

HERCOGLOSSA KUTCHENSIS—A NEW SPECIES FROM THE MIDDLE EOCENE ROCKS OF KUTCH, INDIA

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ABSTRACT

The nautiloid genus *Hercoglossa* Conard has been recorded and described, for the first time, from the Middle Eocene rocks of India and is referred to a new species.

INTRODUCTION

In the present paper a nautiloid genus *Hercoglossa* Conard has been recorded and described, for the first time, from the base of Middle Eocene rocks exposed in the Ratchelo nala, a place about 3.2 kilometres south of Baranda ($23^{\circ}34'20''$: $68^{\circ}43'10''$), Kutch (Fig. 1)

and is referred to a new species. The specimens under description were collected and identified by the senior author. It is significant to note here that it is the first record of the genus *Hercoglossa* from the Middle Eocene of India. The other species known to occur in India are *Hercoglossa danicus* (Schlotheim) from the rocks of

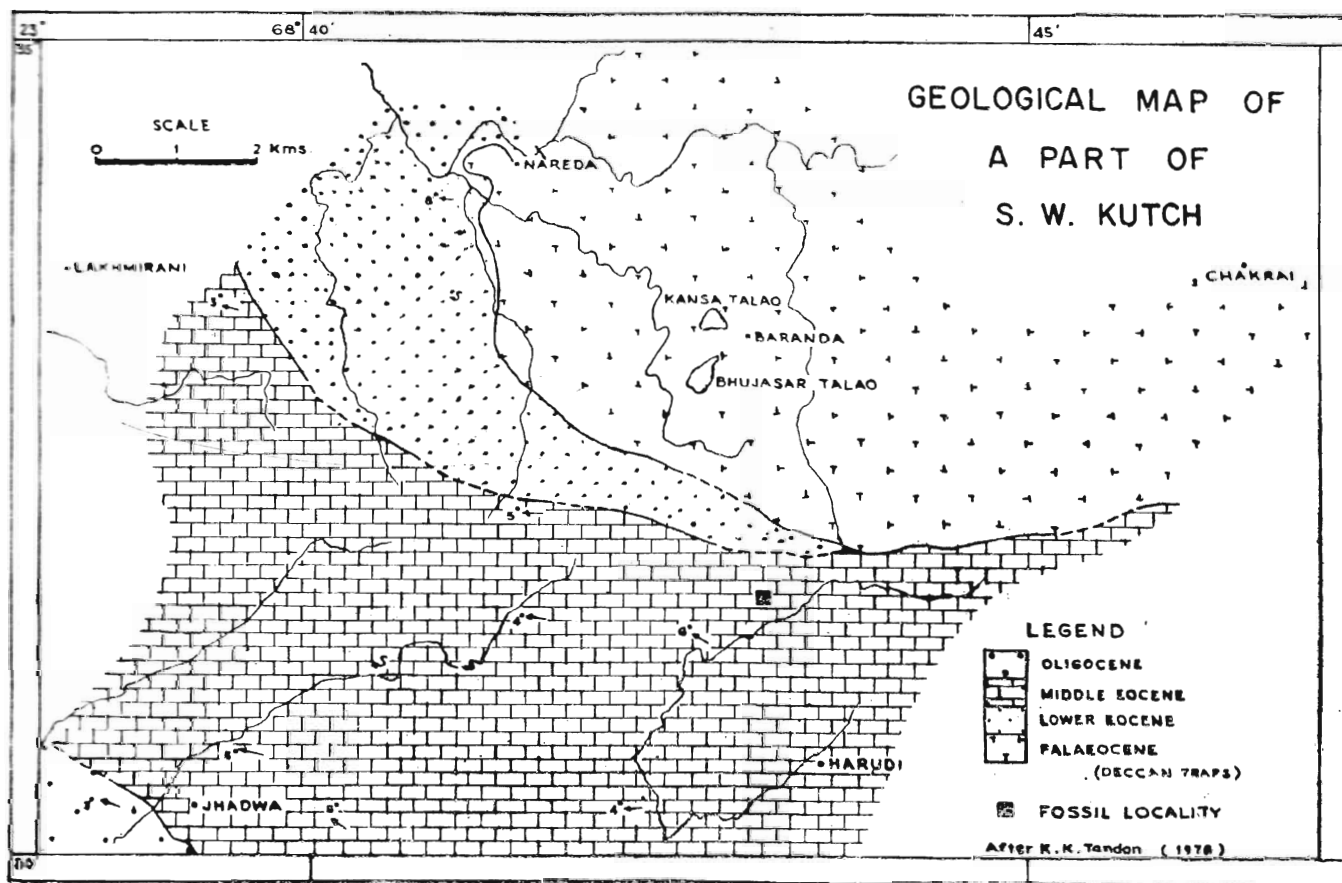


Fig. 1. Geological map of a part of S. W. Kutch (After Tandon, 1976)

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Arrialoor Group exposed in Ninnyoor and *Hercoglossa justus* (Blanford) from the rocks of Ootatoor Group of Odium, south India.

According to Sarkar (1967) the Indian specimen of 'danicus' do not compare with the *Nautilus danicus* Schlotheim and that *Nautilus justus* Blanford closely resembles the type of 'danicus'. He specifically states "The author has already observed (Sarkar, 1966) that the Indian specimens (Fig. 4, Pl. X, G. S. I. Type No. 88 and Pl. XI, G.S.I. Type No. 89, page 24) are not 'danicus'. In order to do the proper identification of the Indian specimens, the author compared them with all the types of *Nautilus* available in the G.S.I. and has come to the conclusion that the Indian specimens resemble satisfactorily to *Nautilus justus* Blanford (Fig. 2, 2a, Pl. X, G.S.I. Type no. 86)" "Both the types of *justus* and "danicus" has been compared very carefully and it has been observed that between them there is a striking resemblance in the mode of growth, form and shape of the two shells, which easily lead to think that the two forms should belong to the same group, if not the same species." "The species description of *justus* given by Blanford confirms beyond doubt that it comes under the genus *Hercoglossa* Conard, 1866. So also is the case with the Indian *danicus* as per details of characters observed by Blanford. I agree with the observations made by Blanford on these two species in question, and it appears that both the species come under *Hercoglossa*."

The described species has been found in the *Corbula subexarata* Zone of Tandon (1976) in association with mammalian remains, *Corbula subexarata* d' Archiac, *Meretrix* (*Callista*) *yawensis* Cotter, *Meretrix* sp., *Mytilus* sp., *Ostrea* sp., *Alfredina tappanae* Singh and *Kalia*, *Discorbis* sp. and *Gypsina*, sp. The zone, about 4.7 metres thick, consists of olive clays and brown compact clayey limestone. It conformably overlies the Unfossiliferous Zone and appears to lie under the Dictot leaf Zone (Fig. 2) and corresponds to the *Hantkanina aragonensis* Zone of Middle Eocene of Trinidad.

SYSTEMANTIC DESCRIPTION

Subclass	Nautiloidea
Order	Nautilida
Superfamily	Nautilaceae
Family	Hercoglossidae
Genus	<i>Hercoglossa</i> CONARD, 1866

Hercoglossa kutchensis sp. nov.

(Plate I—1-5)

Diagnosis : Conch nautilonic, sub-discoidal and involute; chamber width almost equals to its height; siphuncle excentric, orthochoanitic and lies close to the dorsal margin of the chamber.

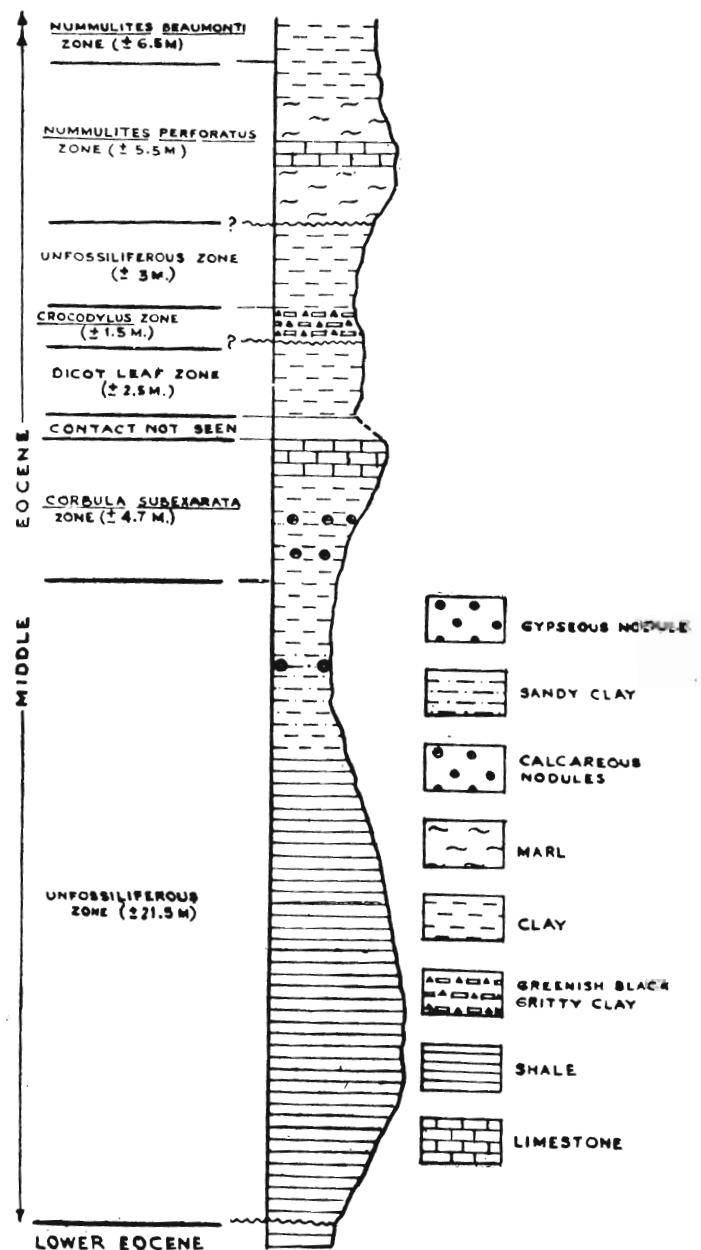
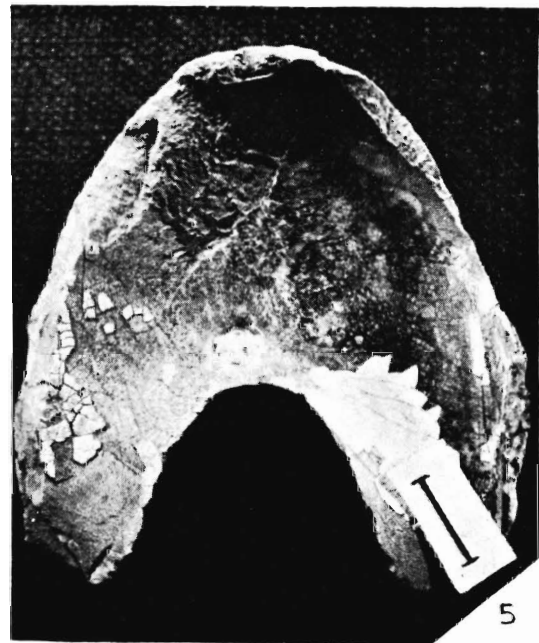
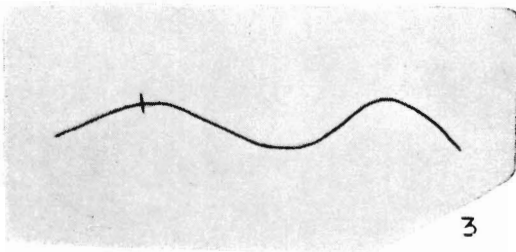


Fig. 2. Biostratigraphic Column of the Middle Eocene rocks exposed at Ratchelo (After Tandon, 1976).

Description: Conch large, nautilonic, sub-discoidal in shape, planispirally coiled around small umbilical plug and involute. Conch consisting of about four volutions, is multichambered and the breadth of each chamber is approximately equal to its height; maximum width is just outside the umbilical shoulders. Surface smooth, whorls rounded laterally, narrowly rounded ventrally and impressed dorsally; body whorl larger than the preceding ones. Umbilicus small, umbilical shoulders low and well rounded. Sutures simple, undulating, slightly convex near the ventral side while wavy towards the umbilical margin. It consists of broadly rounded, slightly convex ventral saddle; broadly rounded asymmetrical



first lateral lobe ; slightly higher (than ventral saddle) and well rounded first lateral saddle ; rounded, shallow umbilical lobe on the umbilical wall and a rounded internal lateral saddle that extends to a narrowly rounded dorsal lobe. Siphuncle small (diameter varies from 2.00 mm to 5.00 mm), circular in cross section, orthochoanitic in structure, excentric and lies very close to the dorsal margin of the chamber wall.

Remarks : *Hercoglossa danicus* (Schlotheim) and *Hercoglossa justus* (Blanford) described from the Cretaceous rocks of south India differ from the new species in having lesser septa per whorl, in the shape of the sutures and the position of the siphuncle. Further, the height and breadth ratio are not identical in the species under question. The following table gives the height and breadth ratio of the Indian forms :

S. no.	Name	Height (in mm)	Breadth (in mm)	B/H × 100
1.	<i>Hercoglossa danicus</i> .. (Schlotheim).	140	110	78.5%
2.	<i>H. justus</i> (Blanford) ..	107	80	74.7%
3.	<i>H. kutchensis</i> sp. nov. ..	85	60	70.5%

The shape of the whorl of the new species resembles somewhat with that of *Hercoglossa orbiculata* (Tuomey), described from the Clayton Formation of Albana, but differs from it in the shape of the suture and position of the siphuncle, which is towards the ventral side in the latter species.

The present species differs from the *Hercoglossa ulrichi* (White) of Arkansas in having higher first lateral saddle and less asymmetrical first lateral lobe. Further the siphuncle in the latter species is sub-central towards the ventral margin while in the new species it is close to the dorsal margin.

Hercoglossa peruviana Berry described from the Restin Sandstone (Eocene) of northwestern Peru differs from the *Hercoglossa kutchensis* sp. nov. in having less compressed whorls, broader ventral saddle and much asymmetrical

first lateral lobe. Moreover, the siphuncle is very close to the dorsal margin in the latter species while in the Peruvian species it is only a little subcentral towards the dorsal side.

Type horizon : At the base of *Corbula subexarata* Zone, Middle Eocene.

Type locality : Ratchelo nala, about 3.2 kilometres south of Baranda, Kutch, India.

Material : Four specimens well preserved. Holotype number KN 1123 and Paratype numbers KN 1124, KN 1125 and KN 1126 are deposited in the Museum of the Geology Department, Lucknow University, Lucknow.

Etymology : The species has been named after district Kutch, India.

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EXPLANATION OF PLATE

PLATE I

1. *Hercoglossa kutchensis* sp. nov. Side view of the holotype × 1.0 (approx.)
2. *Hercoglossa kutchensis* sp. nov. Front view of the holotype × 1.0 (approx.)
3. *Hercoglossa kutchensis* sp. nov. Suture line of the holotype × 1.0 (approx.)
4. *Hercoglossa kutchensis* sp. nov. Front view of the paratype no. KN 1124 × 1.0 (approx.)
5. *Hercoglossa kutchensis* sp. nov. Front view of the paratype no. KN 1125 showing excentric position of the siphuncle. × 1.4 (approx.)