Some Cretaceous Ammonites from New Zealand

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Abstract

New ammonite material from New Zealand has been classified under the following genera: Phyllopachyceras, Gaudryceras, Anagaudryceras, Puzosia, Pachydesmoceeras, Kitchinites?, Diplomoceras, and Grossouirites. Other fragments are identified with Hyphantoceeras cf. reussitanum (d’Orbigny) and Pseudoxybeloceeras sp. aff. quadrinodosum (Jimbo). Otosaphites awanuiensis, sp. nov. is described from the Clarence Series of Port Awanui, near East Cape.

A new genus, Wellmanites (Kossmaticeratidae) is proposed for W. zelandicus sp. nov. from the Upper Clarence Series, probably Cenomanian, of Gentle Annie Stream, Eketahuna district.

I owe to the kindness of Dr. C. A. Fleming, of the N.Z. Geological Survey, the opportunity of examining a series of ammonites collected over a number of years from localities in the Clarence River Valley and Hawke’s Bay areas. They are of some importance both from the light they throw on stratigraphy and because the collection includes some new and interesting forms.

Most of these ammonites were by good fortune sent to me while Professor T. Matsumoto, of Fukuoka, was in London, and I was therefore able to discuss them with him and to obtain the benefit of his wide experience of the extensive Japanese faunas.

The ammonite specimens have been registered in the Cephalopoda Catalogue of the N.Z. Geological Survey, the registered number being preceded by the abbreviation “CE”. Locality data are given for each specimen and a tentative correlation is made with the table of New Zealand Cretaceous divisions published by Wellman (1955, 1956).

Numbers prefixed “GS” refer to N.Z. Geological Survey locality numbers.

Family PHYLLOCERATIDAE

Phyllopachyceras sp.

Two small fragmentary specimens (CE 1068, 1073) show the characteristic suture and whorl section of this genus but cannot be determined specifically.


Age: The genus occurs from bottom to top of the Cretaceous (but see under Wellmanites below).

Family TETRAGONITIDAE

Subfamily GAUDRYCERATINAE

Gaudryceras sp.

The single specimen (CE 1064) is very distorted, but its suture with bifid elements and the ornament of fine thread-like riblets, together with the weak constrictions, suffice for attribution to this genus. The specimen is specifically indeterminable but resembles G. mite (Hauer), the type species, and G. denseplicatum (Jimbo).

Associated Fossils: Gastropoda and Inoceramus sp. N. Upper Raukumara Series.

Age: Gaudryceras of this type occur from the Turonian to the Campanian.

Anagaudryceras sp.

A single fragment (CE 1073) has typical gaudryceratid sutures, a depressed whorl section, and strong regular constrictions. It presumably belongs to this genus but cannot be determined further.

Locality and Horizon: GS 6090, Gentle Annie Stream, Upper Clarence Series.

Age: Anagaudryceras ranges from Upper Albian to Maastrichtian.

Family NOSTOCERATIDAE

Hyphantoceras cf. reussianum (d'Orbigny) (Plate 54, Figs. 2a, b)

A single fragment (CE 1063) is typical of the genus with its loose coiling, very fine and slightly sinuous ribs, and periodic high, thin ribs, pinched up into three or four tubercles. If it had been found in north-west Europe there would have been no hesitation in referring this fragment to H. reussianum and dating it to the Upper Turonian. In Japan, however, similar forms range from the Turonian to the Santonian (e.g., H. maestrictiensse Shimizu sp.) (cf. Wright and Matsumoto, 1954, pp. 114–115).


Age: Turonian to Santonian.

Family DIPLOMOCERATIDAE

Pseudoxybeloceras sp. aff. quadrinodosum (Jimbo) (Plate 54, Figs. 1a, b)

A large but slightly distorted fragment (CE 1062), retaining the last few camerae and the beginning of the body chamber can be referred to this readily recognized genus. It has the typical oval whorl section and thin, well spaced, straight, proslirate ribs, each with distinct lower and sharp upper ventrolateral tubercles. Professor Matsumoto considers that it is probably not identical with P. quadrinodosum, but is closely related.

The genus is derived from the Turonian to Santonian Scalarites (cf. Wright and Matsumoto, 1954, p. 119—a view strengthened by subsequent evidence) and is known from the Upper Turonian to Campanian of Japan, Madagascar and Pondoland. Marshall's "Oxybeloceras sp." from Kaipara (1926, p. 156, Pl. 33) may also be a Pseudoxybeloceras.


Age: Turonian to Campanian.

Diplomoceras sp

A fragment (CE 1381) from the final hook of a very large specimen of this genus shows the typical dense, fine ribs, distinctly sharper on the test than on the internal cast. Unfortunately no suture line is preserved, and it is impossible to determine the species. The approximate measurements of this fragment are: vertical diameter 65 mm; transverse diameter 60 mm.
Figs. 1a, b.—Pseudovolcanos az aff. quadrimodum (Jimbo). Muzzle River, Clarence Valley, GS 6317, CE 1062. Natural size, lateral view and whorl section.

Figs. 2a, b.—Hyphantoceas cf. cusuianum (d'Orbigny). Whare Stream, Clarence Valley, GS 6100, CE 1063. Lateral view and whorl section × 2.

Figs. 3a, b, c.—Wellmanites zelandicus Wright, n.gen., n.sp. Gentle Annie Stream, Manapakeha S.D., GS 6090, CE 1065. Lateral view, whorl section and peripheral view of the holotype × 2. The position of the tubercles is indicated by broken lines.

Fig. 4.—Wellmanites zelandicus Wright, Gentle Annie Stream, GS 6090, CE 1071. Lateral view of paratype × 4.

Figs. 5a, b.—Wellmanites zelandicus Wright, Gentle Annie Stream, GS 6090, CE 1070. Peripheral view and sketch of paratype × 2, to show the long sharp spines on the test, corresponding with internal tubercles.

Fig. 6.—Otiscaphites aplanuni Wright, Mouth of Waiotautu Stream, Port Awanui, GS 6511, CE 1380. Latex cast of paratype × 3.

Fig. 7, a, b.—Otiscaphites aplanuni Wright, Mouth of Waiotautu Stream, Port Awanui, GS 6511, CE 1379. Peripheral view and lateral view of holotype × 2.
Puzosia sp. Bushgrove Stream, Mangapakeha S.D., GS 1843, CE 977. Natural size, lateral and peripheral views.

AGE: Campanian or Maestrichtian.

Family SCAPHITIDAE
Subfamily OTOSCAPHITINAE

Otoscaphites awanuiensis sp. nov. (Pl. 54, Figs. 6, 7.)

TYPES: Holotype CE 1379; Paratype CE 1380.

DESCRIPTION: Of average size for the genus (greatest length of the holotype is about 20 mm). Evolute with curved shaft and well rounded hook. Aperture with strong constriction and collar and lateral lappets. Whorl section rounded, the sides scarcely flattened even on the shaft. Fine, rather distant primary ribs, already distinct on the umbilical wall, swing forward on the umbilical shoulder, then curve back and by mid-side are radial. Here they branch regularly into three very fine secondary ribs, which cross the venter without any sinuosity. There are no tubercles.

REMARKS: The total absence of ventrolateral tubercles distinguish this species from the Japanese Coniacian group of O. puerculus (Yabe). Its relations are rather with the slightly earlier, typical species of the Northern European Upper Turonian. The lectotype of O. bladenensis (Schlüter) (1871–6, Pl. 10, Figs. 5, 6, here designated) comprises only the normally coiled spire, but the form of the later part of the shell is shown in Schlüter’s Plate 23, Fig. 9 (as Scaphites auritus) and in some English specimens figured by Wright and Wright (1945, Pl. 5, Figs. 1, 2) (also as S. auritus). O. bladenensis is characterised by rather broad rounded primary ribs on the spire, which branch into two rather coarse, sinuous secondaries half way up the sides; on the compressed, flat-sided hook all the ribs are finer, feeble and irregular.

The original of Schlüter’s Plate 13, Figs. 5, 6 is a distinct species. It resembles O. awanuiensis in having fine triplicate ribs, but these branch lower down, almost directly from sharp, umbilical tubercles. A third, undescribed, European form (e.g., author’s collection No. 22943) has ribbing that is very close to that of the New Zealand species, but its hook is compressed with flat sides. Further material may show that these two forms belong to the same species.


AGE: Undoubtedly Upper Turonian, close in date to the English “Chalk Rock”, the horizon of Subprionocyclus neptuni.

Family DESMOCERATIDAE
Subfamily PUSOSINAE

Pusosia sp. (Plate 55)


The relatively well preserved inner whorls of a very large specimen (CE 977) has a diameter comparable to that of many figured species of Pusosia. In whorl section, number of constrictions and smoothness of the shell this specimen compares fairly well with P. insculpta Kossmat, but its constrictions are too sinuous for reference to that species. It appears, however, to belong to the widespread group of typical Pusosia of Upper Albian to Cenomanian age.


ASSOCIATED FOSSILS: This locality is 5 chains upstream from GS 6088, which contains Inoceramus sp. I, and 20 chains downstream from GS 6089, with I. sp. I.

AGE: Probably Cenomanian.
Pachydesmoceras sp.
Fragments of a very large ammonite (CE 1076), still septate at a diameter of over 18 inches, exhibit puzosoid sutures, with strongly retracted suspensory lobe, inflated whorl section and arcuate ribs which coarsen with growth. This combination of characters suggests reference to Pachydesmoceras, a genus that includes species generally of large size.


Age: The genus ranges from Upper Albian to at least Upper Turonian in Europe, Africa, India, and Japan.

Kitchinates sp.
Some fragmentary, crushed ammonites (CE 985, 986, 987) have regular, rather feeble ribs and constrications curved forward on the outer part of the side and there truncating several ribs. They are too poorly preserved for definite determination, but they are probably Kitchinates, similar to K. brevicostatus (Marshall) (1926, p. 183, Pl. 24, Fig. 3; Pl. 43, Fig. 2).

Locality and Horizon: Mangatutu beds (Whangai facies), creek past woolshed, Mangatutu River, Arowhena S.D.

Age: Probably the same as that of the Kaipara fauna in which K. brevicostatus occurs, namely Campanian.

Family KOSSMATICERATIDAE
Genus WELLMANITES nov.

Type Species: W. zelandicus sp. nov. (Plate 54, Figs. 3, 4, 5.)
Small, evolute with rather depressed whorl section, the sides of which are flattened and the venter broadly rounded. Frequent deep constrications are radial at the umbilical seam but curve rather sharply forward on the sides and are projected on the venter; they have a thin, high collar in front on the test but not on the internal cast. From a diameter of 5 mm or less there are one to three tubercles between the constrications, rather high up the sides and coinciding with the first lateral lobe of the suture. On the test these tubercles are long sharp spines. The internal casts show feeble, sinuous ventrolateral ribs stretching a little way above and below the tubercles. Otherwise they are smooth. The suture has a long, narrow, trifid first lateral lobe, extending a little further back than the external lobe.

While the material is too poor for a complete description of the genus, it is sufficient to indicate affinities and differences. Wellmanites closely resembles Eognarites Wright and Matsumoto (1954, p. 125); the holotype comparing well with the figured specimen of E. unicus (Yabe) (Wright and Matsumoto, 1954, Pl. 8, Figs. 4a, b). However, the position of the tubercles and the flat sides together with the feebleness of the ribs suffice to distinguish Wellmanites. Yokoyamaoceras Wright and Matsumoto and Holcodiscoides Spath, which both have ventrolateral tubercles, are higher whorled, compressed and more involute, with much more distinct ribbing Eomadrasites Matsumoto is more involute and has irregular umbilical, ventrolateral, and siphonal tubercles.

Wellmanites zelandicus sp. nov.
Types: Holotype CE 1065; paratypes CE 1066, 1067, 1069, 1070, 1071, 1074.
Description: As for genus.

Locality and Horizon: GS 6090 Gentle Annie Stream, Upper Clarence Series. The associated ammonite Phyllopachyoceras sp. ranges from Neocomian to Maestrichtian and is of little help in dating. The only other paleontological evidence for date lies in the presumed relationships of Wellmanites with other Kossmaticeratidae.

Of previously described forms, Wellmanites is most clearly related to Eognarites unicus (Yabe) of the Upper Albian and Cenomanian of Japan. Holcodiscoides is also a Cenomanian genus.

Age: It is probable that Wellmanites is Cenomanian.
Grossouwrites sp.

A fragmentary specimen (CE 1077) of a large Kossmaticeratid shows about a quarter of a whorl at a diameter of about 7 inches and a crushed fragment of outer whorl of an original diameter of perhaps 18 inches. In whorl section, steep umbilical wall, and pinched umbilical tubercles giving rise to bundles of fine, narrow, straight ribs the specimen resembles Grossouwrites gemmatus (Huppré). The ribs are somewhat finer and closer than in Spath's figures of G. gemmatus (1953, Pl. 5, Fig. 1a) and thus resemble those of Grossouwrites denticulatus (Marshall) from Kaipara (1927, Pl. 36). That form, however, has crenulated ribs and therefore, as Spath (1953, p. 29) points out, would appear to be a Gunnarites.

Locality and Horizon: Boulder from Isolated Hill Creek, Clarence district. J. A. Thomson collector.

Age: Campanian.

References


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