

# BRONNIMANNINA—A NEW GENUS OF FORAMINIFERA FROM THE MIDDLE KIRTHARS OF SHRI KOLAYATJI AREA, BIKANER, RAJASTHAN

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ABSTRACT—The present paper records the report of *Bronnimannina eocenica*, gen. et., sp. nov. and a preliminary statement of the microforaminiferal assemblage from the Middle Kirthar (Lutetian) of Rajasthan.

## INTRODUCTION

La Touche (1897) recorded the presence of Laki (Ypresian) beds from Rajasthan, Singh (1951, 1952, 1953, 1966) discovered and recorded the presence of Kirthars (Lutetian) in

Rajasthan and on the basis of larger foraminiferal assemblage established two distinct zones in the middle Kirthars exposed in Shri Kolayatji area, Bikaner; Rajasthan. The stratigraphical succession proposed by Singh is given in the following table:

	Standard Scale	Indian Equivalents	Stage or Formation	Zone or Member	Thickness
Post-Eocene	Post-Lutetian	Post-Kirthar	Jogira formation	Jogira grit Member	20 ft.
E O C E N E	Lutetian	Middle Kirthar	Bikaner stage	<i>Flosculina</i> zone	18 ft.
				<i>Discocyclina</i> zone	18 ft.
		Pre-Middle Kirthar	Marh stage	Ferruginous bed	10 ft.
	Ypresian	Laki	Kolayatji stage	<i>Assilina</i> zone	5 ft.
				Pelecypod zone	3 ft.
				<i>Nummulites</i> zone	30 ft.
Ostracoda zones	30 ft. Exposed thickness				
EOCENE?	Pre-Ypresian	Pre-Laki	Palant formation	Not exposed	

Lithologically, the middle Kirthar is represented by arenaceous limestone studded with tests of larger foraminifera, the lower, *Discocyclina* zone is a white arenaceous limestone, practically composed of discocyclinid tests, which gradually becomes ferruginous in the upper part. The overlying *Flosculina* zone, at the base is a ferruginous yellow arenaceous limestone and towards the top becomes a white arenaceous limestone.

The microfaunal assemblage in the zones of the Bikaner stage is as follows:

## DISCOCYCLINA ZONE

*Textularia halkyardia*, *T. ovulata*, *T. dollifussi*, *Dorothia* n. sp., *Valvulina* n. sp., *Verneuilinoides* n. sp., *Pseudobolivina* n. sp., *Clavulinoides cubensis* Cushman and Bermudez, *Textulariella* n. sp., *Bronnimannina eocenica* gen. et. sp. nov., *Quinqueloculina* spp., *Triloculina* spp., *Pyrgo* spp., *Pyrgoella* sp., *Glandulina* spp., *Bolivina folia* (Parker and Jones) var. *ornata* Cushman, *B. compressa* Howe 1930, *Buliminella ecuadorana* Cushman and Stainforth, *B. ballina* Le Calvez, *Angulogenerina* sp., *Trifarina advena* Cushman var. *californica* Mallory, *Tubulogenerina tubulifera* (Parker and Jones), *Eouwigerina indica* n. sp., *Caucasina rajasthanensis* n. sp., *Discorbis* spp., *Neoconorbina* sp., *Eponides repandus* (Fichtel and Moll), *Baggina* sp., *Pararotalia* spp. *Rotalia* sp. *Cycloloculina* sp., *Anomalinoides* spp., *Turborotalia centralis* Cushman and Bermudez, *Globigerina* spp., *Globigerapsis index* (Finlay), *Globanomalina micra* (Cole), *Chiloguembelina vineetae* Singh, *Hantkenina* sp., ? *Pseudogloborotalia* sp., *Globorotalia* spp., *Eoconuloides indica* Singh.

## FLOSCULINA ZONE

In addition to the genera and species listed above, the following make their first appearance in this zone.

*Hoeglandina* sp., *Epistomina* sp., *Epistomaria rimosa* (Parker and Jones), *Queraltina* sp., *Bifarina* sp., *Elphidiella* sp., *Truncorotaloides rohri* Bronnimann and Bermudez.,

The genera *Eouwigerina* Cushman 1926, *Caucasina* Khaililov 1951, *Queraltina* Marie 1950, are being recorded for the first time from the Indian subcontinent. The detailed study of the foraminiferal assemblage is practically complete and will be published in subsequent papers.

## SYSTEMATIC DESCRIPTION

Order : FORAMINIFERIDA d'Orbigny 1826.

Suborder : TEXTULARIINA Loeblich and Tappan 1961.

Superfamily: LITUOLACEA de Blanville 1825

Family : PAVONITINIDAE Loeblich and Tappan 1961.

Subfamily : PAVONITININAE Loeblich and Tappan 1961

Genus : BRONNIMANNINA gen. nov.

Type species : *Bronnimannina Eocenica*

Pl. 5, Fig. 1-7

## DIAGNOSIS

Test conical with pointed initial end with a strong flaring tendency towards the apertural end, throughout quadriserial, chambers slightly inflated, overlapping; sutures distinct; aperture interiomarginal; wall thick, microgranular areno-calcitic with haphazardly arranged elliptical or subcircular alveoli confined to the wall. Surface bears small subcircular protuberances reflecting internal alveolar structure of the wall.

## DESCRIPTION

Test cone like with pointed initial and strongly flaring apertural end, quadriserial throughout. Chambers strongly overlapping, the last chamber occupies about one-third of the total whorl space, broader than high, slightly inflated. Sutures distinct, chamber sutures comparatively more pronounced in well preserved specimens. Aperture a low arch, interiomarginal. Wall microgranular areno-calcitic, consists of a series of haphazardly arranged elliptical to subcircular alveoli, restricted in the wall and not projecting in the chamber lumen. Externally the test bears small protuberance which is the surface reflection of the alveolar structure of the wall. In the thin section the alveoli are seen to continue also in the septal walls.

## DIMENSIONS

	Length	Breadth	Thickness
Holotype	0.575 mm	0.425 mm	0.3 mm
Paratype	0.625 mm	0.375 mm	0.825 mm
	0.5 mm	0.4 mm	0.25 mm

## COMPARISON AND REMARKS

Many compressed specimens of *Bronnimannina* have been encountered in the present material, perhaps because of the alveolar nature of the wall the tests have collapsed under pressure.

*Bronnimannina* gen. nov. is similar to *Gravellina* Bronnimann 1953 but is distinguished by the presence of elliptical to subcircular alveoli restricted to the thick wall as is seen in *Austrotrillina* and *Fabularia*. Loeblich and Tappán (1964) have placed the three 'alveolar' genera of Bronnimann (1951, 1953) namely, *Alveovalvulina*, *Guppyella* and *Alveovalvulinella* in the subfamily Pavonitinae. They consider the formation of alveoli, in the above genera by the intersection of longitudinal and horizontal plates projecting from the wall into the chamber lumen. For the present the new alveolar genus *Bronnimannina* is being considered a member of the subfamily Pavonitinae, but the marked difference in the nature of alveoli in comparison to the three above mentioned genera of this subfamily, may necessitate creation of a new subfamily to receive this genus.

The genus has been named after Dr. Paul Bronnimann.

*Type locality*: 4 miles west of Shri Kolayatji, Bikaner District.

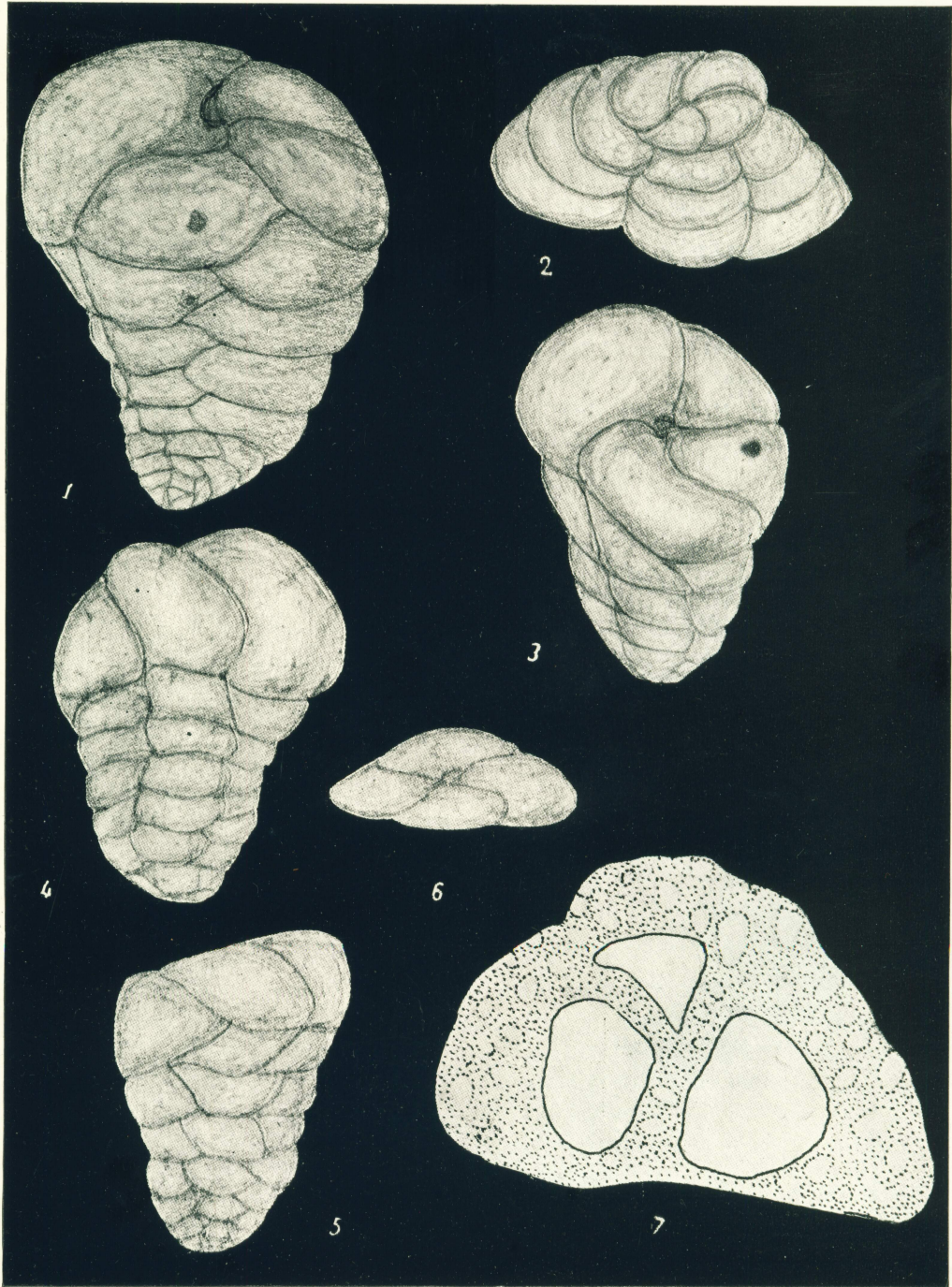
*Type Horizon*: Bikaner stage (Middle Kirthar).

*Repository*: Senior Author's Collection. holotype slide No. Fkly/1, Paratype assemblage slide No. Fkly/2.

## EXPLANATION OF PLATE 5

*Bronnimannina eocenica* Singh and Kalia gen. et sp. nov.

1. Side view of the holotype. X120
2. Initial end view of the holotype specimen, showing arrangement of chambers. X240
- 3, 4. Side view of paratype. X80
- 5, 6. Views of a compressed specimen. (5) Side (6) Apertural. X80
7. Part of a transverse section of the test showing alveolar wall structure. X180



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