

On the stratigraphic range of *Sublunuloceras* SPATH (Ammonoidea Jurassic)

By S. Kanjilal, Varanasi

With 1 figure in the text

KANJILAL, S. (1980): On the stratigraphic range of *Sublunuloceras* SPATH (Ammonoidea Jurassic). – N. Jb. Geol. Paläont. Mh., 1980 (1): 33–36; Stuttgart.

Abstract: *Sublunuloceras* SPATH has so far been considered to range from Middle Callovian to Lower Oxfordian. A well preserved specimen has now been recovered from the basal Katrol shale (Middle Kimmeridgian) which is a second example from this formation in Kutch (India) ignored by SPATH (1927–33) and ARKELL (1957).

Key words: Perisphinctida (*Sublunuloceras discoides*), Kimmeridgian (Middle-), shale (Katrol-); Gujarat (Habo Hill/District Kutch).

Zusammenfassung: *Sublunuloceras* schien bisher nur vom Mittleren Callovium bis in das Untere Oxfordium vorzukommen. Zwei Exemplare von *S. discoides* SPATH aus dem Unteren Katrol-Schiefer erweitern die stratigraphische Reichweite der Gattung bis in das Mittlere Kimmeridgium.

Introduction

Sublunuloceras SPATH (1928) was initially established as a genus (Family Oppe-liidae BONARELLI) having *Harpoceras lairensense* WAAGEN (1875: 65) as its type species. Subsequently it was reduced to a subgenus of *Hecticoceras* BONARELLI by ARKELL (1957: L 277). So far more than a dozen forms of *Sublunuloceras* are known.

ARKELL (1957: L 277), obviously depending upon SPATH's (1927–33) testimony, regarded *Sublunuloceras* to range from Middle Callovian to Lower Oxfordian (Jurassic). However, SMITH, a keen collector of ammonoids from Kutch whose notes (1912–15) bear ample evidence of his knowledge and appreciation of these extinct animals, and an understanding of their value in stratigraphy, had recorded a single, fairly well-preserved example from Ler, Kutch which was handed over to SPATH for identification. Spath (1928: 124), while acknowledging the specimen of bearing SMITH's label – “K = Katrol Beds”, identified it as *S. aff. nodosulcatum* (LAHUSEN).

The Katrol (excluding the Kantkote Sandstone) has been assigned an age ranging from Middle Kimmeridgian to Middle Tithonian (KRISHNAN 1968: 423, after RAJNATH 1932 and SPATH 1933). Unfortunately, SPATH ignored a conscientious collector's observation, and in spite of never having an on-the-spot acquaintance with the Kutch rocks, placed more emphasis over his intuitional identification of the matrix, adhering to SMITH's specimen, as having come from his (SPATH's) '*athleta* beds' (Upper Callovian).

Assignment of ammonoids to precise horizon by their matrix has been frequently practised by SPATH (1927-33) which has sometimes created confusion due to lithologic repetition. In the present case the nature of the shale has definitely betrayed SPATH in correctly guessing the horizon. There is practically no difference between some of the shales of the basal Katrol formation and the shales of SPATH's '*athleta* bed'. The present author has found a fairly well preserved example of *Sublunuloceras* from the basal Katrol shales of the Habo Hill, District Kutch (Gujarat), W. India (KANJILAL 1978a), which also yielded the ammonoids *Haploceras* sp., *Glochiceras* sp., *Taramelliceras* (*Taramelliceras*) cf. *transitorium* SPATH, *Lithacoceras sornayi* KANJILAL, *L. aff. fraasi* (DACQUÉ) *intermedia* SPATH, and *Katrolliceras aff. pottingeri* (J. DE C. SOWERBY) *obtusifrons* SPATH indicating a Middle Kimmeridgian assemblage (KANJILAL 1978b, c). Therefore, according due importance to the label of SMITH and also in the light of the present find from the basal Katrol shales (Middle Kimmeridgian) the stratigraphic range of *Sublunuloceras* should now be considered as Middle Callovian to Middle Kimmeridgian.

The specimens are lodged in the Department of Geology, Banaras Hindu University, Varanasi 221005, India.

Systematic Paleontology

Family Oppeliidae BONARELLI, 1894
 Subfamily Hecticoceratinae SPATH, 1925
 Genus *Hecticoceras* BONARELLI, 1893

Type Species: *Nautilus hecticus* REINECKE, 1818. Lower Callovian; Germany.

Subgenus: *Sublunuloceras* SPATH, 1928.

Type Species: *Harpoceras lairensis* WAAGEN, 1875. Upper Callovian; Kutch.

Hecticoceras (*Sublunuloceras*) *discooides* SPATH

Fig. 1

Sublunuloceras discooides. – SPATH, 1928, p. 126, pl. 12, figs. 7a-b; pl. 13, figs. 1a-b; pl. 15, fig. 11.

Sublunuloceras discooides SPATH-COLLIGNON, 1958, pl. 32, fig. 150.

Material: Two specimens.

Horizons and Localities: Bed No. 2 (upper Callovian) – E of Rudra Mata; and basal Katrol shales (Middle Kimmeridgian) – SE of Rudra Mata, Habo Hill (Kutch).

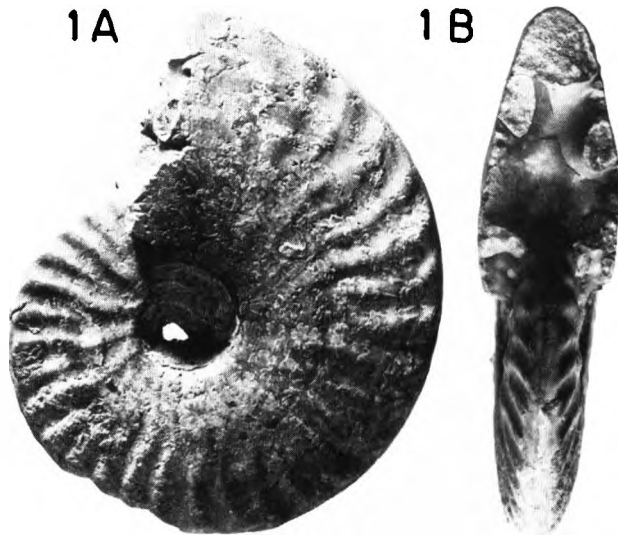


Fig. 1. Lateral (A) and apertural (B) views of the specimen no. H/105/6 of *Hecticoceras* (*Sublunuloceras*) *discoides* SPATH from basal Katrol shale (Middle Kimmeridgian), SE of Rudra Mata; $\times 1$.

For localities and stratigraphy of the rocks in and around the Habo Hill, see KANJILAL (1978 a).

Dimensions: Abbreviations used herein are: D = diameter of the shell; H = height of the whorl from umbilical suture at the measured diameter; T = maximum width of the whorl at the measured diameter; and U = diameter of the umbilicus along the measured diameter of the specimen. All measurements are in millimeter; figures in parantheses are the percentage of the respective measurements with respect to the diameter of the shell.

Specimen No.	D	H	T	U
H/99/234	35.9	18.3 (50.9)	9.4 (26.2)	8.2 (22.8)
H/105/6	69.8	34.5 (49.4)	17.0 (24.4)	13.0 (18.6)

Remarks: The dimensions of the present examples match well with those of the Kutch specimens (Nos. 16008 a-c) of *discoides* in the Geological Survey of India (Calcutta) collection. The periphery of the larger example (from the basal Katrol shales) is not 'sharpened'. SPATH's figure 1b on plate 13 and COLLIGNON's figure 150 on plate 32 also do not show sharpened peripheries. The smaller specimen has a slightly larger umbilicus and is thus transitional to *S. aff. nodosulcatum* (LAHUSEN); SPATH (1928, p. 124, pl. 15, fig. 1) in which the ribbing approximates to that of the earlier whorls of *discoides*.

Acknowledgements

The author is much grateful to Dr. C. S. P. SINGH and Professor Dr. S. K. AGRAWAL (B. H. U.) for stimulating discussions and a critical evaluation of the manuscript.

Literature

- ARKELL, W. J. (1957): Subfamily Hecticoceratinae SPATH, 1925 (p. L 276). – In: R. C. MOORE (ed.): Treatise on Invertebrate Paleontology. Pt. L, Mollusca 4; Cephalopoda, Ammonoidea, xxii + L1–490 pp. Geol. Soc. America & Univ. Kansas Press, U.S.A.
- COLLIGNON, M. (1958–60): Atlas des fossiles caracteristiques de Madagascar, fasc. 1–4, 175 pl., et explantation, Serv. Geol., Tananarive.
- KANJILAL, S. (1978a): Geology and stratigraphy of the Jurassic rocks of Habo Hill, District Kutch (Gujarat). – Proc. Indian Nat. Sci. Acad., Pt. A, 44, no. 1, 1–15.
- (1978b): Upper Jurassic Phyllocerate and Haplocerate ammonoids from the Habo Hill, Kutch (W. India). – Recent Researches in Geology 5: 300–309.
- (1978c): Ammonoids from the basal Katrol rocks around the Habo Hill, Kutch. – Recent Researches in Geology, 7: 255–262.
- KRISHNAN, M. S. (1968): Geology of India and Burma, 5th Ed., Higginbothams, Madras.
- RAJNATH, (1932): A contribution to the stratigraphy of Cutch. – Quart. J. Geol. Min. Met. Soc. India, 4: no. 4: 161–174.
- SMITH, J. H. (1912a): Note on the Cutch ammonites. – J. Bombay Nat. Hist. Soc., 21: 709–715.
- (1912b): Notes on the Cutch ammonites, II; Samatra. – J. Bombay Nat. Hist. Soc., 21: 1347–1352.
- (1913a): Notes on the Cutch ammonites, III; Keera Hill. – J. Bombay Nat. Hist. Soc., 22: 209–213.
- (1913b): Notes on the Cutch ammonites, IV; The Ler-Hamundra Ellipse. – J. Bombay Nat. Hist. Soc., 22: 417–421.
- (1913c): Cutch ammonite beds. – J. Bombay Nat. Hist. Soc., 22: 421–423.
- (1914a): *Oppelidae tenuilobatae* (?) in Cutch and *Holcostephanus* ? in Cutch. – J. Bombay Nat. Hist. Soc., 22: 812–814.
- (1914b): Notes on the Cutch ammonites, V; East of Ler. – J. Bombay Nat. Hist. Soc., 23: 176–179.
- (1915): Notes on the Cutch ammonites, VI; The Habye Hills. Bombay Nat. Hist. Soc., 23: 793–798.
- SPATH, L. F. (1927–33): Revision of the Jurassic cephalopod fauna of Kachh (Cutch). – Mem. Geol. Surv. India, Palaeont. Indica, New Series, 9, mem. 2, pt. 1–6, 1–945, 130 pls.
- WAAGEN, W. (1873–75): Jurassic fauna of Kutch. The cephalopoda. – Mem. Geol. Surv. India. – Palaeont. Indica, (9), 1, pt. 1–4, 1–247, 60 pls.

Bei der Tübinger Schriftleitung eingegangen am 3. August 1979.

Anschrift des Verfassers:

Dr. S. KANJILAL, Dept. of Geology, Banaras Hindu University, Varanasi 221005, Indien.