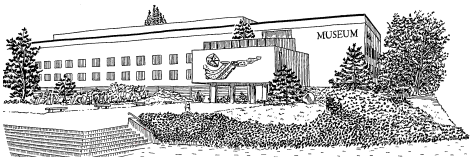
REVUE DE PALÉOBIOLOGIE

ISSN 1661-5468

VOL. SPÉC - N° 11, 2012



Muséum d'Histoire Naturelle • Ville de Genève • Suisse

Revue de Paléobiologie, *Genève* (2012) Vol. spéc. 11: 269-277 ISSN 0253-6730

The Cretaceous ammonite *Hemiptychoceras* SPATH in Antarctica

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Abstract
The occurrence of the heteromorph ammonite genus *Hemiptychoceras* SPATH is reported for the first time from Antarctica. Previously described from the Upper Albian-Lower Cenomanian of Europe, India, Madagascar, Zululand (South Africa) and Blake Plateau (northern Florida, in the western Atlantic), the new material is identified with the species *Hemiptychoceras tropicum* (KOSSMAT), hitherto known only from India. It provides an important new biostratigraphical datum. *Hemiptychoceras tropicum* has been collected from a single level at each of two localities where the Whisky Bay Formation (Gustav Group) crops out. It is associated with *Mariella* sp*., Anagaudryceras sacya* (FORBES) and the bivalve *Actinoceramus* cf. *concentricus* (PARKINSON). On the basis of this assemblage and the underlying and overlying mollusc faunas an early Cenomanian age is suggested.

Keywords
Ammonoidea, Hamitidae, Hemiptychoceras, Cenomanian, Antarctica.

INTRODUCTION

The genus *Hemiptychoceras* SPATH, 1925 was first established from material of the Upper Albian of France (PICTET, 1847, p. 395). Later, it was recorded in many regions of Europe (QUENSTEDT, 1849, p. 293; 1867, p. 455; POPOVICI-HATZEG, 1899, p. 10; FABRE, 1940, p. 240; WIEDMANN & DIENI, 1968, p. 61; SCHOLZ, 1978, p. 42-43; 1979, p. 20; MARCINOWSKI, 1980, p. 251; BRAGA *et al.*, 1982, p. 706; SOUQUET *et al.*, 1985, p. 232; IMMEL, 1987, p. 127; MARCINOWSKI & WIEDMANN, 1990, p. 40; KENNEDY, 1994, p. 231; GALE *et al.*, 1996, p. 569; DELAMETTE *et al.*, 1997; LOPEZ-HORGUE *et al.*, 2009, p. 392), India (STOLICZKA, 1865, p. 195; KOSSMAT, 1895, p. 150), Madagascar (BOULE *et al*., 1907, p. 36; COLLIGNON, 1929, p. 56; 1964, p. 9), Zululand (South Africa, KLINGER, 1976, p. 61) and Blake Plateau (northern Florida, in the western Atlantic, LEHMANN, 2000, p. 56) where species of this genus were recorded as rare components of Upper Albian-Lower Cenomanian ammonite assemblages. The fauna of the Kotick Point and Whisky Bay Formations was originally described by CRAME (1985), OLIVERO & PALAMARCZUK (1987), MEDINA (1999, 2007), and RICCARDI & MEDINA (2008) but the genus *Hemiptychoceras* had not been found, until now.

FOSSIL LOCALITIES, STRATIGRAPHY AND MACROFAUNA

The *Hemiptychoceras tropicum* specimens described in this paper were found *in situ* in two different localities (Fig. 1) where the Whisky Bay Formation crops out. The Whisky Bay Formation forms part of the Cretaceous Gustav Group (INESON *et al.*, 1986), a diverse marine siliciclastic unit located on west James Ross Island, north-eastern Antarctic Peninsula (see Fig. 1). The group includes, from base to top, the following stratigraphic units: Lagrelius Point Formation, Kotick Point Formation, an unnamed unit, Whisky Bay Formation and Hidden Lake Formation (INESON *et al.*, 1986; MEDINA *et al*., 1992). The Gustav Group is about 5 km thick and its deposits are exposed in a belt about 50 km long, extending along the western edge of the James Ross coastline. The group is characterised by thick sequences of conglomerates, breccias, sandstones and mudstones, that show marked lateral and vertical facies variations. Detailed stratigraphy of the measured sections and palaeontological studies indicate that the age of this group ranges from Barremian?-Aptian to Coniacian-Santonian (INESON *et al*., 1986; OLIVERO & PALAMARCZUK, 1987; MEDINA *et al*., 1992; MEDINA & BUATOIS, 1992; MEDINA, 1999, 2007; MEDINA & RICCARDI, 2007; RICCARDI & MEDINA, 2008).

Locality 1: ***Lewis Hill*** (63° 51' 17.63'' S – 58° 02' 51.64'' W) (Figs. 1 and 2 A)

The sequence exposed at Lewis Hill is 518 m thick and comprises two formations: the older unit is the Kotick Point Formation, which is overlain by the Whisky Bay Formation. In this area, the upper part of the Kotick Point Formation is at least 130 m thick. Its uppermost part is a prominent, 0.75 meter-thick bed dominated by yellowish brown medium-grained sandstone. This sandstone has yielded a rich fauna of inoceramid bivalves, characterised by "*Inoceramus*" cf. *hakarius* WELLMAN. Above this

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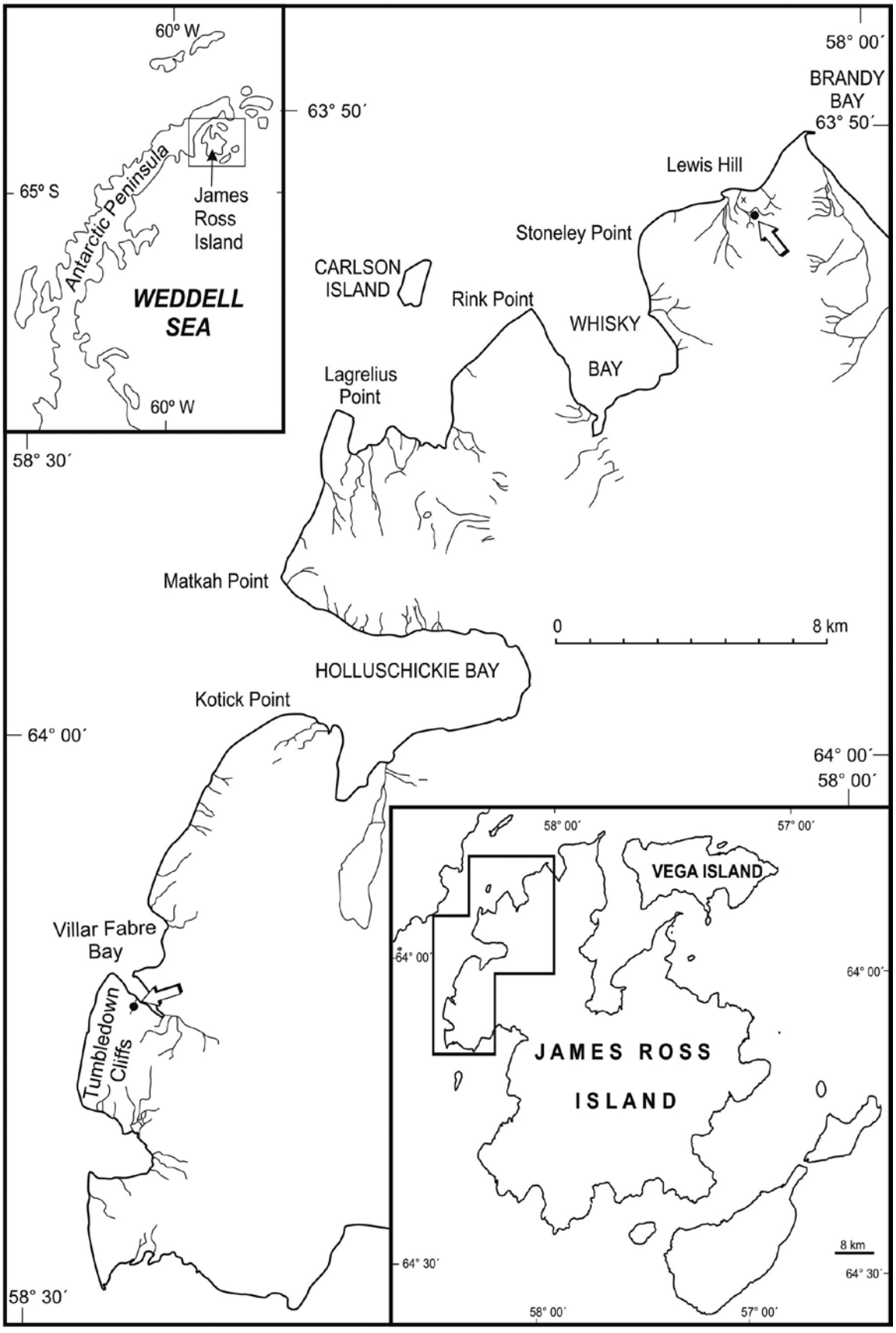

Fig. 1: Map of James Ross Island showing two localities with *Hemiptychoceras tropicum* (solid circles); Lewis Hill located to the north and Tumbledown Cliffs-Villar Fabre Bay located to the south.

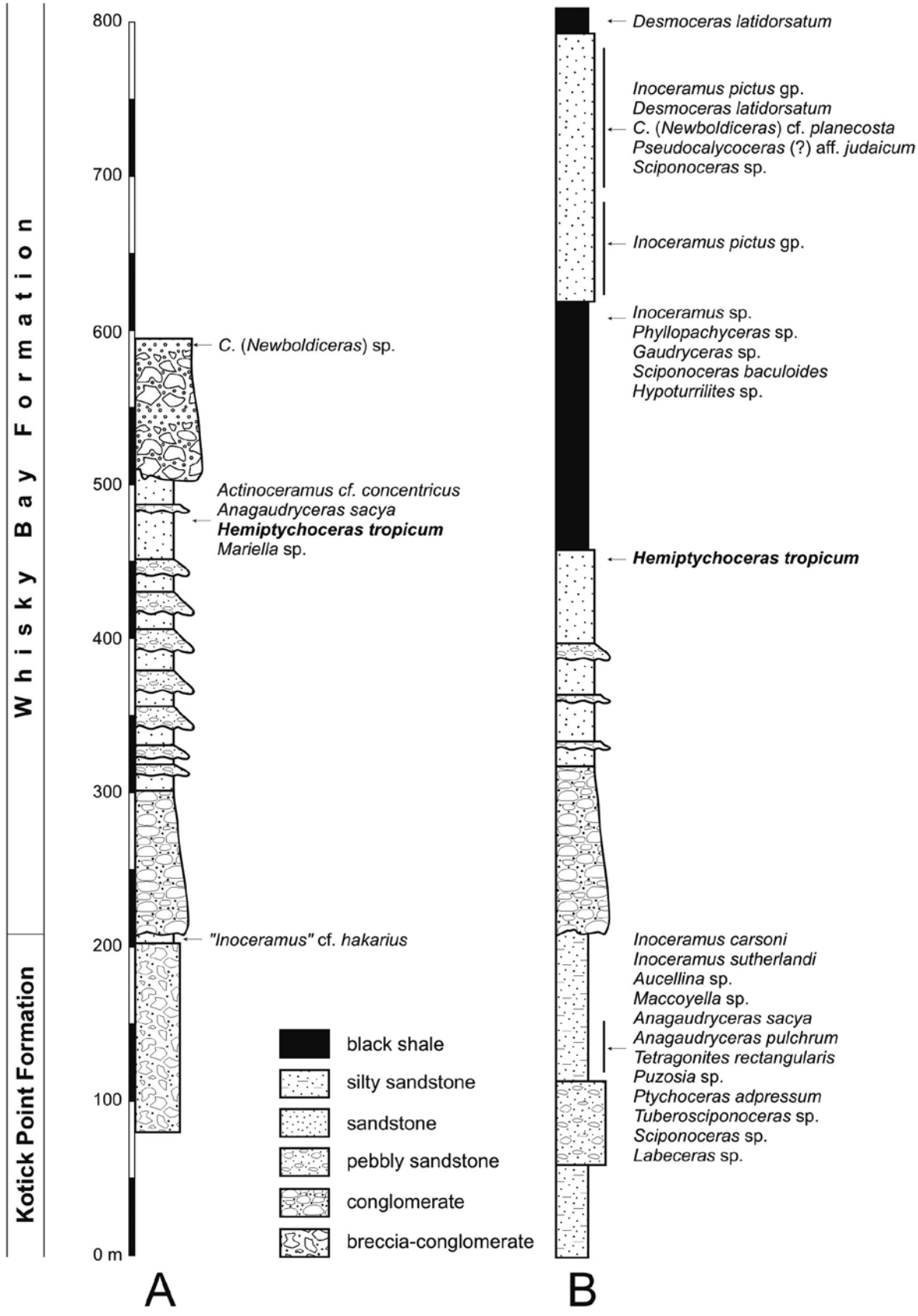

Fig. 2: Simplified columnar sections in the upper part of the Kotick Point Formation and lower part of the Whisky Bay Formation at Lewis Hill (A) and Tumbledown Cliffs-Villar Fabre Bay area (B) showing the main rock units and faunal succession identified in the text.

sandstone are 295 m of conglomerates, pebbly medium-grained sandstone, medium- and fine- to very fine-grained sandstones and mudstones of the Whisky Bay Formation. Approximately 260-265 m above the base of the Whisky Bay Formation, a 1.2 m-thick sandstone, has yielded an ammonite fauna including *Anagaudryceras sacya* (FORBES), *Hemiptychoceras tropicum* (KOSSMAT), *Mariella* sp. and the bivalve *Actinoceramus* cf. *concentricus* (PARKINSON). The succeeding 128 m are characterised by breccias, conglomerates and sandstones with *Calycoceras* (*Newboldiceras*) sp. at c.110 m above the sandstone bed.

Locality 2: ***Tumbledown Cliffs-Villar Fabre Bay*** (64° 03' 57.56'' S – 58° 25' 33.10'' W) (Figs. 1 and 2 B)

The succession exposed at the northern end of Tumbledown Cliffs is 210 m thick and belongs to the Kotick Point Formation. The lowest 60 m of the section are characterised by medium- to fine- grained silty sandstones with intercalated coarse-grained conglomerates. Conglomerates and breccia-conglomerates predominate for approximately 55 m above the basal sandstones.

Succeeding levels (115-150 m) are dominated by interbedded fine- to medium-grained sandstones and fine-grained conglomerates. In their upper levels, they contain a distinctive fauna of bivalves and ammonoids. *Inoceramus carsoni* M'COY, *Inoceramus sutherlandi* M'COY, *Aucellina* sp. and *Maccoyella* sp. are the dominant bivalves. These levels have also yielded *Anagaudryceras sacya*, *Anagaudryceras pulchrum* (CRICK), *Tetragonites rectangularis* WIEDMANN, *Puzosia* sp., *Ptychoceras adpressum* (J. SOWERBY), *Tuberosciponoceras* sp., *Sciponoceras* sp. and *Labeceras* sp.

The uppermost 60 m of the Kotick Point Formation are composed of poorly exposed sandstones.

The overlying 600 m thick Whisky Bay Formation crops out along the southern coast of the Villar Fabre Bay. The lower interval of the unit is at least 190 m thick, and comprises a coarse conglomerate-dominated interval with interbedded sandstones and siltstones.

The following 60 m are composed of medium grained sandstones interbedded with pebbly sandstones. *Hemiptychoceras tropicum* was found 50 m above the base of the last sandstone interval.

The overlying 160 m are dominated mainly by black shales, although interbedded fine sandstones occur. At the 150 m level on this interval *Inoceramus* sp., *Phyllopachyceras* sp., *Gaudryceras* sp., *Sciponoceras baculoides* (MANTELL) and *Hypoturrilites* sp. were collected.

Fine- to medium-grained sandstones occur on top of the muddy interval. The first specimens of *Inoceramus pictus* (WOODS) group were obtained from the 410-480 m interval of the Whisky Bay Formation. Members of the *Inoceramus pictus* group are more abundant in the overlying 105 m which is dominated by fine- to medium-grained conglomerates and sandstones. Associated with these inoceramids are *Desmoceras latidorsatum* (MICHELIN), *Calycoceras* (*Newboldiceras*) cf. *planecosta* (KOSSMAT), *Pseudocalycoceras* (?) aff. *judaicum* (TAUBENHAUS) and *Sciponoceras* sp.

The 15 m thick uppermost interval is dominated by black shales containing *Desmoceras latidorsatum.*

AGE

The type specimen of *H. tropicum*, from the Utatur Group of southern India, is Lower Cenomanian in age (STOLICZKA, 1865, p. 195; KOSSMAT, 1895, p. 150).

Hemiptychoceras tropicum in the Lewis Hill and Tumbledown Cliffs-Villar Fabre Bay areas, is situated between two faunal successions that are comparatively well constrained. In addition, the bed with *H. tropicum* also contains two other ammonite species (*Anagaudryceras sacya* and *Mariella* sp.) accompanied by the bivalve *Actinoceramus* cf. *concentricus.* This interval was considered by CRAME (1985) of Middle-Late Albian age based on the presence of *Actinoceramus concentricus*.

The occurrence of *Inoceramus carsoni* and *Inoceramus sutherlandi* indicates an Upper Albian age for the Kotick Point Formation in the Tumbledown Cliffs-Villar Fabre Bay area (CRAME, 1985; MEDINA, 2007). This age would seem to be confirmed by its association with ammonites such as *Anagaudryceras pulchrum, Ptychoceras adpressum, Tuberosciponoceras* sp. and *Labeceras* sp. and is compatible with the known age-ranges of other associated species (i.e. *Anagaudryceras sacya*, *Tetragonites rectangularis, Puzosia* sp. and *Sciponoceras* sp.).

The highest inoceramid record, in the Kotick Point Formation at Lewis Hill, has strong affinities with "*Inoceramus*" *hakarius* WELLMAN (assigned to "*Inoceramus*" *tawhanus* WELLMAN by CRAMPTON *et al.*, 2004). The lowest occurrence of this species defines the base of the Ngaterian Stage in New Zealand (= upper Albian to middle Cenomanian; CRAMPTON *et al.*, 2004).

Beds containing the *H. tropicum* fauna are about 300 m stratigraphically above the levels with *Inoceramus carsoni, Inoceramus sutherlandi* and "*Inoceramus*" *hakarius.*

Two distinct ammonite-dominated assemblages cover the *H. tropicum* faunae in the Whisky Bay Formation at Tumbledown Cliffs–Villar Fabre area. The stratigraphically lower assemblage contains *Inoceramus* sp., *Sciponoceras baculoides*, *Gaudryceras* sp., *Hypoturrilites* sp. and *Phyllopachyceras* sp., and the upper assemblage contains *Inoceramus pictus* sp., *Sciponoceras* sp., *Desmoceras latidorsatum* and *Calycoceras* (*Newboldiceras*) cf. *planecosta*, *Pseudocalycoceras* (?) aff. *judaicum* sp. These faunas are compatible with a Middle-Late Cenomanian age.

On the basis of the relative stratigraphic position of the bed with *H. tropicum*, closer to the Middle-Late

Cenomanian associations, a Lower Cenomanian age seems to be more probable for this ammonite on James Ross Island.

SYSTEMATICS

Repository: MACN-Pi- ex Cirgeo PI, Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Avenida Angel Gallardo 470, 1405, Buenos Aires.

Order Ammonitida ZITTEL, 1884
Suborder Ancyloceratina WIEDMANN, 1966
Superfamily Turrilitaceae GILL, 1871
Family Hamitidae GILL, 1871
Genus *Hemiptychoceras* SPATH, 1925 = *Protobaculites* COLLIGNON, 1964

Type species: *Ptychoceras gaultinum* PICTET (1847, p. 395, pl. 15, fig. 5), from the Upper Albian of France, by original designation (SPATH, 1925, p. 189).

Diagnosis: Dimorphic genus, shell consists of two straight shafts in tight contact, connected by a narrowly rounded elbow and ornamented by annular ribs. Conspicuous and periodic constrictions are present in the phragmocone (smaller shaft). Suture line quadrilobate, with bifid lateral and bifid or trifid umbilical lobes, latter is smaller; internal lobe trifid and large.

Discussion: *Hemiptychoceras* was introduced by SPATH (1925, p. 189) with *Ptychoceras gaultinum* PICTET (1847, p. 395, pl. 15, figs. 5-6) as type species, the only species referred to the genus. SPATH did not give a definition of *Hemiptychoceras*, but merely listed it as *Hemiptychoceras* gen. nov. created for *Ptychoceras gaultinum* PICTET and placed it in the family Hamitidae HYATT.

Hemiptychoceras was first diagnosed by WRIGHT (1957, p. L216; fig. 243.5; WRIGHT *et al*., 1996, p. 241, fig. 188.7), who described it as follows "with 3 shafts of typical *Hamites* closely pressed together; ribs as in *Hamites* except on 2nd bend where they tend to be scale-like, as in some *Euptychoceras*".

MACSOTAY (1972, p. 1707), KLINGER (1976, p. 61) and SCHOLZ (1979, p. 20) agreed with WRIGHT in accepting three straight shafts, but later were questioned by MARCINOWSKI & WIEDMANN (1990, p. 40). As yet there is no published evidence that indicates the presence of the possible third shaft.

COLLIGNON (1964, p. 9) introduced the name *Protobaculites*, as a subgenus of *Baculites* (?), with *Baculites* (?) (*Protobaculites*) *ambiguus* COLLIGNON (1964, p. 9; pl. 319, fig. 1375, lower Cenomanian) as type species. KENNEDY & WRIGHT (1994, p. 1414) and KLINGER & KENNEDY (2001, p. 229) regarded *Protobaculites* as a synonym of the *Hemiptychoceras* on the basis of its distinctive ribs and constrictions.

In a recent paper MONKS (2002 p. 697) interpreted the genus *Hemiptychoceras* in a broad sense and regarded *Metaptychoceras* SPATH, 1926, as synonym of *Hemiptychoceras.* The differences between the two genera are slight as already observed by WRIGHT (1979, p. 284). *Hemiptychoceras* may be distinguished from *Metaptychoceras* by its conspicuous constrictions. According to this feature and their different stratigraphical occurrences (*Hemiptychoceras* forms are known from Upper Albian-Lower Cenomanian and *Metaptychoceras* from Upper Cenomanian-Upper Turonian), we share the opinion that the two genera are distinct.

Dimorphism in the genus *Hemiptychoceras* has only been recently suggested by KENNEDY (*in* GALE *et al.*, 1996, p. 569). According to KENNEDY, dimorphism is manifested by the occurrence of the specimens of *H. subgaultinum*, from the Upper Albian or Early Cenomanian succession at SE-France, with differences in size, as well as density and rib style, in a well-defined interval. The significant size differences, in the material illustrated by PICTET (1847), also corroborate their dimorphism.

Hemiptychoceras tropicum (KOSSMAT, 1895)
Figs. 3 a-d

1865. *Ptychoceras gaultinum* (PICTET).- STOLICZKA, p. 195; pl. 90, fig. 10.
1895. *Hamites* (*Ptychoceras*) *tropicus* KOSSMAT, p. 150 (54).
non 1940. *Hemiptychoceras tropicum* KOSSMAT.- FABRE, p. 240; pl. 5, fig. 6.
1979. *Hemiptychoceras gaultinum tropicum* (KOSSMAT).- SCHOLZ, p. 21.
non 1994. *Hemiptychoceras tropicum* KOSSMAT, 1895.- KENNEDY, p. 231; pl. 12, figs. 9-12.

Type species: The holotype, by monotypy, is the original of STOLICZKA, 1865, p. 195, pl. 90, fig. 10.

Material: Five specimens, two from Villar Fabre Bay (MACN-Pi- ex Cirgeo PI 2547, a fragment of body chamber; MACN-Pi- ex Cirgeo PI 2546, a connecting elbow with parts of the phragmocone) and three external moulds from Lewis Hill (MACN-Pi- ex Cirgeo PI 2543-2544, two straight shafts in tight contact, MACN-Pi- ex Cirgeo PI 2545 a fragment of the larger shaft).

Description: The largest specimen, MACN-Pi- ex Cirgeo PI 2547 (Fig. 3d), is a fragment of a straight shaft (body chamber) about 66 mm long. Ornament consists of strong, rounded, straight and transverse ribs separated by interspaces wider than themselves. The rib index is 7. Specimen MACN-Pi- ex Cirgeo PI 2546 (Fig. 3c) consists of the connecting elbow, parts of the larger shaft and short straight smaller shaft. The body chamber is preceded by a conspicuous and broad constriction bounded by high adoral and adpical? ribs in the smaller shaft. Ornament on the smaller shaft consists of simple, straight, rounded and transverse ribs, separated by narrower interspaces. Here, the rib index is 10. The connecting elbow has about

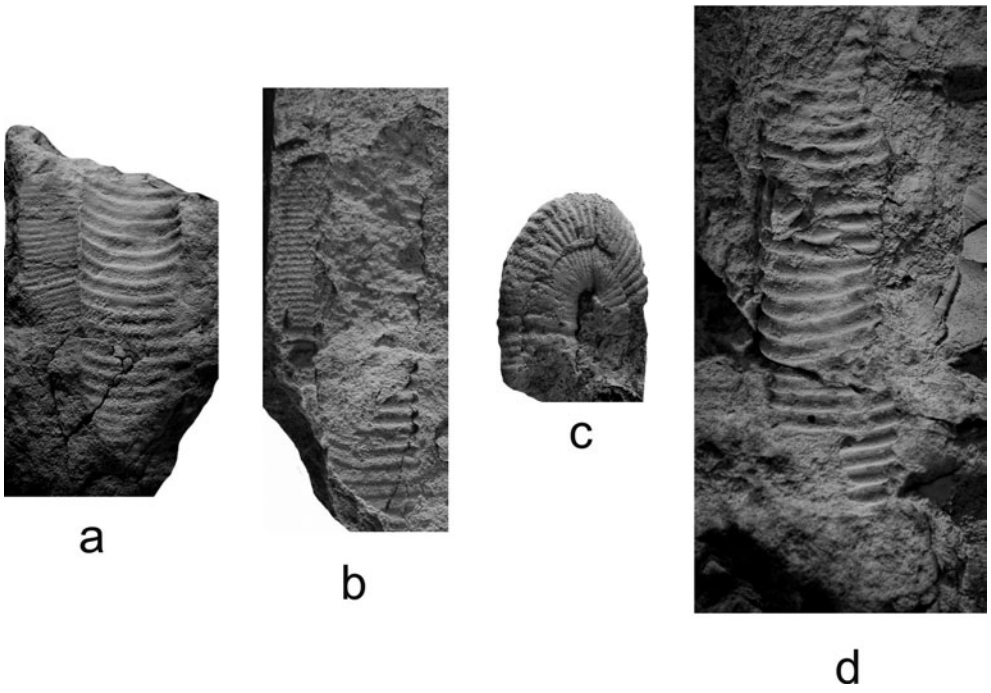

Fig. 3a-d: *Hemipthychoceras tropicum* (KOSSMAT, 1895). Whisky Bay Formation. Lower Cenomanian. Lateral views, x 1. a, MACN-PI- EX CIRGEO PI 2543; b, MACN-PI- EX CIRGEO PI 2544: locality Lewis Hill; c, MACN-PI- EX CIRGEO PI 2546, d, MACN-PI- EX CIRGEO PI 2547: locality Villar Fabre Bay.

28 radials ribs, on the middle of the elbow, which are straight, rounded and strong; on the remainder of the elbow the ribs are similar to those on the shaft but on the venter they are more spaced.

The specimens MACN-Pi- ex Cirgeo PI 2543-2544 (Figs. 3a-b) have two shafts in tight contact and specimen MACN-Pi- ex Cirgeo PI 2545 is a fragment of the larger shaft. Ornament is poorly preserved, but very delicate straight ribs are visible. The rib index is 7-8 in the larger shaft and 9-10 in the smaller shaft.

Discussion: *Hemiptychoceras tropicum* is easily identified by its ribbing. The rib index is 7-8 in the larger shaft; they are rounded-topped separated by interspaces wider than them and 9-10 in the smaller shaft. On the elbow the ribs are straight, rounded and strong. The specimen described and figured from France as *H. tropicum* by FABRE (1940, p. 240; pl. 5, fig. 6) and KENNEDY (1994, p. 231, pl. 12, figs. 9-12) differs in that the ribbing of the elbow is denser and finer than in the Indian and Antarctic material. *Hemiptychoceras gaultinum* (PICTET, 1847, pl. 15, figs. 5a, 6a-c; re-illustrated by WRIGHT, 1957, fig. 243.5 and in WRIGHT *et al*., 1996, fig. 188.7; see also QUENSTEDT, 1849, p. 293, pl. 21, fig. 22; 1867, p. 455, pl. 39, fig. 2; WIEDMANN & DIENI, 1968, p. 61; pl. 5, figs. 6, 8 and pl. 6, fig. 12; SCHOLZ, 1978, pl. 3, fig. 12; SOUQUET *et al.*, 1985, p. 232, pl. 7, figs. 1-2; MARCINOWSKI & WIEDMANN, 1990, fig. 22; DELAMETTE *et al.*, 1997, pl. 20, fig. 7, specimen ilustrated by PICTET, 1847 in pl. 15, fig. 6; LOPEZ-HORGUE *et al.*, 2009, figs. 8f-g) differs from the present material in having sharp ribs and wide interspaces with a rib index of 4 on the larger shaft and 8 on the smaller shaft. Ribs are fine and very closely spaced on the elbow.

The material described by COLLIGNON (1929, p. 56; pl. 44, figs. 6, 7) as *Hamites* (*Ptychoceras*) cf. *gaultinum* PICTET & ROUX and KLINGER (1976, p. 61, pl. 23, fig. 6) as *H.* sp. aff. *H. gaultinum* (PICTET), consists of a straight shaft smaller than the lectotype and therefore not directly comparable. KLINGER (1976, p. 62) reported that COLLIGNON's specimen "has the same rib-density as the Zululand material but differs in having more frequent constrictions and less ribs between the constrictions".

A specimen from Upper Albian of Venezuela described by MACSOTAY (1972, p. 1708; pl. 3, fig. 1) under *H. gaultinum* (PICTET), is tentative because the figured specimen is poor. The specimen is a laterally compressed internal cast with a length of approximately 120 mm. The two straight shafts are in tight contact, and have a different ornamentation to that of the holotype. The ribs, in both shafts, are narrow, asymmetric and separated by wide spaces.

Hemiptychoceras subgaultinum BREISTROFFER (1940, p. 159; see also BOULE *et al.*, 1907, p. 56, pl. 13, fig. 1; SCHOLZ, 1978, pl. 3, fig. 7, 1979, p. 20, pl. 1, fig. 18; 1978, pl. 3, fig. 7; MARCINOWSKI, 1980, p. 251, pl. 3, figs. 3-4; BRAGA *et al.*, 1982, p. 706, pl. 1, fig. 3, illustrated as *H. gaultinum*; MARCINOWSKI & WIEDMANN, 1990, p. 41, pl. 3, fig. 6; KENNEDY & WRIGHT, 1994, p. 1414;

fig. 1.1; GALE *et al.*, 1996, p. 569, figs. 21 a-e, g-i, k, 22 b, e-g, 23 b; LEHMANN, 2000, p. 56, pl. 1, figs. 10, 12, 15-16; REBOULET *et al.*, 2005, fig. 3H; JOLY & DELAMETTE, 2008, fig. 8H) has strong, flat-topped ribs with faint interspaces and the rib index is 6-7 on the larger shaft and 14-16 on the smaller one. The ribbing of the elbow is denser and fine.

In *H. subgaultinum,* as illustrated by MARCINOWSKI & WIEDMANN (1990, p. 41, pl. 3, fig. 6, from the condensed Albian of Poland), the body chamber included only the larger limb. These features indicate that this material may belong to another genus.

Other three species were included in *Hemiptychoceras,* based on fragments of the juvenile phragmocone, but they are all quite different from *H. tropicum*. They are:

Hamites (*Plesiohamites*) *sulcatostriatus* WIEDMANN (1962, p. 182, pl. 10, figs. 4-5, pl. 13, figs. 5-6, text-figs. 42-43, Upper Albian of Navarra, Spain), which was transferred to *Hemiptychoceras* by WIEDMANN & DIENI (1968, p. 61) is a very short straight phragmocone. The shell tapering is fairly rapid and the ribbing is weak. The ornamentation and degree of taper are closer to *Baculites* sp.? described by COLLIGNON (1929, p. 71, pl. 7, figs. 17, 19 = *Hemiptychoceras* sp., Cenomanian of Madagascar; *non* figs. 16, 18).

Hamites (*Metahamites*) *dalpiazi* WIEDMANN & DIENI (1968, p. 60, pl. 6, fig. 6, text-figs. 32-33, Upper Albian of Sardinia), transferred to *Hemiptychoceras* by MARCINOWSKI & WIEDMANN (1990, p. 40), is recognised by its sculpture and suture. The ribbing is irregular with alternate weak and strong ribs. The suture is characterised by a bifid umbilical lobe (U) slightly deeper than the ventral lobe (E). This species cannot be attributed to *Hemiptychoceras* with certainty because of the characters of the ribbing and suture.

Hemiptychoceras tatricum MARCINOWSKI & WIEDMANN (1990, p. 42, pl. 3, fig. 4, text-fig. 23, condensed Albian of southern Poland) has constrictions separated by three ribs on the phragmocone and a suture similar to that of *H. gaultinum*.

The specimen from the Lower Cenomanian of Germany figured by LEHMANN (1998, p. 30) as cf. *Hemiptychoceras* (illustrated as *Stomohamites* in LEHMANN, 1993, p. 374) resembles *Hemiptychoceras subgaultinum* regarding the ornamentation of the shafts, the ornamentation of the connected elbow is closer to the one of *H. tropicum*, but the shafts are not in contact.

MONKS (2002, p. 697) included the following species in *Hemiptychoceras*: *Hamites funatus* BROGNIART (in CUVIER & BRONGNIART, 1822, p. 395, pl. 7, fig. 7 and SPATH, 1941, p. 650, pl. 72, figs. 1-3, text-fig. 237) and *Hamites* (*Stomohamites*) *ptychoceratoides* SPATH (1941, p. 651, text-fig. 238), from the Upper Albian of England. However, both species are excluded from *Hemiptychoceras* by their ornamentation (absence of constrictions) and characters of the suture (internal lobe I is small and the umbilical lobe U is as deep as the lateral lobe L).

Hemiptychoceras reesidei COBBAN & SCOTT (1972, p. 45, pl. 17, figs. 7-8) from the Upper Cenomanian of Pueblo-Colorado Springs area, was transferred to *Metaptychoceras* Spath "because of similarities in size and simple suture and in lack constrictions" by COBBAN (1984, p. 18).

Hemiptychoceras sp. KAUFFMAN *et al.* (1977, p. 99, fig. 7, pl. 9, fig. 5), lacks of constrictions and it probably also belongs to the genus *Metaptychoceras*.

ACKNOWLEDGEMENTS

We thank E.B. OLIVERO for his valuable comments and an anonymous reviewer for the linguistic revision and valuable suggestions to the manuscript. We wish to acknowledge the Instituto Antártico Argentino for the logistic support in the field.

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Accepted October 12th, 2011.