTET) from the Barremian of the Crimea and, in 1972, SMIRNOVA, in a description of a brachiopod fauna from the Crimea and northern Caucasus, described and figured a similar

specimen from the Lower Barremian under the same name. These specimens agree in detail with the specimen figured here as *Pygope janitor* (PICTET).

BARCZYK (1972:511, pl. 3, fig. 2) described and figured a specimen as *Pygope janitor* (PICTET) from the Upper Tithonian of Poland which is less acutely triangular in general outline than the Greenland form, but is otherwise comparable.

A specimen of *Pygites diphyoides* (d'ORBIGNY) collected by Professor D. V. AGER from the Valanginian limestones of Gorna Luka near Vrasta, northwestern Bulgaria, compares favourably in size and general outline with the Greenland specimen but differs in having a marked posterior sulcus in the umbo of the pedicle valve, a slightly larger foramen and a less centrally placed or more posterior perforation of the valves. This specimen is in the British Museum (Natural History) registered as BB. 60952.

Genus *NUCLEATA* QUENSTEDT, 1868

Nucleata sp.

Pl. 1, figs. 4a-c.

Small, acutely sulcate to sulcificate terebratuloid, 11 mm long, 9.7 mm wide and 8.9 mm thick. Short, massive umbo with sharp, distinct epithyridid beak-ridges. Foramen large, circular. Shell surface smooth with well marked concentric growth-lines.

Material and locality. One specimen, BB. 40946, from the Valanginian of Mols Bjerge, Traill Ø. Recorded as locality 92 by DONOVAN, 1953.

Remarks. Although the specimen figured here has been assigned to the genus *Nucleata*, there are certain morphological features, such as the sharp beak-ridges, sulcate valves and marked growth-lines, which might well be attributed to a representative species of the terebratellidae. However, no dental lamellae were observed in the pedicle umbo, nor was there any evidence of a median septum in the brachial valve.

A species of *Nucleata* erroneously ascribed to MÜNSTER (1839) as *Terebratula subcanalis* from the Upper Jurassic of France was described and figured for the first time under that name by SUESS (1858, pl. 3, figs. 8-11) in a description of material from the "Stramberger Schichten" (Upper Jurassic) of Austria. It has similar sulcificate valves and sharp beak-ridges but has a slightly more circular or oval outline than the Traill Ø specimen.

Family **Dallinidae** BEECHER, 1893
Subfamily **Trigonellinae** ELLIOTT, 1965
Genus *ISMENIA* KING, 1850
Ismenia tricostrata sp. nov.

Pl. 3, figs. 5a-c.

One specimen, 15 mm long, 14.5 mm wide and 10.1 mm thick. Brachial valve with three distinct, strong, deeply incised costae originating from the umbo. Transverse ornament of numerous, evenly spaced, well marked concentric growth-lines. Hinge-line extended to about two-thirds the maximum width of the shell. Pedicle valve with similar costae and concentric growth-lines. Umbo truncated by large, circular foramen surrounded by short subangular deltidial plates. Interarea moderately extensive, broad and flat.

Holotype. BB. 60912 from the Valanginian of Falskebugt, Wollaston Forland.

Remarks. The presence of *Ismenia* in deposits younger in age than Upper Jurassic has not been hitherto recorded. Three small specimens, not unlike *Ismenia tricostrata* sp. nov. in general outline and ornament, and stated to have been collected from the Barremian of Hildesheim, are in the ROEMER Collection (No. 751), at the Hildesheim Museum, north Germany.

"*Zittelina*" sp.

Pl. 3, figs. 1a-c.

One damaged specimen, BB. 60909, compared to specimen, also unnamed, from the Boissieri Zone, Upper Berriasian on the type section at Berrias, southern France.

Remarks. The specimen from Falskebugt, figured here, is preserved in a highly crystalline limestone and it has been found impossible to recognize any dental lamellae in the pedicle umbo and there is no evidence of a median septum in the brachial valve. The general outline and form, however, suggests a close affinity with the specimen figured here Pl. 3, figs. 2a-c and registered as BB. 60947. This specimen, collected recently from the Boisseri Zone of Berrias, is undoubtedly a *Zittelina* and may belong to the species quoted by authors as *Waldheimia villersensis* (DE LORIO) from this horizon and district. The possibility of homoeomorphy has not been ruled out.

A specimen figured by SUESS (1858, pl. 4, figs. 9-10) as *Waldheimia cataphracta* from the "Stramberger Schichten" of Austria resembles the Greenland specimen figured here, Pl. 3, figs. 1a-c, in general outline and morphology but the concentric growth-lines on the shell surface appear to be very much more pronounced.

Genus *RUGITELA* MUIR-WOOD, 1936? *Rugitela* sp.

Pl. 2, figs. 3a-c.

Small moderately biconvex specimen. Maximum width one-third the distance from the umbo to anterior margin. General outline elongate-oval, tapering acutely anteriorly. Umbo short, massive, truncated by fairly large foramen. Beak-ridges distinct, permesothyridid. Interarea flat, fairly extensive. shell surface smooth with numerous concentric growth-lines.

Material and locality. One specimen, BB. 60910, from the Valanginian of Wollaston Forland, locality 1761 of MAYNC, 1949.

Remarks. The specimen described here is tentatively assigned to the genus *Rugitela* largely on account of its beak features and the presence of numerous concentric growth-lines on the shell surface. However, the internal characters are not known and the species cannot therefore be positively assigned.

The genus *Rugitela* was first described by MUIR-WOOD (1936) for *Terebratulula bullata* J. DE C. SOWERBY from the Fuller's Earth Rock of Nunney, Somerset. The geological range of the genus was extended to include species not uncommonly occurring in the Lower Cretaceous, Valanginian to Hauterivian beds of the Speeton Clay, and Claxby Ironstone, and also beds of similar age in the Hanover and Brunswick districts of north Germany, by OWEN (1968).

CONCLUSIONS

Although MAYNC (1949:55) gives the age of the "Falskebugt Beds" as Valanginian, largely on account of the presence of *Buchia piriformis* (LAHUSEN), *B. keyserlingi* (LAHUSEN), *B. concentrica* FISCHER and *B. crassicolis* (KEYSERLING), the absence of ammonite evidence from these beds may lead to some speculation regarding the validity of their dating. Species of *Buchia* are, however, used extensively in dating beds of Upper Jurassic and Lower Cretaceous age in North America and Canada, and *B. crassicolis* with subspecies *solida* are used as zone fossils with *B. keyserlingi* within the Valanginian of California. JONES, BAILEY & IMLAY (1969:14, 16) have given a very clear account of the significance of these zones from the Colyer Springs-Paskenta district of California, U.S.A.

The presence of "*Praelongithyris*", even in its broadest interpretation, together with specimens identified here as "*Cyrtothyris*" and *Lamellaerhynchia*, would suggest a Lower Cretaceous age for the fauna,

although it must be admitted that the presence of *Ismenia* and *Zittelina* within the same assemblage extends the range of these, hitherto Upper Jurassic genera, to the Lower Cretaceous.

It seems probable from the information so far obtained about the brachiopod faunas that they are representative of two distinct facies within the Valanginian. One of these is preserved in a crystalline, ironstained limestone occurring at Wollaston Forland and the other in a somewhat finer grained and more compact limestone at Mols Bjerge, Traill Ø. Both faunal assemblages can be compared to similar brachiopod assemblages from the Lower Cretaceous of central Europe and Germany.

References

- AGER, D. V. 1967. Some Mesozoic brachiopods in the Tethys region. *Aspects of Tethyan Biogeography. Systematics Ass. Publ.* 7: 16 pp.
- BARCZYK, W. 1972. Some representatives of the family Pygopidae (Brachiopoda) from the Tithonian of the Pieniny Klippen Belt. *Acta Geol. Polon.* 22: 6 pp, pls. 1-4.
- BURRI, F. 1953. Beiträge zur systematik der Brachiopoden aus der untersten Kreide im westschweizerischen Jura-Gebirge. *Ecl. geol. Helv.* 46, 16 pp.
- CHILDS, A. 1969. Upper Jurassic rhynchonelloid brachiopods from northwestern Europe. *Bull. Br. Mus. nat. Hist. (Geology)* suppl. 6: 119 pp., pls. 1-12.
- DONOVAN, D. T. 1953. The Jurassic and Cretaceous Stratigraphy and Palaeontology of Traill Ø, East Greenland. *Meddr Grønland* Bd. 111, Nr. 4: 150 pp. pls. 1-25.
- 1955. The Stratigraphy of the Jurassic and Cretaceous rocks of Geographical Society Ø, East Greenland. *Meddr Grønland* Bd. 103 Nr. 9: 59 pp., 2 pls.
- 1957. The Jurassic and Cretaceous Systems in East Greenland. *Meddr Grønland* Bd. 155, Nr. 4: 207 pp., pls. 1-4.
- JONES, D. L., BAILEY, E. H. & IMLAY, R. W. 1969. Structural and Stratigraphic significance of the *Buchia* Zones in the Colyer Springs-Paskenta area, California. *U.S. Geol. Surv. Prof. Pap.* 647-A: 24 pp., pls. 1-5.
- KARAKASCH, N. I. 1907. Le crétacé inférieur de la Crimée et sa faune. *Trav. Soc. Imp. Nat. St. Peters.* 32 5: 482 pp., pls. 1-28.
- MAYNC, W. 1949. The Cretaceous Beds between Kuhn Ø and Cape Franklin (Gauss Peninsula) Northern East Greenland. *Meddr Grønland* Bd. 133, Nr. 3: 291 pp.
- MIDDLEMISS, F. A. 1949. English Aptian Terebratulidae. *Palaeontology* 2 1: 148 pp., pls. 15-18.
- MUIR-WOOD, H. M. 1936. A monograph on the Brachiopoda of the British Great Oolite Series. *Palaeontogr. Soc. Mon.* 00: 144 pp., pls. 1-5.
- 1953. On some Jurassic and Cretaceous brachiopoda from Traill Ø, East Greenland. *Meddr Grønland* Bd. 111 Nr. 6: 15 pp., 1 pl.
- OWEN, E. F. 1968. Some Lower Cretaceous Terebratelloidea. *Bull. Br. Mus. nat. Hist. (Geology)* 11 2: 25 pp., pls. 1-3.
- 1973. The distribution of Lower Cretaceous (Berriasian-Barremian) rhynchonelloid and terebratelloid brachiopods in the northern hemisphere. *The Boreal Lower Cretaceous* (Symposium): 121-130.
- OWEN, E. F. & THURRELL, R. G. 1968. British Neocomian rhynchonelloid brachiopods. *Bull. Br. Mus. nat. Hist. (Geology)* 16 3: 124 pp., pls. 1-4.
- ORBIGNY, D'. A. 1848-51. Terrain crétacés. *Paléontologie française.* 4: 390 pp., pls. 490-599.
- ROEMER, F. A. 1841. Die versteineringen Norddeutschen Kreidegebirges. 145 pp., 16 pls.
- SUESS, E. 1858. Die Brachiopoden der Stramberger Schichten. *Beiträge Paläont. & Geol. Österreich-Ungarns* 1: 13 pp., 6 pls.
- SMIRNOVA, T. N. 1972. Rannemelovye Brachiopody Kryma i Severnogo Kavkaza. Early Cretaceous Brachiopods from the Crimea and northern Caucasus. Izdatel' stvo "Nauka" 143 p., 13 pls.

Færdig fra trykkeriet 22. juni 1976

PLATES

Plate 1

Fig. 1a-c. *Lamellaerhynchia* cf. *rostriformis* (ROEMER) from the Valanginian, "Falskebugt Beds", Wollaston Forland, East Greenland, showing the characteristic strong, deeply incised costae, beak features and shallow sulcus in the pedicle valve. BB. 60942.

Fig. 2a-c. *Lamellaerhynchia* cf. *rostriformis* (ROEMER) from the locality and horizon as above. BB. 60913.

Fig. 3a-c. *Lamellaerhynchia* cf. *rostriformis* (ROEMER) showing asymmetrical anterior commissure, a character observed in the typical form from north Germany. This specimen is from the same locality and horizon as the above specimens. BB. 60914.

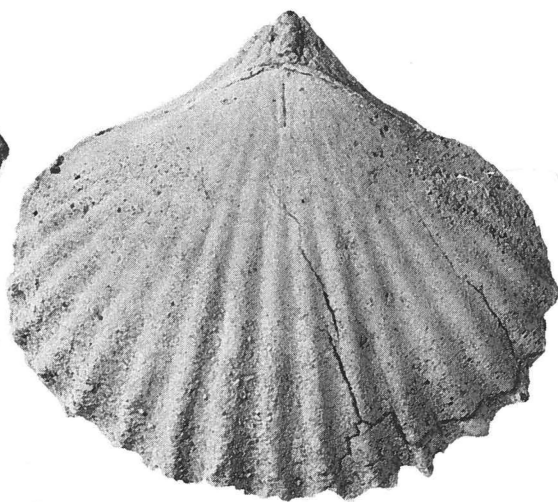
Fig. 4a-c. *Nucleata* sp. from the Valanginian of Mols Bjerge, Traill Ø, East Greenland. BB. 60946

All specimens figured at x 2. Material housed in the British Museum (Natural History), London.

Photographs by TORDIS WALKER, British Museum (Natural History)



1c



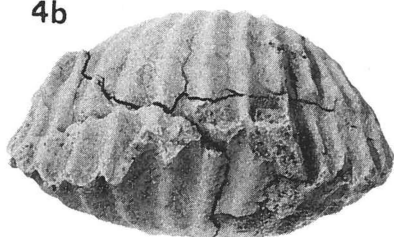
1a



1b



4b



2c



2a



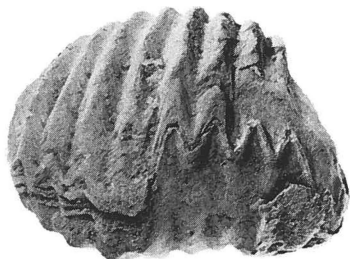
3b



3a



4c



3c



4a



2b

Plate 2

Fig. 1a-c. "*Cyrtothyris*" *maynci* sp. nov. from the Valanginian, "Falskebugt Beds", Wollaston Forland. BB. 60906. Holotype.

Fig. 2a-c. "*Praeolongithyris*" *borealis* sp. nov., Valanginian, "Falskebugt Beds", Wollaston Forland. BB. 60901. Holotype.

Fig. 3a-c. ? *Rugitela* sp., Valanginian, "Falskebugt Beds", Wollaston Forland. BB. 60910.

Fig. 4a-c. *Lacunosella groenlandica* sp. nov., Valanginian, Mols Bjerge, Traill Ø, showing the high arcuate anterior commissure, incipient fold and steep flanks. BB. 60945. Holotype.

Fig. 5a-c. "*Rhynchonella*" *decipiens* D'ORBIGNY from Cheiron, near Castellane, Basses Alpes, southern France, showing low arcuate anterior commissure and striate shell fragment on surface of brachial valve. B. 8211. (DAVIDSON Collection).

All specimens figured at x 2. Material housed in the British Museum (Natural History) London.

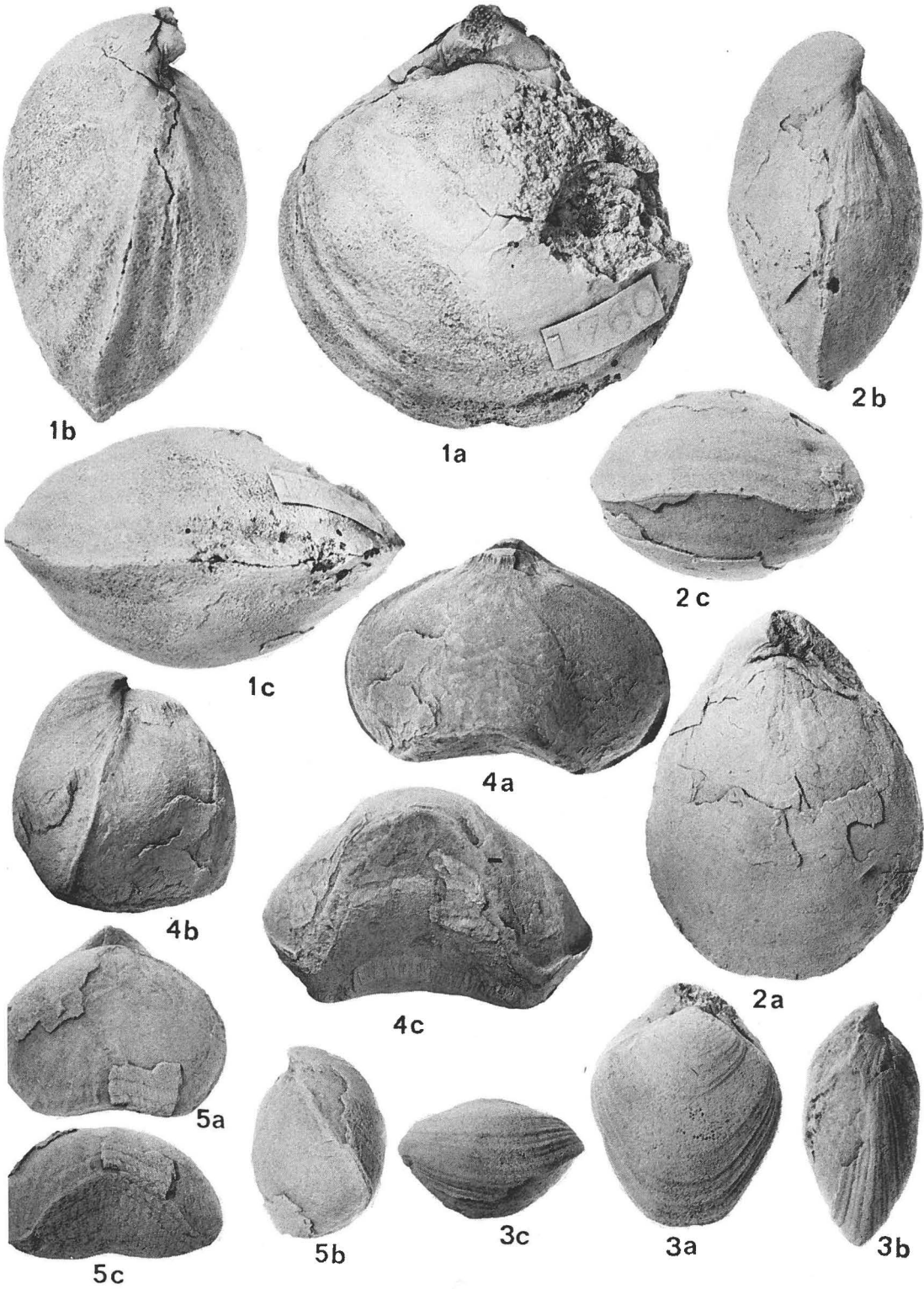


Plate 3

Fig. 1a-c. "*Zittelina*" sp. from the Valanginian, "Falskebugt Beds", Wollaston Forland, showing typical outline and beak features but without any obvious sign of a median septum in the brachial valve. BB. 60909.

Fig. 2a-c. "*Zittelina*" sp. from the Boissieri Zone, Upper Berriasian, Berrias, southern France, for comparison with above figure. BB. 60947.

Fig. 3. *Pygope janitor* (PICRET) from the Valanginian, Mols Bjerge, Traill Ø. BB. 43365. (Natural size).

Fig. 4a-c. "*Cyrtothyris*" *maynci* sp. nov. from the Valanginian, "Falskebugt Beds", Wollaston Forland. BB. 60907.

Fig. 5a-c. *Ismenia tricostrata* sp. nov. from the Valanginian of Wollaston Forland. BB. 60912. Holotype.

All specimens figured at x 2 except Fig. 3 which is at natural size. Material housed in the British Museum (natural History), London.

