THE GASTROPODA AND LAMELLIBRANCHIA OF THE GREEN AMMONITE BEDS OF DORSET

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[PLATE XXXIV]

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I. INTRODUCTION

Most of the mollusca here described have been collected during the past 30 years by Dr. W. D. Lang. Older material in the British Museum collection shows that the Green Ammonite Beds had also occupied the attention of such collectors as the Rev. P. B. Brodie, R. F. Tomes, and (especially) T. J. Slatter, but the exact horizons of their specimens are unrecorded. Of published records of non-cephalopod mollusca from these beds, reference need only be made to R. Tate's description (1870, p. 404) of four small gastropod species, Striplorius Wrightanus, S. bellus, S. aratus, and Littorina biornata, obtained by H. B. Brady in washing material collected by T. Wright for foraminifera,\(^1\) and to a short list

\(^1\) Tate states that these forms came from the Jameson Zone of Charmouth, but there is no doubt that they came from an horizon in the Green Ammonite Beds a few feet above the Bellemnite Stone.

published by E. C. H. Day (1863, p. 291), which includes the two forms Chennizia carrucensis [sic] d'Orbigny and Pterocera liasina d'Orbigny. The first of Day's records (Chennizia
carasensis d'Orbigny) may or may not be correct; the species is not in the material examined by me. His record of P. liasina
meaningless, as this form has been ignored by French authors
since its original, and totally inadequate, description in d'Orbigny's Prodrome, and the type is no longer extant.\(^1\)

The most notable feature of the non-cephalopod molluscan fauna of these beds is the abundance of small gastropods, particularly a few feet above the Bellemnite Stone, and of Taxodont lamellibranchs belonging to the genera Nucula, Nuculana, and Parallelodon.

Most of the lamellibranchs and some of the gastropods are long-ranging forms. A few of the gastropods probably have a more restricted range, but the reappearance in bed 126a of Buvignieria biornata (Tate), so abundant in bed 123, shows that little reliance can be placed on species of this class for purposes of exact correlation. The most characteristic gastropods are two small discoidal species belonging to the genus Calodiscus; these range throughout the Green Ammonite Beds, but are most abundant a few feet from the base. It is noteworthy that a related species, C. minutus (Schübler MS. Zieten), occurs in similar abundance in the Upper Liases of Yorkshire, Kent, and elsewhere.

Except for Inoceramus, which is not uncommon towards the base of the Green Ammonite Beds, lamellibranchs of families other than those already mentioned and the Pectinidae are rare. The Pectinidae are mostly small forms and are frequently indeterminate owing to incrustation. The species Ozytoma inequivalve (J. Sowerby), so abundant at lower horizons of the Dorset Liases, occurs but rarely, and Ostrea and Gryphaea appear to be completely absent. The most interesting lamellibranch species collected by Dr. Lang is referable to a new genus, Anningia, as yet, unfortunately, incompletely known. The facies differs appreciably from that of contemporaneous beds at various localities in Gloucestershire, Northamptonshire, and Lincolnshire, where the lamellibranch fauna consists mainly of larger forms.\(^2\) It may be suggested that the Dorset beds were deposited under deeper-water conditions.

Several species in addition to those described below are represented in the material studied, but the specimens are too imperfect for description or definite determination. A few

\(^2\) For example, Modiolus scalarum (J. Sowerby), Chlamys (Equipecten) auctocosta (Lamarck), Pholadomya ambigua (J. Sowerby), Pluromya costata (Young and Bird), Gonionyma hybrida (Müller), Mactromya cardioides (Phillips), and Hippodromium ponderosum J. Sowerby.
nuclear whorl is considerably deviated with respect to the axis of the rest of the shell. The presence of faint spiral threads in the form described as *Straparolus bellulus* does not justify its specific separation from *C. wrightianus*. Both in *C. minutus* and *C. aratus* (described below) such threads are present in some specimens and absent in others.

Tate (1876, p. 341) records *S. bellulus* from the Margaritatus Zone of Yorkshire; Beesley (1872, p. 14) records *S. wrightianus* from the Capricornus Zone of Banbury.

**Cælodiscus aratus** (Tate). Pl. XXXIV, figs. 1a, b, 2a, b

*Straparolus aratus* Tate, 1870a, p. 404, pl. xxvi, figs. 21 a–c.

*Discolaela aratus* Tate, 1876, p. 340, pl. ix, figs. 5a.

*Cælodiscus aratus* Brösamlen, 1909, p. 203, pl. xvii, figs. 7a–d, 8a–c.

*Cælodiscus aratus* Cossmann, 1916b, p. 149, fig. 33.

**Material.**—Numerous specimens.

**Horizons and Localities.**—c. 122, Whitchurch School; 122f, Golden Cap; 122g–123m, Black Ven; 123r, Broom Cliff; 125b, Broom Cliff; 128i, 129c, Stonebarrow.

**Remarks.**—It is doubtful if this form is specifically distinct from *C. minutus* (Schübler MS. Zieten), of the Upper Lias of Germany and Yorkshire, and I have retained Tate's name mainly because of the difference in horizon. *Cælodiscus minutus*, as interpreted by German authors (compare Brösamlen, 1909, p. 203, pl. xvii, figs. 9–11), is highly variable in shape, some specimens being naticoid, with an exserted spire, while others, including the original type figured by Zieten (1832, p. 45, pl. xxxiii, fig. 6), are discoidal, with a concave upper surface. In *C. wrightianus*, however, the upper surface is more depressed, on the average, than in the Upper Liassic form, and I have seen no specimens with an exserted spire. Tate's statement that the Dorset species has fewer whorls than *C. minutus* cannot be accepted, the number being approximately the same at the same stage of growth; the largest specimens of *C. wrightianus* are about 5 mm. in diameter and have six or seven whorls. In both forms, moreover, the axis of the

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1 A specimen in the British Museum of Natural History, registered no. 62852, purchased from Dr. Bruckmann and labelled by him "from Zieten's Collection," may be Zieten's actual type (compare G. C. Crick, *Geol. Mag.* 1900, p. 561).
produce well-marked angulations in the profile, but on the last whorl, or in some specimens rather earlier, these carinae fade away and are replaced by narrow, straight, or slightly flexuous axial costae, numbering about six to the half-whorl; the costae usually extend on to the base of the shell and are crossed, just below the periphery, by two spiral threads. Aperture ovate, sub-angular posteriorly; inner lip sub-vertical, meeting the anterior margin of the aperture, which projects prominently, in a somewhat ill-defined, slightly obtuse angle; labrum sinuous, retrocurrent in its general direction, possibly thickened externally; parietal callus thin or absent, but, if present, definitely margined.

**Dimensions.**—The height of the shell is about 1.5 mm.

**Material.**—The holotype (G 26515, figs. 3a, b) and numerous paratypes.

**Horizon and Locality.**—123a–m, Black Ven.

**Remarks.**—This minute shell might, from its general appearance, belong either to the Rissoidae or to the Rissoinidae. Cossmann (1921, pp. 53, 63) points out than an essential difference between these families lies in the inclination of the labrum, which is “antecurrent” in the former family and retrocurrent in the latter. Its labral characters would thus associate the species now described with the Rissoinidae. All the Jurassic Rissoinidae mentioned by Cossmann (1921, pp. 64–6) are referred by him to his genus *Buvigniera*, the main apertural character of which is that the vertical, untwisted columnellar lip has no notch at its base, but makes a more or less definite angle with the anterior margin of the aperture. This is a feature of the aperture of the species now described, which may therefore be tentatively referred to *Buvigniera*. The labrum is not preserved intact in any of the specimens examined, but was probably somewhat thickened externally in the adult shell, corresponding to the flexuous axial costae of the last whorl. The thickening, as well as the parietal callosity, appears, however, to have been less developed than in the typical species of *Buvigniera*.

*Buvigniera biornata* (Tate)

*Lititornia biornata* Tate, 1870a, p. 404, pl. xxvi, fig. 17.

**Material.**—Numerous specimens.

**Horizons and Localities.**—123a–m, Black Ven; 126a, Stonebarrow.

**Remarks.**—Specimens from the lower horizon are usually partly coated with encrusting matter, while the aperture is seldom preserved intact. Those from bed 126a occur on the surface of a limestone block and are better preserved, but only a few are full-grown. This species resembles the species last described in the replacement of the purely spiral ornamentation of its early whorls by axial costae on the later ones, as described by Tate. Its apertural characters conform more or less to those of Cossmann’s genus *Buvigniera*. The columella is vertical and joins the anterior margin of the aperture, which projects strongly, in a fairly well-defined angle. The labrum, which is thickened externally, is retrocurrent in its general direction, although near the suture it may curve round so as to be perpendicular or slightly procurent (“antecurrent”). The parietal wall has a thick and distinctly margined callosity.

It should be remarked that specimens which I refer to this species were examined by Miss A. I. McDonald and Professor A. E. Trueman (1921, p. 329) and were regarded by them as belonging to a species of *Zygopleura* closely related to their *Z. capricornu*.

Family Procerithiidae

Genus *Procerithium* Cossmann, 1902

*Procerithium langi* sp. nov. Pl. XXXIV, figs. 5a, b

**Diagnosis.**—Shell small, short and stout, slightly pupoidal. Protoconch papilliform, consisting of about two smooth whors; later whors five or six, feebly convex, with well-impressed sutures, and ornamented with three rows of small tubercles which have also a slightly procurent axial alinement. A fourth row of tubercles appears on the last whorl beyond the aperture, and the base bears four or five strong concentric ribs. Aperture sub-orbicular, but with a small, beak-like anterior canal; columnellar lip vertical, with a reflected margin; parietal callus thick, distinctly margined, and partly detached from the penultimate whorl.

**Dimensions.**—Holotype: height 3.9 mm., diameter 2.3 mm.

**Material.**—The holotype (G 28437, figs. 5a, b) and three paratypes in the Slatter collection. Numerous paratypes in Dr. Lang’s collection.

**Horizons and Localities.**—122g, Black Ven; unrecorded, Golden Cap (Slatter collection).

**Remarks.**—Its stout and somewhat pupoidal form distinguishes this species from any *Procerithium* hitherto described from the Liassic. An undescribed species, comparable in shape but with the axial element of its ornamentation stronger than the spiral element, occurs in the Middle Liassic of Grettin Hill, Gloucestershire.

*Procerithium westhayensis* sp. nov. Pl. XXXIV, fig. 7

**Diagnosis.**—Large for the genus and moderately acute, with a spire angle of approximately 17°. Whors very obtusely

1 By a misprint, the horizon of the specimens referred to by them was stated to be 78 feet above the Belemnite Stone at Black Ven. This should read 7–8 feet.

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angular at about the anterior third of their height, the angulation coinciding with a nodose spiral cord, anterior to which is a somewhat weaker nodose cord, while a third, still less prominent, borders the posterior suture, and a yet weaker one, not nodose, the anterior suture. About three spiral threads of unequal strength occur between the posterior sutural cord and the one which coincides with the carina, and another just anterior to the latter. Backward-arched growth-threads are pronounced at fairly regular intervals, and form a reticulate pattern with the spiral threads, especially marked on the posterior slope of the whorls. Sutures narrow and deep, gently inclined. Base ornamented with about three strong concentric cords. Apertural details unknown.

Dimensions.—Original height (estimated) 35–40 mm., diameter 11 mm.

Material.—The holotype only (G57752, fig. 7), consisting of the last 3½ whorls of the shell.

Horizon and Locality.—126, foreshore at Ridge fault, Westhay.

Remarks.—This species is much larger than any Procerithium hitherto recorded from the Lias of this country and is further distinguished by the predominance of the spiral element of its ornamentation over the axial element.

Sub-genus Rhabdocolopus Cossmann, 1906

Procerithium (Rhabdocolopus) auricipitis sp.nov.

Pl. XXXIV, fig. 8.

Diagnosis.—Fairly small and of moderate stoutness, with a spire angle of about 32°. Whorls about seven, strongly convex, and ornamented with rather narrow axial ribs cancelled by slightly weaker spirals. The ribs are sometimes continuous from one whorl to the next, but usually their number increases on the later whorls, reaching 10 or more on the last whorl; they are straight and sub-vertical on the spire whorls, but tend to become arched backwards near the aperture. The spirals number four on the spire whorls, the uppermost being slightly more prominent than the others, with the space between it and the suture slightly wider than the other interspaces. The base is ornamented with spiral threads which alternate in strength. Aperture sub-organic, with no indication of an anterior canal.

Dimensions.—Holotype: height 6·5 mm., diameter 3·0 mm.

Material.—The holotype (G57789, fig. 8) and seven paratypes.

Horizons and Localities.—123r, Broom Cliff; 125, Golden Cap; 125b (type horizon), Broom Cliff.

Remarks.—The specimens consist mainly of pyritized casts with decayed remains of the shell adherent to them, and do not retain the finer details of their ornamentation. The species is, nevertheless, sufficiently well characterized to name.

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Family ZYGOPLEURIDEÆ

Genus Zygopleura Koken, 1892

Sub-genus Anoptychia Koken, 1892

Zygopleura (Anoptychia) westhayensis sp.nov.

Pl. XXXIV, fig. 6

Diagnosis.—Fairly small, slender, with a spire angle of 15°. Whorls evenly convex, rather low-embracing, the early ones, apart from a protoconch of two smooth whorls, ornamented with slightly backward-arched and recrurent axial costae, which first number about 14 to the whorl, but subsequently decrease to about eight and become increasingly fainter; half-way along the shell, after about the eleventh whorl, the costae completely disappear and are replaced by about 12 obscure spiral striae. Growth-lines well marked at intervals, with a pronounced sigmoidal curve. Aperture unknown.

Dimensions.—Holotype: height 15 mm., diameter 3·4 mm.

Material.—The holotype (G56860, fig. 6) and four paratypes in the Slatter collection. Also a pyritized cast possibly referable to this species in Dr. Lang’s collection.

Horizons and Localities.—129, Stonebarrow (doubtful cast); unrecorded, Westhay (Slatter collection).

Remarks.—Zygopleura (Anoptychia) similis (Moore) (1867, p. 212, pl. iv, fig. 13, sub Turritella) is a closely related but larger form from the Middle Lias of Ilminster; Sherborn’s Index Animalium shows its specific name to be a homonym.

III. LAMELLIBRANCHIA

Family NUCULIDEÆ

Genus Nucula Lamarck, 1799

Nucula ungurella Tate. Pl. XXXIV, figs. 13, 14

Nucula cordata Goldfuss, 1837, p. 155, pl. cxxv, figs. 6a–c (non Roemer, 1836—Lower Cretaceous species).

Nucula variabilis Oppel, 1853, p. 123, pl. iv, figs. 26a, b (non J. de C. Sowerby, 1824—Bathonian species).

Nucula variabilis Quenstedt, 1856, p. 188, pl. xxiii, fig. 28 († non p. 110, pl. xiii, fig. 43).

Nucula ungurella Tate, 1870a, p. 407, pl. xxvi, fig. 11.

Nucula cordata Brauns, 1871, p. 369.

Nucula cordata Tate, 1876, p. 382.

Nucula cordata Richardson, 1918, pl. i, figs. 2, 4.

Nucula ungurella Richardson, 1918, pl. i, fig. 3.

Material.—Numerous specimens.

Horizons and Localities.—123a–m, Black Ven; 123r, Broom Cliff; 124, Broom Cliff; 125b, Stonebarrow, Broom Cliff, and Golden Cap; 126 (best preserved specimens), Stonebarrow; 127,
Broom Cliff; 128a, east of St. Gabriel’s Water; 129, 129–130, Stonebarrow; 131a, Golden Cap; 132c, Stonebarrow.

**Remarks.**—Although he attributed the specific name to Goldfuss, Roemer’s (1836, p. 101) description of a *Nucula cordata* appeared in the year preceding Goldfuss’s, and as his specimens came from the “Hilston” name cannot continue to be used for a Liassic shell. The shape of Tate’s figured type of *N. ungulilla* (Geol. Surv. Mus. 7890) has been modified posteriorly by some accident in growth, producing a shell with a terminal, opisthogyrous umbo. After comparing it with several other specimens from the type locality, Cheltenham, I am convinced that it is not separable specifically from those referable to *N. cordata* Goldfuss, a highly variable species for which *N. ungulilla* thus appears to be the earliest valid name.

**Family NUCULANIDAE**

**Genus Nuculana** Link, 1807

**Sub-genus Rolleria** Cossmann, 1920

**Nuculana (Rolleria) bronni** (Andler)

*Nucula subovalis* Goldfuss, 1837, p. 154, pl. cxxv, figs. 4a, b (non Roemer, 1836—Inferior Oolite species).

*Nucula palmae* Oppel, 1853, p. 123, pl. iv, figs. 22a, b (non J. de C. Sowerby, 1824—Carboniferous Limestone species).

*Nucula quenstedti* Quenstedt, 1856, p. 187, pl. xxiii, figs. 16, 17.

*Leda bronni* Andler, 1858, p. 644.

*Leda palmae* Dumortier, 1869, p. 120, pl. xii, figs. 3, 4, p. 261.

*Leda bronni* Tate, 1870a, p. 19, pl. i, fig. 1.

*Leda subovalis* Brauns, 1871, p. 376.

*Leda subovalis* Tate, 1876, p. 382.

*Leda (Nuculopsis ?) subovalis* Cossmann, 1916, p. 147, pl. v, figs. 11, 12.

*Leda subovalis* Richardson, 1918, pl. i, fig. 15.

*Leda subovalis* Kuhn, 1936, p. 255, pl. x, fig. 10.

**Material.**—Two specimens.

**Horizons and Localities.**—122g, 123a–m, Black Ven; 124, Broom Cliff; 125b, west of St. Gabriel’s Water, and Broom Cliff; 127, Broom Cliff, and Golden Cap; 128a, 129, 130, Stonebarrow; 130a, 131a, Golden Cap.

**Remarks.**—D’Orbigny’s type of *L. galatea* is said to be broken and so has not been figured in the *Annales de Paléontologie*. We must, therefore, follow Dumortier in our interpretation of this species, since he was the first author to describe it adequately and to figure it. The shell depicted by him is only 6 mm. in length and is elliptical in shape, with a symmetrically convex posterior end. A French specimen figured by Cossmann (loc. cit.) is of the same size and shape as Dumortier’s. In the Dorset Liassic—Elsewhere in this country—Specimens attain at least twice this length and are mostly characterized by their greatly produced postero-dorsal margin; this forms an acute angle with the flattened posterior margin, which truncates the shell obliquely (Pl. XXXIV, fig. 12). Shells of this shape, which is reminiscent of the kind of some species of the Recent genus *Yoldia*, were described by Tate as *Leda quenstedti* and by Monke as *L. trapezoidalis*. They are, however, associated in Dorset and other British localities with occasional specimens (Pl. XXXIV, 1). See A. M. Davies, *Q.J.G.S.* lixix, 1913, p. 329, footnote. Tate (1907, p. 396) records having examined this specimen in 1867, presumably before it was broken, and identifies it with the species *Nucula elliptica* Roemer [non SS]. Brauns (loc. cit.), whose interpretation of *L. galatea* agrees with that here adopted, includes *N. elliptica* Roemer in its synonymy.

An application was made in 1929 to the International Commission on Zoological Nomenclature by Dr. W. J. Arkell and myself that d’Orbigny’s *Prodrôme* names should be treated as *nomina nuda*. No decision has, however, been reached.

2 By the courtesy of M. Gaillard, the Director, I examined Dumortier’s collection in the Municipal Museum at Lyons this spring, but unfortunately was unable to find the figured, or any other, specimen of this species.

**Nuculana (?) Rolleria) galatea** (d’Orbigny, Dumortier)

Pl. XXXIV, figs. 11, 12

*Nucula striata* Roemer, 1836, p. 99, pl. vi, fig. 11 (non Lamarck, 1805—Eocene species).

*Leda galatea* d’Orbigny, 1850, p. 234.

*Nucula infausta* Oppel, 1853, p. 123, pl. iv, figs. 21a, b (non Roemer, 1836—Purbeck Corbulida, *facie* Brauns).

*Nucula infausta* Quenstedt, 1856, p. 187, pl. xxii, fig. 15 (? p. 110, pl. xii, fig. 41).

*Leda galatea* Dumortier, 1869, p. 120, pl. xii, figs. 5, 6.

*Leda quenstedti* Tate, 1870a, pl. i, fig. 4.

*Leda galatea* Brauns, 1871, p. 374.

*Leda galathea* Tate, 1876, p. 382 (partim, non pl. xi, fig. 5).

*Leda trapezoidalis* Monke, 1888, p. 216, pl. ii, fig. 8.

*Leda (?) Nuculopsis* galatea Cossmann, 1916, p. 147, pl. viii, figs. 1, 2.

*Leda galatea* Richardson, 1918, pl. i, fig. 5.
In which the postero-dorsal prolongation is less pronounced and which therefore agree better with the figures of *N. galatea* given by the French authors cited. It thus seems advisable to continue to identify the commoner, more trapezoidal, British variety with *N. galatea*.

The Yorkshire Middle Liassic specimen (Geol. Surv. Mus. 7883) figured by Tate (1876, pl. xi, fig. 5) as belonging to this species does not appear to me to belong even to the genus *Nuculana*; it may be a *Thracia*.

Sub-genus **Ryderia** Wilton, 1830

*Nuculana* (Ryderia) *doris* (d’Orbigny)

**Pl. XXXIV, fig. 16**

*Nucula complanata* Goldfuss, 1837, p. 156, pl. cxxv, figs. 11a–c (non Phillips, 1829—east of *Nucula ovum* J. de C. Sowerby sp.).

*Nucula doris* d’Orbigny, 1850, p. 253 (nom. nov. for *N. complanata* Goldfuss).

*Nucula complanata* Oppel, 1853, p. 122, pl. iv, fig. 20.

*Nucula complanata* Quenstedt, 1856, p. 110, pl. xiii, fig. 40; p. 186, pl. xxiii, figs. 9, 10.

*Leda romani* Oppel, 1856, p. 95.

*Leda complanata* Brauns, 1871, p. 372.

*Leda complanata* Tate, 1876, p. 385.

*Leda romani* Monke, 1888, p. 216, pl. ii/i, fig. 5.

*Leda complanata* Richardson, 1918, pl. i, fig. 8.

*Leda banzensis* Kuhn, 1936, p. 258, pl. x, fig. 5.

**Material.**—Seven specimens.

**Horizons and Localities.**—c. 122, Peace E., “about half-way to far hedge”; 127, Golden Cap; 129, Stonebarrow; 130c, Golden Cap.

**Remarks.**—It is probable that the name *Leda doris* has hitherto been ignored by authors as it was erroneously listed by d’Orbigny as a Toarcian species. The species was, however, founded on Goldfuss’s figures, cited above, and not on any specimens in d’Orbigny’s collection. Oppel gave no reasons for separating *L. romani* from *L. complanata* auctt., with which Brauns later placed it in synonymy. Monke states that in *L. romani* the shell is more inflated and the umbo more prominent, but specimens of the species now described in the British Museum show considerable variation in these characters, and I doubt the validity of Monke’s distinction. In proposing a new species, *L. banzensis*, for Goldfuss’s *N. complanata*, Kuhn has obviously overlooked d’Orbigny’s name.

Oppel, Brauns, Monke, and Tate all agree in distinguishing a closely comparable form from the Angulusus and Bucklandi zones under the name *L. renevieri* Oppel. The main distinction is said to be that the escutcheon is impressed in *L. renevieri* and elevated in roof-like fashion in *L. complanata* auctt. E. T. Newton (1901, p. 234) considered the form identified by Tate (1870a, pl. i, fig. 3) as *L. renevieri* to be distinct from Oppel’s species, and gave to it the name *Nuculana tatei*. Several British specimens from the lower horizon have been examined by me, and I very much doubt if they are specifically distinct from the form now recorded.

The generic name *Ryderia* was proposed by Wilton (1830, p. 72) for a figured but specifically unnamed shell, which may be identified as *Nuculana renevieri* (alias *tatei*), from the Lower Liassic of Avre, on the shore of the Severn. This name must be accepted as valid, since it was accompanied by a short description, and has priority over *Dacryomya* Agassiz (1842, p. 500), proposed for the same group of *Nuculana*.

**Family Parallelodontidae**

Genus **Parallelodon** Meek and Worthen, 1866

*Parallelodon trapezium* Cox. Pl. XXXIV, fig. 15

*Parallelodon trapezium* Cox, 1928, p. 240, pl. xviii, figs. 5a, b.

**Material.**—Numerous specimens.

**Horizons and Localities.**—122c, 122g, Broom Cliff; 122g, 123a–m, Black Ven; 1123a, Westhay Water; 123r, Broom Cliff; 122–124, right bank of R. Char, south-west of Whitchurch bridge; 125b, Broom Cliff and Golden Cap; 126, Stonebarrow and foreshore at Ridge fault; 127, Broom Cliff and Golden Cap; 128a, Broom Cliff; 128i, Golden Cap; 129, 129–132, Stonebarrow; 130a, 131a, Golden Cap; 132c, Stonebarrow.

**Family Pteridae**

Genus **Oxytoma** Meek, 1864

*Oxytoma inequivalve* (J. Sowerby)

*Avicula inequivalvis* J. Sowerby, 1819, p. 78, pl. cxxiv, figs. 2, 3.

**Material.**—One specimen.

**Horizon and Locality.**—128i, Golden Cap.

**Family Isognomonidae**

Genus **Inoceramus** (J. Sowerby MS.) W. Smith, 1816


**Material.**—Several specimens.

**Horizons and Localities.**—122a–b, 122c, 122d, Golden Cap; 122a–c, Westhay Water; 126, foreshore at Ridge fault.
Family Myalinidae?

Genus *Anningia* nov.

(Named after Miss Mary Anning, the famous collector of Lyme Regis fossils.)

*Diagnosis.*—Right valve pyriform, oblique, strongly convex, concentrically ornamented, with a small projecting anterior auricle separated by a narrow groove from the body of the shell, but with no posterior auricle. Hinge edentulous. Left valve unknown.

*Anningia carixensis* sp. nov. Pl. XXXIV, figs. 9, 10

*Diagnosis.*—As for genus.

*Description.*—The height of the shell, measured perpendicularly to the hinge-margin, is considerably in excess of the length; the hinge-margin is short and meets the strongly convex posterior margin in an even curve; the anterior margin is slightly concave, its general direction making approximately a right angle with the hinge-margin. The shell thus has the shape of a pendent pear which curves ventrally towards the anterior side. The dorsal margin of the anterior auricle is in alinement with the hinge-margin; its anterior margin has a sigmoidal curve and meets the anterior margin of the body of the shell tangentially. The surface of the shell is ornamented with fine, concentric, nearly equidistant, imbricating lamelle.

In the holotype there is a pronounced angularity in the profile of the valve at about the middle of its height, the shell having been flat in early stages of growth. The paratype, a smaller specimen, is more evenly convex. The paratype reveals the interior of the shell, but it is impossible to locate the muscle scar. The structure of the shell is prismatic.

*Dimensions.*—Holotype: length (restored) 19 mm., height 27 mm.

*Material.*—The holotype (L64148, Pl. XXXIV, fig. 9) and one paratype.

*Horizon and Locality.*—Fallen nodule, most probably from 123, but possibly from 129a; Westhay Water.

*Remarks.*—The presence of the prominent anterior auricle serves to distinguish the species now described from typical species of *Inoceramus*. Such an auricle is present in the peculiar form from the Black Marl of Charmouth to which Oppel gave the name *I. faber* (see Cox, 1926, p. 181, text-fig. 4), but the species now described is readily distinguished from this species by its pyriform shape. Its affinities are probably with *Buchia* [*Aucella*] and related genera rather than with *Inoceramus*.

*Pergamidia* Bittner (1891, p. 103, pl. iii), from the Trias, is comparable, but its anterior auricle is less prominent.

*Chlamys Bolten, 1798

*Chlamys milvus* Cox

*Chlamys (Æquipuncten) prisca* (Schlotheim)

*Æquipuncten prisces* (Schlotheim), Staeckhe, 1926, p. 48 (with synonymy).

*Material.*—Four specimens.

*Horizons and Localities.*—125b, 127, Broom Cliff; 128i, 132a, Golden Cap.

*Family Lucinidae

Genus *Luciniola* Skeat and Madsen, 1898

*Luciniola pumila* (Münster in Goldfuss)

*Venus pumila* Münster, Goldfuss, 1837, p. 243, pl. cl, figs. 7a, b.

*Venus pumila* Oppel, 1853, p. 125, pl. iv, figs. 25a, b.

*Venus pumila* Quenstedt, 1856, p. 111, pl. xiii, fig. 44; p. 189, pl. xxiii, fig. 24.

*Lucina pumila* Brauns, 1871, p. 332.

*Lucina pumila* Tate, 1876, p. 396.

*Luciniola pumila* Skeat and Madsen, 1898, p. 86, pl. i, figs. 1–5.

*Material.*—Two specimens.

*Horizons and Localities.*—125b, Broom Cliff; 127, Golden Cap.

IV. LIST OF WORKS TO WHICH REFERENCE IS MADE

**Agassiz, L. 1839–42. Annotations in James Sowerby’s Mineral-Conchologie Grossbritanniens, deutsch bearbeitet von E. Desor. Solothurn.**

**Andler, —. 1858. Über die Angulaten-Schichten in der Württembergischen Jura-Formation. N.J. f. MIn. 1858, p. 641.**


**Bräun, D. 1871. Der untere Jura im nordwestlichen Deutschland. Braunschweig.**

**Brösamlen, R. 1909. Beitrag zur Kenntnis der Gastropoden des schwäbischen Jura. Palaeontographica, iv, p. 177.**


part 4] LAMELLIBRANCHIA OF THE GREEN AMMONITE BEDS 471

EXPLANATION OF PLATE XXXIV

Fig. 4. *Bwignieria carizensis* sp. nov., × 10. Paratype, Brit. Mus. G26516. Horizon 123a–m, Black Ven.