Seven New Genera of Jurassic Ammonites

By W. J. Arkell

(PLATE I)

Abstract

Well-defined genera of ammonites from the Toarcian, Bathonian, Oxfordian, Kimeridgian, and Tithonian are diagnosed and named.

Introduction

In the international *Treatise on Invertebrate Paleontology* an attempt is being made to assemble diagnoses and figures of all known genera and subgenera, and it is hoped that the text may remain useful as a work of reference for many years, as complete as its authors can make it.

In the sphere of ammonites, at least, the naming of genera has been fortuitous and extremely uneven, depending largely on where two or three authors who employed a refined taxonomic scale have chanced to work. For such families or formations we have a host of generic names, largely bestowed on figures previously published by other authors. Anyone who attempts to assemble the names becomes aware of the existence of other figured forms, equally or more deserving of generic separation, which will certainly be named as soon as a worker takes up the group concerned. Since no new genera are to be introduced in the *Treatise*, it will be unnecessarily incomplete and limited in its usefulness unless some outstanding gaps are filled before it goes to press. It is with this object that the present paper is published.

Renziceras gen. nov.

Type Species.—Hildoceras nausikaae Renz, 1912, p. 607, pl. xiv, fig. 4, and text-figs. 25, 25*a*. (Plate I, fig. 3.)

Horizon and Locality.—Toarcian, Epirus, Greece.

Generic Characters.—A "dimorph" Hildoceratid. The inner whorls are coronate, the sides divergent, bearing strong, simple, distant, *Teloceras*-like ribs which end with a coarse ventro-lateral tubercle. On the last whorl the ribbing changes suddenly to gently falcoid, the tubercles disappear, and the whorl-shape becomes quadrate, the coiling evolute, planulate. Venter unicarinate. Sutures normal Hildoceratid.

Affinities.—Renz (1912, p. 608) remarked that the inner and outer whorls are so different that if they had been found separately two species or even genera would have been made out of them. Fifteen years later he transferred the species from *Hildoceras* to *Bouleiceras* (Renz, 1927, p. 486). The suture differs from that of *Bouleiceras*, however, in having an indented second-lateral saddle and a less

degenerated second-lateral lobe ; and no *Bouleiceras* has a coronate nucleus. The affinities of *Renziceras* are more likely with *Mercaticeras* Buckman (see e.g., Merla, 1933, pl. vi).

PROCEROZIGZAG gen. nov.

Type Species.—*Stephanoceras crassizigzag* Buckman (1892, var. **a**, pl. xiv, figs. 2, 3, lectotype).

Horizon and Locality.—Lower Bathonian, Zigzag Zone, Broad Windsor, Dorset. Also other Dorset localities, same bed.

Generic Characters.—Large, massive Zigzagiceratinae in which the coronate *zigzag*-stage persists for several whorls and is followed by one or more whole whorls with normal coarse *Procerites*-style ribbing. Aperture simple, without lappets.

Affinities.—*Zigzagiceras zigzag* (d'Orb.), the type species of *Zigzagiceras* Buckman (1902) by original designation, is a small species with lappets, close to the form figured as "*Procerites*" *euryodos* (Schmidt) by Buckman (1920, pl. cliii). The type species of *Zigzagites* Buckman (1922, pl. ccci) is Middle Bathonian and its holotype is almost certainly a poorly-preserved large *Wagnericeras*. No name therefore exists for the group of large forms with simple aperture represented by *Z. crassizigzag* Buckman, of which *Z. pollubrum* Buckman (1921, pl. cclix) represents the outer whorls. The inner whorls of *Z. crassizigzag* were refigured by Buckman in 1922 (pl. cccxxxv) correctly named, but erroneously called " holotype ". There was no holotype of this species, and the specimen figured in 1922 was not one of the syntypes figured in 1892, nor even a topotype (it came from Crewkerne). Another species of *Procerozigzag* is *S. pseudoprocerum* Buckman (1892, pl. xiv, figs. 4, 5), of which *Z. rhabdouchus* Buckman (1922, pl. ccc) is probably a synonym.

LYCETTICERAS gen. nov.

Type Species.—*Lycetticeras lycetti* sp. nov. (Plate I, fig. 2.)

Horizon and Locality.—Middle Bathonian, Great Oolite, Minchinhampton, and Fuller's Earth Rock, Dorset and Somerset.

Generic Characters.—Inner whorls perisphinctoid, somewhat evolute, rounded, with irregular feeble biplicate ribbing. After 20–30 mm. the primaries fade away and only ventral ribbing remains, as in *Morrisiceras*, or coarse undulation, as in some *Pachyceras*. Outer whorls become laterally compressed and the last whorl coils excentrically and loses all ribbing. Sutures as in some *Morrisiceras*.

Affinities.—The type species, which cannot be figured in my current monograph on the English Bathonian Ammonites for a year or two, is hitherto undescribed, but it is the most characteristic species of a group which includes *Morrisiceras comma* Buckman, *M. sknipum* Buckman, and others. The genus differs from *Morrisiceras* by its

perisphinctoid nucleus and the flattening and excentric coiling of the outer whorl. Some species are homoeomorphs of Callovian *Pachyceras*. Whether it be placed in the Tulitidae or Macrocephalitidae is a matter of opinion; and the possibility cannot be excluded that it is an aberrant offshoot of Perisphinctaceae, comparable with the Morphoceratidae. Provisionally it is retained in Macrocephalitidae beside *Morrisiceras*, from which it has not hitherto been separated.

NEOMORPHOCERAS gen. nov.

Type Species.—Ammonites chapuisi Oppel (references below). (Plate I, fig. 4.)

Horizon and Locality.—Upper Oxfordian, Transversarius Zone, S.W. Germany, S. France.

Generic Characters.—Dwarf, constricted, ribbed, *Morphoceras*-like perisphinctids. The inner whorls are involute, sphaerocone; the outer whorl or whorls gradually become evolute, contracted.

Affinities.—The type species was refigured from the Transversarius beds of Trept as a *Cadoceras* by de Riaz (1898, p. 39, pl. xvi, figs. 2, 3), and from Pamproux as a *Sphaeroceras* by Gérard (1936, p. 214, pl. xiv, figs. 3, 4). The contemporary and allied *Ammonites collinii* Oppel was placed by Gérard in *Perisphinctes* (1936, p. 206, pl. xii, figs. 2, 3). There can be no doubt that these species represent a degenerated, dwarfed offshoot of the Perisphinctinae, along the lines travelled in the Bajocian-Bathonian by the Morphoceratidae and repeated in the Lower to Upper Oxfordian by *Mirosphinctes* Schindewolf (from *Grossouvria*) and in the Kimeridgian by *Enosphinctes* Schindewolf and *Sutneria* Zittel (from rasenids). Earlier analogues in the Lias are *Pimeliites* and *Diaphorites* Fucini, which presumably are degenerated dactylioceratids.

Mirosphinctes, the other Oxfordian example of this trend, differs from *Neomorphoceras* in having irregular, rursiradiate (grossouvrid) ribbing, with many parabolic nodes on the inner whorls, and a flanged peristome with lappets.

PROGERONIA gen. nov.

Type Species.—Perisphinctes progeron von Ammon (1875, p. 181, pl. i, fig. 2).

Horizon and Locality.—Lower Kimeridgian, Tenuilobatus Zone, Bavaria.

Generic Characters.—Large, evolute perisphinctids of the Lower Kimeridgian, with biplicate and triplicate ribbing which modifies gradually as in *Arisphinctes* of the Upper Oxfordian.

Affinities.—Differs from contemporary *Lithacoceras* in being more evolute, less compressed, and lacking the fine, sharp, fasciculate ribbing.

Probably derived from *Arisphinctes*, whereas *Lithacoceras* is derived from *Discosphinctes*. For a photograph of a form close to the type species see Schneid, 1914, pl. i, fig. 6 (Pseudomutabilis Zone, Franconia). To the same genus belong *P. eggeri* von Ammon and *P. ernesti* (Quenstedt) as figured by Schneid (1914, pl. i, fig. 5). Similar forms occur in the Jubaila formation in central Arabia. This group has been included by some authors in *Planites* de Haan, but the type species of that (if it is to be retained as a genus at all) is *Nautilus polygyratus* Reinecke, an *Orthosphinctes* (see Arkell, 1951, p. 194). The group of *P. progeron* von Ammon and *P. eggeri* von Ammon was named *Ammonia* by Ilovaisky and Florensky in 1941, but that generic name was three times preoccupied.

VIRGATAXIOCERAS gen. nov.

Type Species.—*Virgatosphinctes setatus* Schneid (1914, p. 165, pl. v, fig. 5 ; pl. vi, fig. 4).

Horizon and Locality.—Middle Kimeridgian, Beckeri Zone, Bavaria.

Generic Characters.—Ataxioceratids which show normal ataxioceratid style of ribbing at an early stage but later develop virgatotome ribbing so as to resemble *Subplanites*.

Affinities.—The type species and its allies (*V. comatus* Schneid, etc.) in the Beckeri Zone, figured by Schneid as *Virgatosphinctes*, are believed to be derived from forms such as *Ataxioceras* (not *Decipia*) *lautum* Schneid (1944, pl. viii, figs. 5, 6, 7) of the upper Tenuilobatus Zone (= Mutabilis Zone) and to be ataxioceratids despite resemblance of the middle and outer whorls to *Subplanites* of the higher zones. *Subplanites* (derived from early *Lithacoceras* or other normally ribbed perisphinctids) has regular biplicate ribbing on the inner whorls and develops the virgatotome style of branching only later. Consistently with the presumed absence of the Beckeri Zone in England, *Virgataxioceras* has not been found in this country, but it has been figured (under the wrong generic name " *Divisosphinctes* " *fallax*) from Russia by Ilovaisky & Florensky. There too its horizon is above the main Aulacostephanus Zone and below the *Subplanites* beds, or so-called " Wetlianian stage " ; i.e. in beds correlated with the Beckeri Zone. (*Subplanites* Spath, 1925, = *Sokolovia* Ilovaisky, 1934, = *Ilowaiskya* Vialov, 1940.)

TITHOPELTOCERAS gen. nov.

Type Species.—*Aspidoceras moriconii* Meneghini (1885, pl. xxii, fig. 2). (Plate I, fig. 1.)

Horizon and Locality.—Tithonian of Ancona province, Italy.

Generic Characters.—Inner and middle whorls depressed, coronate, with irregular ribs bearing a single row of median to ventro-lateral

tubercles; venter more or less smooth. Outer whorl resembling certain peltoceratids, with swollen, distant, simple ribs bearing lateral bullae and passing strongly over the venter.

Affinities.—Inner whorls of either the Italian or a closely allied species have been figured from the Tithonian of Majorca as *Himalayites? parakasbensis* (Fallot & Termier, 1923, p. 10, pl. i, fig. 1), together with another species, *H.* (*?*) *laevis* F. & T. (fig. 3). They remarked that attribution to *Himalayites* was questionable and provisional; but probably *Tithopeltoceras* was rightly placed in Himalayitidae. Another species of the same genus, differing in several characters, has been figured from the Lower Tithonian of Andalusia as *Peltoceras edmundi* by Kilian (1889, p. 675, pl. xxxxii, fig. 5). Possibly it also accounts for a record of *Peltoceras* in the Kimeridgian of Greece (Renz, 1927, p. 493).

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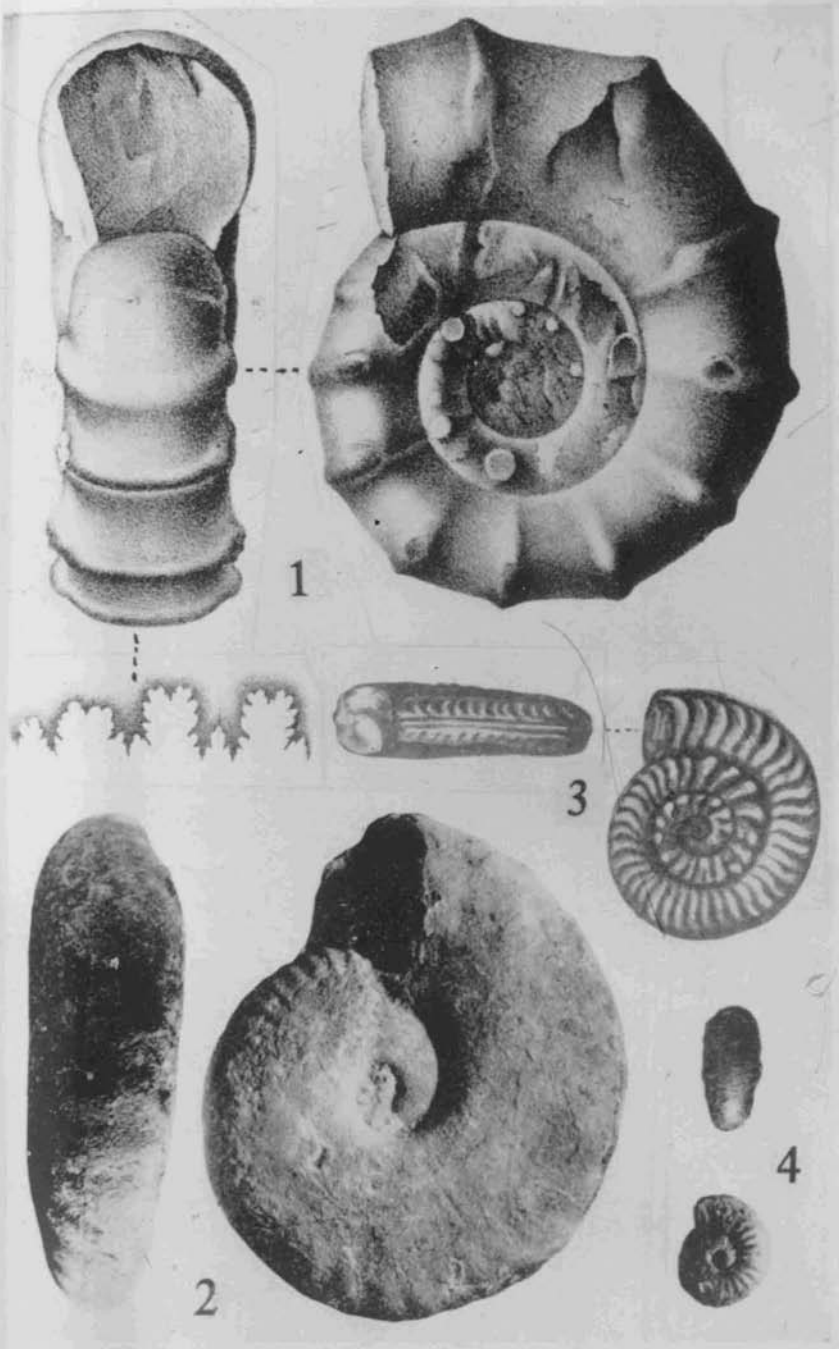
EXPLANATION OF PLATE I

FIG. 1.—*Tithopeltoceras moriconii* (Meneghini), Tithonian, province of Ancona, Apennines. Original figures after Meneghini, 1885.

FIG. 2.—*Lycetticeras lycetti* sp. nov. Holotype, Middle Bathonian, Great Oolite, Minchinhampton. Sedgwick Museum no. B 3793. × 0·5.

FIG. 3.—*Renziceras nausikaae* (Renz), Toarcian, Epirus, Greece. Original figures after Renz, 1912.

FIG. 4.—*Neomorphoceras chapuisi* (Oppel), Upper Oxfordian, Transversarius Zone, Trept, Isère. After de Riaz, 1898.



NEW JURASSIC AMMONITES.