In this area, innumerable termite mounds occur with a range of 0·5–1·0 m in height, and 0·5–2·0 m in base diameter. A termite mound was vertically cut open and oriented samples, in the form of 6″ cube, at three different parts of the mound, were collected near the summit (1*a*, in Table I), at the middle along the axis from the summit to the centre of the base (1*b*), and near the middle of the base (1*c*). Like this, oriented samples were collected from two mounds. In addition to this, oriented specimens, taken near the summits of 9 other termite mounds, were also collected. The collection of oriented samples was carried out in the field in the same manner as is done in the petrofabric analysis of rocks.

TABLE I

Natural remanent magnetisation of termite mounds

Sl. No.	Deflection in cm.			J_n × 10^{-5} e.m.u./g
	X Direction	*Y* Direction	*Z* Direction	
1 *a*.	—2·1	0·6	7·1	2·2
1 *b*.	2·0	—0·1	10·2	2·6
1 *c*.	—2·0	0·6	4·6	1·6
2 *a*.	—1·0	—1·4	12·5	6·9
2 *b*.	—1·9	0·9	— 8·7	8·2
3.	0·4	—3·6	— 4·0	1·4
4.	2·2	—2·0	— 6·0	2·5
5.	1·0	—5·4	6·1	1·4
6.	—3·5	—3·1	—16·0	5·1
7.	0·4	—0·5	1·0	0·8
8.	—4·2	—5·5	5·7	2·6
9.	1·0	1·0	— 1·2	0·7
10.	0·5	0·8	5·3	1·3
11.	—0·4	2·5	7·4	3·8

With the aid of a sensitive astatic magnetometer the average deflection which reflects the intensity of natural remanent magnetisation, was determined for different directions successively keeping the specimen along the north-south (*X*), east-west (*Y*), and the up-and-down direction (*Z*). The deflections, recorded in the magnetometer for these directions, and the intensity of natural remanent magnetisation (J_n) for the entire samples are shown in Table I. It shows that the intensity of magnetisation is conspicuously high along *Z*, *i.e.*, up-and-down direction.

It may be noted that the present magnetic field (total intensity) around the area of study, *i.e.*, Ongole area, is a vector dipping only about 14° from the horizontal, or in other words, having a predominantly horizontal component and comparatively much smaller vertical component. From the data (Table I) it is inferred that, in the prevailing Earth's magnetic field, the intensity of magnetisation is relatively much higher along *Z* (up-and-down) than along *X* (north-south) or *Y* (east-west) directions of the termite mound.

This study reveals that the termite mounds show preferred orientation not only in their physical structures but also in the intensity of magnetisation, supporting the view of Karl von Frisch (1974, p. 139) that termite activity is guided by the Earth's magnetic field.

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PRELIMINARY NOTE ON THE PRESENCE OF JURASSIC HOLOTHUROIDS FROM JAISALMER, RAJASTHAN

S. N. SINGH,† S. K. KULSHRESHTHA,* RAHUL GARG** AND R. K. SAXENA
Department of Geology, University of Lucknow
Lucknow, India

HOLOTHURIAN sclerites from the Jurassics are well known from various parts of the world[1]. However, their record from India is meagre and restricted to a few reports from the Kutch region[2–4]. The present note records for the first time the occurrence of well

† Deceased, 17 Sept. 1980.
* Present address : Department of Geology, Punjab University, Chandigarh.
** Present address : Birbal Sahni Institute of Palaeobotany, Lucknow.

preserved sclerite assemblages from the Jurassic rocks exposed in the Jaisalmer area, Rajasthan.

Protruding through the extensive blanket of desert soil and sand in the region, continuous as well as sporadic outcrops of the Jurassic rocks occur near and around the town of Jaisalmer. Subsequent to the pioneering work of Oldham[6], on the geology of these rocks, studies have been carried out by Swaminath *et al.*[6], Singh and Krishna[7], and Das Gupta[8]. The litho-stratigraphic succession of the Jurassic rocks exposed in Jaisalmer area is summarised in Table I (modified after Singh and Krishna[7]):

The Jaisalmer Formation is highly fossiliferous enclosing a host of mega and microfauna. The sclerite microfauna was recovered from the Jaisalmer Member and Kuldhar Member only. The Jaisalmer Member is well exposed on a high scrap facing the Jaisalmer railway station and further west in the vicinity of Amarsagar village, about 3·5 km from Jaisalmer. The overlying Kuldhar Member is typically exposed in a channel (Nala cutting) flowing roughly NW–SE of the abandoned Kuldhar village, about 14 km WSW of Jaisalmer. The Jailsalmer Member is conspicuous by the absence of ammonites while a rich and diversified ammonite fauna is present in the Kuldhar Member.

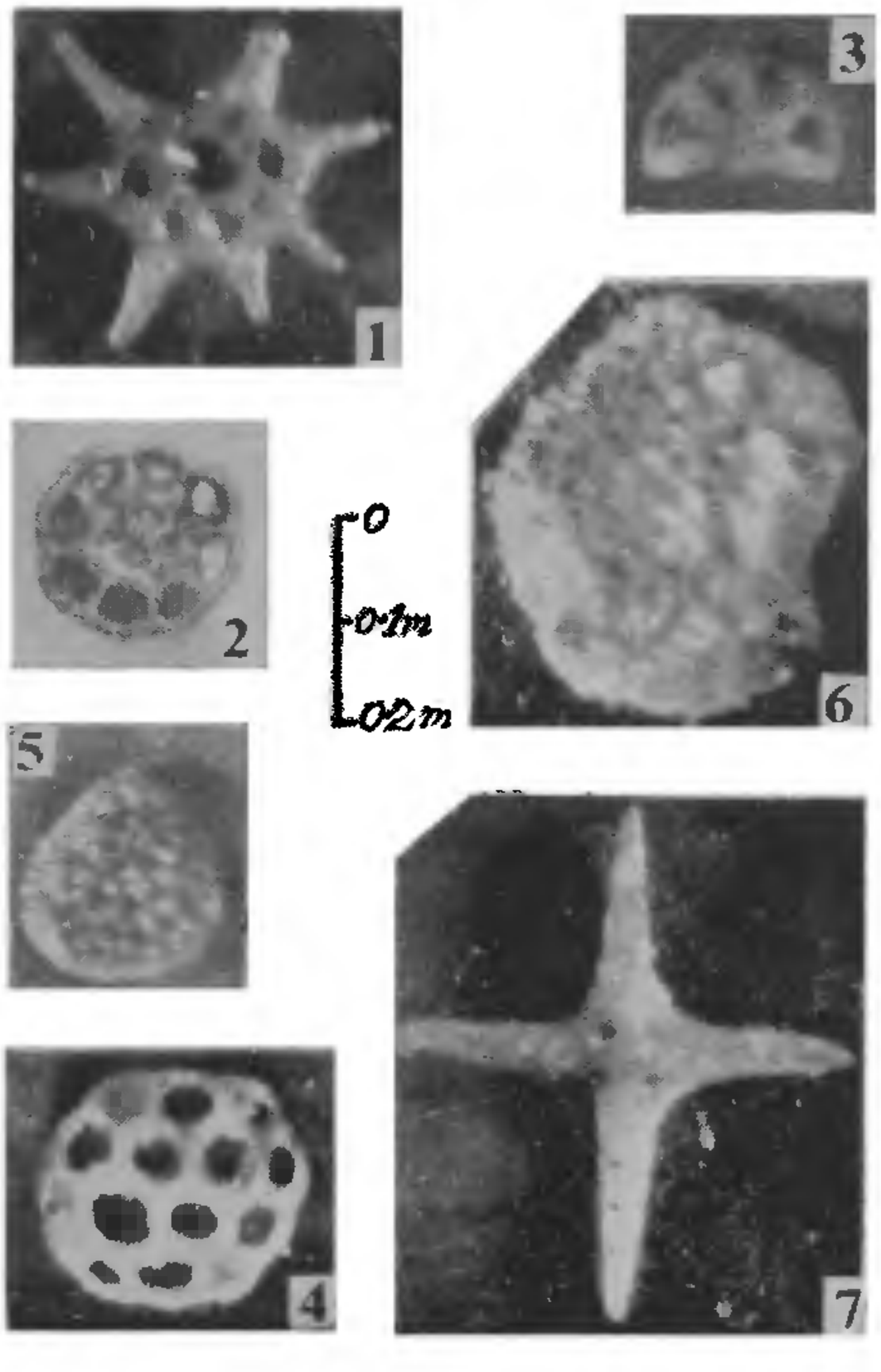
The oolitic argillaceous limestone horizons rich in *Hemicidaris* species, exposed on the Jaisalmer Scarp, and a marl bed containing thin limestone partings, exposed in a road cutting in the vicinity of Amarsagar village, have yielded a fairly rich holothuroid assemblage. The sclerites are well preserved, though not many in number, and include *Theelia* sp., *Protocaudina* sp., *Fletcherina* sp., besides several forms referable to *Koteshwaria*[9]. The associated foraminiferal fauna includes *Pfenderina* spp., *Pseudomarsonella* spp. and *Riyadhella* sp. which indicate a typical Bathonian age for this sequence. Singh and Misra[10] have also assigned Bathonian age to the rocks exposed near Amarsagar on the evidence of rhynchonellid brachiopods (dominated by *Globirhynchia* species).

The other holothuroid assemblage has been obtained from the lower part of a highly fossiliferous succession of oolitic limestone, marl and friable shale exposed in the Kuldhar nala. The 2 m thick friable shale horizon containing frequent small to medium sized phosphatic nodules, has yielded a rich holothurian assemblage as compared to the underlying interbedded oolitic limestone and marl. The sclerite assemblage from these beds is strikingly dominated by several species of the genus *Fletcherina* along with a few forms belonging to *Frizzellus irregularis* Hampton, *Eocaudina*, *Theelia* and cf. *Elgerius*. The associated ammonite fauna includes a varied Macrocephalitid and Perisphinctid assemblage indicative of a Lower Callovian age for these beds. The enclosed foraminiferal and ostracod microfauna also supports a Callovian age.

On comparison with the assemblage described by Soodan[2–4] from the Jurassic (Bathonian–Callovian) sequence of Jhumara Dome, Kutch, the present holothurian microfauna is found to be quite different in composition, except for the common occurrence of the genus *Fletcherina*. On the other hand, sclerites from Jaisalmer are comparable with forms recorded from the Upper Bathonian of England[11], Bathonian of Poland[12] and Oxfordian of France[13]. It is expected that the extensive and intensive studies of holothurian

TABLE I

BHADASAR FORMATION		Highly ferruginous fossiliferous grits, sandstone and sandy shale	Tithonian
		Unconformity	
JAISALMER FORMATION	Rupsi Member	Sandy and Gypseous shale, sandstone, minor limestone and marl	Up. Oxfordian–Kimmeridgian
	Kuldhar Member	Oolitic limestone, marl and shale	Callovian–Oxfordian
	Jaisalmer Member	Agrillaceous to sandy limestone, marl, sandy shale and minor sandstone	Upper Bathonian
		Unconformity	
LATHI SANDSTONE		Sandstone and Sandy shale (continental)	Lower-Middle Jurassic (Part)



FIGS. 1–7. (All magnified ca. × 90). Fig. 1. *Koteshwaria* sp., view from opposite to spire side of No. LUG/JAH/804. Fig. 2. *Protocaudina* sp., upper view of No. LUG/JAH/807. Fig. 3. *Theelia* sp., upper view of No. LUG/JAH/811. Fig. 4. *Eocaudina* sp., No. LUG/JKH/903. Fig. 5, cf. *Elgerius* sp., No. LUG/JKH/908. Fig. 6. *Frizzellus irregularis* Hampton, No. LUG/JKH/915. Fig. 7. *Fletcherina* sp., view from spire side of No. LUG/JKH/921.

remains, from the coeval Jurassic rocks of Kutch and Jaisalmer may bring to light the utility of this micro-fossil group in biostratigraphic correlation on regional and inter-regional scale.

The figured specimens are deposited in the Micro-palaeontology Laboratory of the Department of Geology, Lucknow University.

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PERFECT STAGE OF *PESTALOTIOPSIS NEGLECTA* THUEM.

D. K. PUROHIT AND S. P. JOSHI
Department of Botany
Mycology and Plant Pathology Laboratory
University of Jodhpur, Jodhpur 342 001, India

THE authors collected infected leaves of *Agathis robusta* Bailey in 1979 near Coonoor. Infection of these leaves was initiated from the tips as well as the margins in the form of circular to irregular light brown spots. At the advancement of the disease the lesions enlarged in size and covered with black, epiphyllous, scattered fruiting pustules. On microscopic examination it was found that the asexual stage of *Pestalotiopsis neglecta* Thuem. was associated with its perfect stage, *i.e.*, *Leptosphaeria* sp. Isolations from such leaf spots invariably resulted in the culture of *P. neglecta* Thuem. and development of perithecia in close association. The host inoculated with conidia developed perithecia also. The morphological characters of both the conidial stage and perfect stage were as follows:

Conidial stage

Fruiting pustules were conical, erumpent, subepidermal 166·5–225 μm with 2–4 layered thick wall, filled with numerous conidia developed on short conidiophores.

Conidia 5-celled, fusiform, 18·9–24·3 × 4·05–5·4 μm concolours, sometimes the two upper cells slightly darker, 12·15–16·2 μm long; apical hyaline cells conical bearing 2·3 setulae, 5·4–13·5 μm long; the