

CRETACEOUS FAUNAS FROM ZULULAND
AND NATAL, SOUTH AFRICA.
HATCHERICERAS STANTON, 1901
(CEPHALOPODA, AMMONOIDEA),
FROM THE BARREMIAN OF ZULULAND

By

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(With 6 figures)

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ABSTRACT

Hatchericeras patagonense Stanton, 1901, previously known only from the Austral Basin of Argentina, is described from the Barremian of northern Zululand. All but one described species of *Hatchericeras*, and of *Pseudohatchericeras* Leanza, 1970, are placed in synonymy.

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INTRODUCTION

The genus *Hatchericeras* was introduced by Stanton (1901) for a series of ammonites collected by J. B. Hatcher during the Princeton University expeditions to Patagonia (1896–1899) (see Hatcher 1900) near the mouth of the canyon of the Río Tarde, from what were termed the Belgrano beds, and from essentially the same horizon some 16,5 km (10 miles) east of Lake Pueyrredón, in Patagonia. Stanton dated the fauna as ‘not later than the Gault’ (p. 10), that is to say Albian or older, describing *Hatchericeras patagonense*, the type species, based on three specimens (1901: 38, pl. 8 (figs 1–2), pl. 9 (fig. 1); *H. argentinense* (1901: 39, pl. 9 (figs 2–5)), based on at least four specimens; *H.?* *tardense*

(1901: 41, pl. 10 (figs 3–5)), based on one specimen; and *H.?* *pueyrrydonense* (1901: 42, pl. 10 (figs 1–2)), based again on one specimen only. Stanton was uncertain of the affinities of his new genus, but concluded it was closest to the Hoplitidae (1901: 38). Favre (1908: 631, pl. 35 (figs 3–4), text-fig. 5) introduced a further species, *H. stantoniense*, from the Cerro Belgrano, Patagonia, based on a solitary specimen, without commenting on its taxonomic position. Spath (1923: 307) thought *Hatchericeras* might be matched with his new genus *Proleopoldia*, subsequently referred to the subfamily Garniericeratinae of the Craspeditidae (Perisphinctaceae) with a query by Wright (1957: L344). Roman (1938: 343) referred *Hatchericeras* to the Hauterivian and placed it in the subfamily Neocomitinae of the Perisphinctaceae, a view followed by Wright (1957: L360) and Woods (1962: 240). Leanza (1970: 233) believed *Hatchericeras* was of Albian date, and placed it in the subfamily Gastroplitinae (Hoplitaceae), describing specimens of *H. patagonense*, *H. santacrucense* Leanza, 1970 (p. 237, fig. 32 (1, 2)), *H. semilaeve* Leanza, 1970 (p. 237, figs 33 (1–4), 34 (1, 2), 35 (1, 3), 36 (1), 37 (1, 2)) and *H. hatcheri* Leanza, 1970 (p. 242, fig. 38 (1–3)), and introducing the genus *Pseudohatchericeras* with *H. argentinense* Stanton, 1901, as type species. All appear to come from the same general level in the Río Belgrano Formation, albeit from different localities, according to Leanza.

As Riccardi & Aguirre Urreta (1989: 447) noted, the seeming endemism of *Hatchericeras* and other elements of the Patagonian fauna led to the view that rocks of Valanginian–Barremian age were absent (e.g. Leanza 1963) in the Austral Basin. Subsequently, Riccardi (1984a, 1984b, 1988) and Riccardi & Aguirre Urreta (1989) recognized a Hauterivian to Barremian zonal sequence of:

Barremian	{	<i>Colchidites</i> Zone
	{	<i>Hatchericeras patagonense</i> Zone
Hauterivian	{	<i>Favrella wilckensi</i> Zone
	{	<i>Favrella americana</i> Zone

Hatchericeras species are listed only from the *H. patagonense* Zone, which also yields *Cryptocrioceras yrigoyeni* (Leanza, 1970), *Hemihoplites varicostatus* Riccardi & Aguirre Urreta, 1989, and *Sanmartinoceras africanum insignicostatum* Riccardi *et al.*, 1987. The *Colchidites* Zone yields *Colchidites vulanensis* Egoian, 1965 *australis* Klinger, Kakabadze & Kennedy, 1984, *Heteroceras elegans* Rouchadze, 1933, and *S. africanum insignicostatum*.

All of these species occur in Zululand, where *Sanmartinoceras africanum* Kennedy & Klinger, 1979, is represented by the nominate subspecies rather than *S. africanum insignicostatum*; aconeceratids are described by Kennedy & Klinger (1979); heteroceratids by Klinger (1976), Klinger *et al.* (1984) and Aguirre Urreta & Klinger (1986); *Hatchericeras* herein; and the remaining heteromorphs in a forthcoming publication (Klinger & Kennedy in prep.). The *H. patagonense* Zone corresponds to division Barremian I of Kennedy &

Klinger (1975: 274), and the *Colchidites* Zone to division Barremian II of these authors.

The *Hatchericeras* described below are amongst the oldest ammonites known from Zululand, first appearing in bed 4 at locality 170 on Mlambo-
ngwenya Spruit (Kennedy & Klinger 1975, fig. 11; Aguirre Urreta & Klinger 1986, fig. 3).

LOCATION OF SPECIMENS

The following abbreviations are used to indicate the repositories of the material studied:

OUM Oxford University Museum, Oxford.

PU Princeton University Collections, Princeton.

SAM South African Museum, Cape Town.

DIMENSIONS OF SPECIMENS

All dimensions given below are in millimetres: D = diameter, Wb = whorl breadth, Wh = whorl height, U = umbilical diameter.

Figures in parentheses are dimensions as a percentage of the total diameter.

SUTURE TERMINOLOGY

The suture terminology of Wedekind (1916), as reviewed by Kullman & Wiedmann (1970) is followed here: E = external lobe, L = lateral lobe, U = umbilical lobe, I = internal lobe.

SYSTEMATIC PALAEOLOGY

Phylum MOLLUSCA

Class CEPHALOPODA

Order AMMONOIDEA Zittel, 1884

Suborder AMMONITINA Zittel, 1884

Superfamily PERISPHINCTACEAE Steinmann, 1890

Family **Neocomitidae** Salfeld, 1921

Subfamily Neocomitinae Salfeld, 1921

Genus *Hatchericeras* Stanton, 1901

[= *Pseudohatchericeras* Leanza, 1970]

Type species. *Hatchericeras patagonense* Stanton, 1901 (p. 38, pl. 8 (figs 1–2), pl. 9 (fig. 1), by original designation by Stanton (1901: 35).

Discussion

Pseudohatchericeras Leanza, 1970 (p. 244), with *Hatchericeras argentinense* Stanton, 1901 (p. 39, pl. 9 (figs 2–5) as type species, seems to be no more than a

flat-ribbed *Hatchericeras* (e.g. compare Riccardi 1988, pl. 10 (figs 1–2) and pl. 10 (figs 3–4)), and is regarded as a synonym. Recognition that *Hatchericeras* is Barremian indicates that it is unlikely to be a member of the Albian–Lower Cenomanian Gastroplitinae as proposed by Leanza (1970), whereas the strong similarities of ornament and suture line link it to the Neocomitinae, as proposed by Roman (1938) and Wright (1957). The resemblance of *Hatchericeras* and *Alopecoceras* Kennedy & Klinger, 1978 (type species *Alopecoceras ankeritterae* Kennedy & Klinger, 1978: 60, figs 1–4, 5A–B, 6, 7E–G), from the Middle Albian of Zululand, as suggested by Kennedy & Klinger (1978), is thus revealed as homeomorphous. The origin of *Alopecoceras* is possibly in the '*Cleonicer*'-like forms described from the Albian of Madagascar by Collignon (1963).

Occurrence

Barremian of the Austral Basin, southern Patagonia, and northern Zululand. Woods (1962) recorded *Hatchericeras lakefieldense* from the Laura Basin of Queensland, Australia, and regarded it as Lower Hauterivian, on the basis of the presumed Hauterivian age of the Patagonian examples of *Hatchericeras*.

Hatchericeras patagonense Stanton, 1901

Figs 1–6

- Hatchericeras patagonense* Stanton, 1901: 38, pl. 8 (figs 1–2), pl. 9 (fig. 1). Roman, 1938: 343, fig. 34, 323. Wright, 1957: L361, fig. 470 (1). Leanza, 1970: 234, fig. 30 (1–4), fig. 31a (1, 3), fig. 31b (2). Riccardi, 1988, pl. 9 (figs 7–8).
Hatchericeras argentinense Stanton, 1901: 39, pl. 9 (figs 2–5).
Hatchericeras? tardense Stanton, 1901: 41, pl. 10 (figs 3–5). Riccardi, 1988, pl. 10 (figs 6–7).
Hatchericeras? pueyrrydonense Stanton, 1901: 42, pl. 10 (figs 1–2). Riccardi, 1988, pl. 10 (figs 3–4).
Hatchericeras stantoniense Stant. n. sp. Favre, 1908: 631, pl. 35 (figs 3–4), text-fig. 5.
Hatchericeras cf. *pueyrrydonense* Stant. Favre, 1908: 632.
Hatchericeras santacruzense Leanza, 1970: 237, fig. 32 (1–2).
Hatchericeras semilaeve Leanza, 1970: 237, fig. 33 (1–4), fig. 34 (1–2), fig. 35 (1–3), fig. 36 (1), fig. 37 (1–2). Kennedy & Klinger, 1978, figs 6C, 7A–D.
Hatchericeras hatcheri Leanza, 1970: 242, fig. 38 (1–3).
Pseudohatchericeras argentinense (Stanton) Leanza, 1970: 244, fig. 39 (1–3). Riccardi, 1988, pl. 10 (figs 1–2).

Type

Holotype is PU 66, the original of Stanton (1901, pl. 8 (figs 1–2), pl. 9 (fig. 1)), refigured by Riccardi (1988, pl. 9 (figs 7–8)), from Lago Pueyrredón, Santa Cruz Province, Argentina.

Material

OUM KX 1804 and 1819, from bed 3 at locality 170 of Kennedy & Klinger (1975), and OUM KX 1820–1821, from a slightly higher horizon, Makatini Formation, Mlambongwenya Spruit, Zululand. Barremian I.

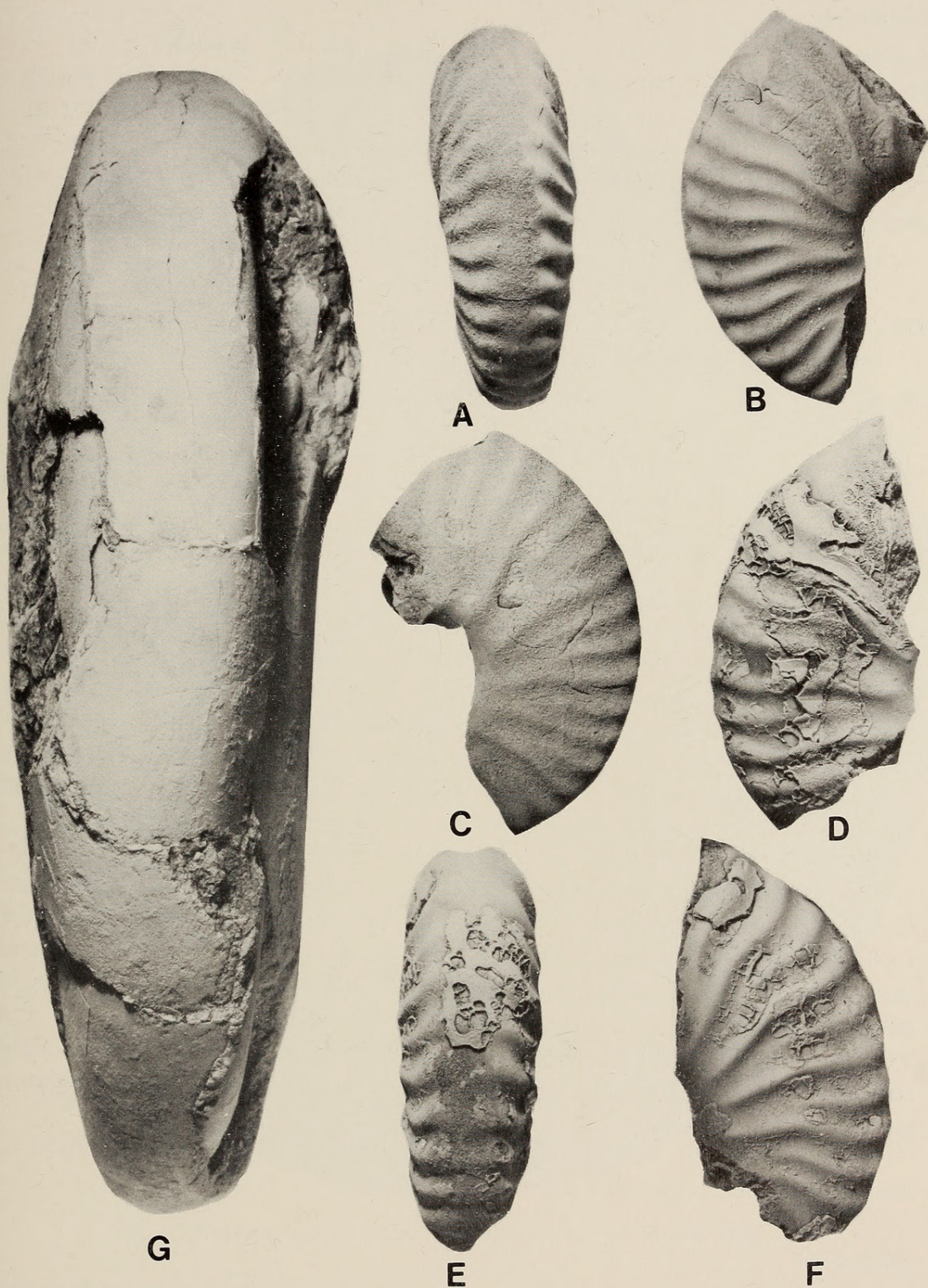


Fig. 1. *Hatchericeras patagonense* Stanton, 1901. A-C. OUM KX 1820.
D-F. OUM KX 1819. G. OUM KX 1804. A-F $\times 1$, G $\times 0,6$.

Dimensions

<i>Specimen</i>	<i>D</i>	<i>Wb</i>	<i>Wh</i>	<i>Wb/Wh</i>	<i>U</i>
Holotype 1 ¹ PU 66	250 (100)	72 (28,8)	148 (59,2)	0,49	53 (21,2)
Paratype 1 ¹	210 (100)	63 (30,0)	113 (53,8)	0,55	45 (21,4)
Paratype 2 ¹	300 (100)	94 (31,3)	175 (58,3)	0,54	62 (20,7)
OUM KX 1804	250 (100)	72 (28,8)	123 (49,2)	0,58	31 (12,4)
OUM KX 1819		51 (—)	86 (—)	0,59	

¹ —from Stanton (1901)

Description

OUM KX 1820 and 1821 (Fig. 1A–F) are fragments of small body chambers of specimens that were an estimated 50–60 mm in diameter. Coiling is involute, with a small, shallow umbilicus. The umbilical wall is flattened and outward-inclined, giving rise to a conical circumumbilical pit. The whorl sections are compressed, with broadly rounded inner flanks, flattened, convergent outer flanks and a somewhat flattened venter in intercostal section, with the greatest breadth just outside the umbilical shoulder. Strong, distant, narrow ribs are straight and prorsiradiate on the inner flank. They flex back and thicken across the mid-flank, where they are convex, flex forwards and are concave on the outer flank, and strengthen into blunt incipient ventrolateral bullae. The ribs weaken somewhat on the venter, where they are broad and transverse. Two ribs intercalate between the primaries, arising either low on the flank or at mid-flank, strengthening to match the primary ribs on outer flank and venter. The dorsum of OUM KX 1820 shows details of the ornament at an even smaller diameter; the ribs are more crowded than in the somewhat larger whorls.

OUM KX 1819 (Figs 3B, 4) is part of an adult phragmocone and the beginning of the body chamber, with a maximum preserved whorl height of 100 mm. Ornament is greatly reduced, with low, broad prorsiradiate ribs (Fig. 4) on the flank, narrowing somewhat towards the umbilicus. The venter is broad, flat and smooth (Fig. 3B). OUM KX 1804 (Figs 1G, 2) is a complete adult, 250 mm in diameter. Ornament on the body chamber is reduced to irregular low ribs and folds on the internal mould; where replaced shell survives, it is covered by delicate prorsiradiate growth lines and striae. The venter is flattened throughout, and broadens towards the adult aperture.

Suture (Fig. 6) with large, asymmetrically subtrifid E/L, broad trifid L, smaller, subtrifid L/U₂ and U₂.

Discussion

The largest South African specimen differs in no significant respect from the holotype of *H. patagonense*, illustrated photographically by Riccardi (1988, pl. 9 (figs 7–8)) or the Argentinian specimen shown in Figures 3A and 5, whereas the type series of *H. semilaeve* Leanza, 1970 (p. 237, fig. 33 (1–4), fig. 34 (1–2), fig. 35 (1–3), fig. 36 (1), fig. 37 (1–2)), link these feebly ornamented adults to



Fig. 2. *Hatchericeras patagonense* Stanton, 1901. OUM KX 1804. $\times 0,6$.



Fig. 3. *Hatchericeras patagonense* Stanton, 1901. A. SAM-PC8454, from Chorrillo Rivero-Río Roble, Argentina. B. OUM KX 1819. All $\times 1$.



Fig. 4. *Hatchericeras patagonense* Stanton, 1901. OUM KX 1819. $\times 1$.

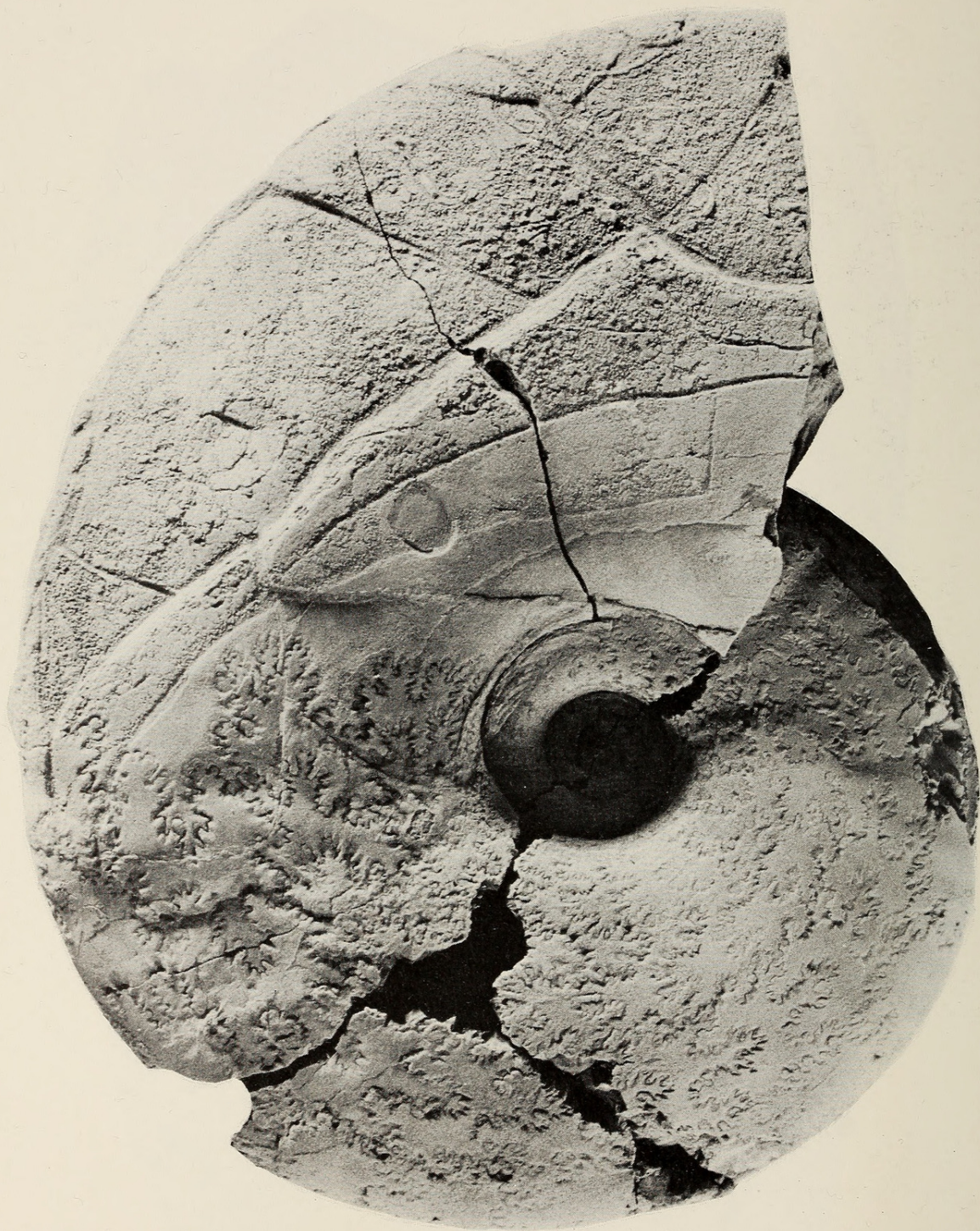


Fig. 5. *Hatchericeras patagonense* Stanton, 1901. SAM-PC8454, from Chorrillo Rivero-Río Roble, Argentina. Specimen kindly donated by M. B. Aguirre Urreta, Buenos Aires. $\times 1$.

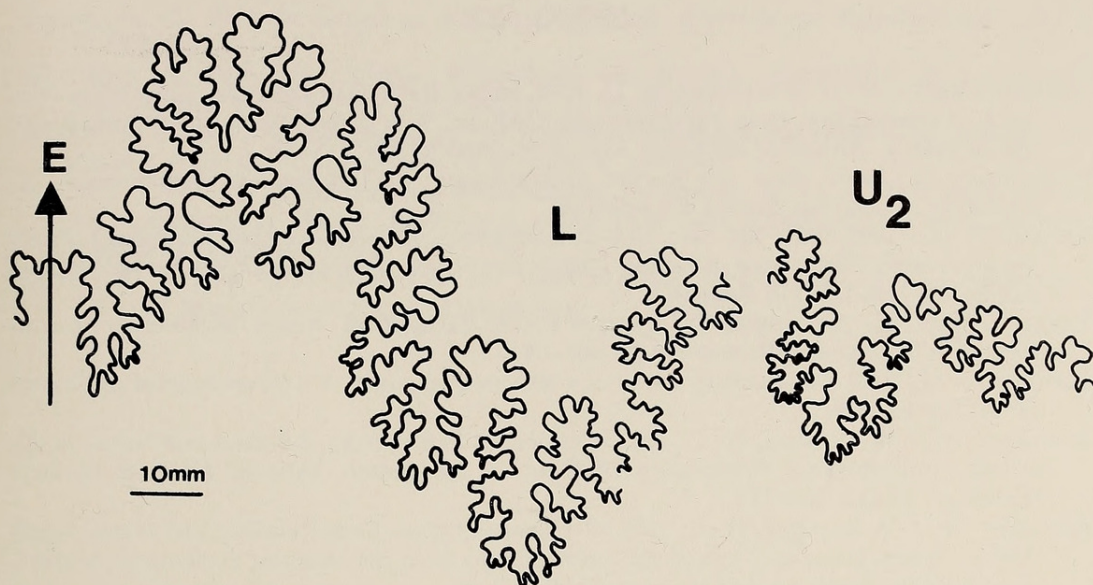


Fig. 6. *Hatchericeras patagonense* Stanton, 1901. OUM KX 1819. Suture line.
Scale = 10 mm.

the small specimens illustrated here as Figure 1A-F. The other species described by Stanton (1901), Favre (1908), and Leanza (1970), from a limited stratigraphical interval only, in the authors' view, illustrate no more than the normal range of variation in juvenile ammonites, and are regarded as conspecific. *Hatchericeras lakefieldense* Woods, 1962, is difficult to interpret. It looks like a representative of *Hatchericeras*, but seems more evolute, with a wider umbilicus than the type species, *H. patagonense*, when adult.

Occurrence

Barremian, *Hatchericeras patagonense* Zone of the Austral Basin, Argentina, and Makatini Formation, Barremian I, Locality 170, Mlambongwenya Spruit, Zululand.

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