

SHORT SCIENTIFIC NOTES

Pre-historic Fauna of Kalibangan, Rajasthan, India

While studying the collection of animal remains of Kalibangan, Ganganagar District, Rajasthan excavated by the Archaeological Survey of India during 1962-65, a few interesting skeletal fragments came to our notice. The age of these fragments is about 3500 to 4000 years. Based on 1500 fragments of different bones, we have identified 18 species. Since a detailed report on the collection will take more time a preliminary account is given in this note. The total numbers of fragments of different bones of the species identified are given in the parenthesis.

in the early days. This confirms the geological evidence that this arid zone area is of recent origin.

Thanks are due to Dr. S. Khera, and Dr. K. K. Tiwari, Deputy Directors of our Survey, for the facilities provided.

Zoological Survey of India,
Calcutta 700 016,
August 28, 1975.

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1. Banerjee, S. and Chakravorty, S., *Sci. and Cult.* Calcutta, 1973, 39, 430.
2. Nath, B., *Indian Mus. Bull.*, Calcutta, 1969, 4, 107.

TABLE I

Phylum	Class	Order	Family	Species		
Chordata	Mammalia	Carnivora	Canidae	<i>Canis familiaris</i> Linn. (8)		
				<i>Canis lupus</i> Linn. (8)		
						<i>Felis chaus</i> Goldust (38)
			Proboscidea	Elephantida	<i>Elephas maximus</i> Linn. (1)	
			Perissodactyla	Rhinocerotidae	<i>Rhinoceros unicornis</i> Linn. (6)	
		Equidae		<i>Equus hemionus</i> Pallas (1)		
			Artiodactyla	Suidae	<i>Sus scrofa cristatus</i> Wagner (68)	
		Camellidae			<i>Camelus</i> sp. (8)	
		Cervidae		<i>Axis axis</i> Erxl. (1)		
				<i>Cervus unicolor</i> Kerr (1)		
<i>Cervus duvauceli</i> Cuv (16)						
		Bovidae	<i>Bos indicus</i> Linn. (83)			
			<i>Bubalus bubalis</i> Linn. (149)			
			<i>Capra nircus aegagrus</i> Erxl. (45)			
			<i>Ovis orientalis vignei</i> Blvth (94)			
	Aves	Columbiformis	Columbidae	<i>Columba livia</i> Gmelin (2)		
		Galliformis	Phasianidae	<i>Gallus sonneratti</i> Term. (1)		
	Reptilia	Chelonia	Testudinidae	<i>Batagura baska</i> Gray (2)		
				<i>Kachuga tectum</i> Gray (2)		
				<i>Chitra indica</i> Gray (18)		
				<i>Lissemys punctata</i> (Bonneterra) (1)		

It may be stated that Banerjee and Chakraborty (1973) have already reported one horned Rhinoceros from this collection. Nath (1969), in connection with the study of the role of animal remains in the early prehistoric cultures of India, casually mentioned about some of the common names of domestic and wild animals. The occurrence of the species mentioned by us in Rajasthan and in Harappa (Prasad, B., 1936) and Mohenjodaro (Sewell, R. B. S. and Guha, B. S., 1931) prove their extensive distribution in North Western India

3. Ellerman, J. R., Morrison and Scott, T. C. S., *Cheklis of Palaearctic and Inda Mammals*, 1758 to 1946, 1951, p. 1. British Museum (Natural History) Cromwell Road, S. W. 7, London.

Freshwater Cladocera (Arthropoda:Crustacea) from Northeast India

Very little is known about cladoceran fauna of Northeast India. Cladocera from this area during the past year, were collected from freshwater bodies of some areas of Meghalaya and Manipur. These

collections reveal 17 species of which 14 are new records from the region and 3 are new to India. A list of the species along with collection localities for each is given below, new records from India being marked by (*). The seventeen species recorded below belong to five families and thirteen genera.

as well as mature leaves were seen to be equally attacked.

Pure culture of the fungus was obtained on PDA medium. The pathogenicity was tested on detached leaves. The typical symptoms developed after 5-6 days. The hypae are septate and branched, with smooth walled conidia occurring in chains,

Sl. No.	Cladocera : Species	Collection locality
Family: SIDIDAE		
1.	<i>Diaphanosoma sarsi</i> Richard	.. Ward lake, Shillong (Meghalaya).
Family: DAPHNIDAE		
2.	* <i>Simocephalus exspinosus</i> (Koch)	.. Ward lake, Shillong (Meghalaya).
3.	<i>Simocephalus elizabethae</i> (King)	.. Ward lake, Shillong (Meghalaya), Nonthoukhong (Manipur).
4.	<i>Scapholeberis kingi</i> Sars	.. Ward lake, Fruit Garden, Shillong (Meghalaya).
5.	<i>Ceriodaphnia rigaudi</i> Richard	.. Ward lake, Shillong (Meghalaya).
6.	<i>Moina brachiata</i> (Jurine)	.. Ward lake, Fruit Garden, Shillong (Meghalaya).
Family: BOSMINIDAE		
7.	<i>Bosmina longirostris</i> (O.F. Muller)	.. Fruit Garden, Shillong (Meghalaya).
Family: MACROTHRICIDAE		
8.	<i>Streblocerus serricaudatus</i> (Fischer)	.. Kangvai (Manipur).
9.	<i>Macrothrix spinosa</i> King	.. Sendra (Manipur)
10.	<i>Ilyocryptus halyi</i> Brady	.. Golflinks, Shillong (Meghalaya).
Family: CHYDORIDAE		
Sub-family: CHYDORINAE		
11.	* <i>Camptocercus rectirostris</i> Schødler	.. Lady Hydari Park, Shillong (Meghalaya).
12.	* <i>Acroperus harpae</i> Baird	.. Ward lake, Lady Hydari Park, Shillong (Meghalaya).
13.	<i>Alona affinis</i> (Leydig)	.. Fruit Garden, Mawlai, Shillong (Meghalaya).
14.	<i>Alona rectangula</i> Sars	.. Kangvai (Manipur).
15.	<i>Chydorus globosus</i> Baird	.. Ward lake, Shillong (Meghalaya).
16.	<i>Chydorus sphaericus</i> (O.F. Muller)	.. Ward lake, Shillong (Meghalaya).
17.	<i>Chydorus denticulatus</i> Henry	.. Lady Hydari Park, Shillong (Meghalaya).

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Eastern Regional Station, S. G. PATIL.
Zoological Survey of India,
Shillong 793 003, November 20, 1975.

2-5 transverse and 1-2 longitudinal septa are present. The conidia measures $24-34 \mu \times 8-16 \mu$. The causal organism was identified and confirmed as *Alternaria alternata* (Fr) Keissler (IMI 197735).

Grateful thanks are due to Dr. Ellis, CMI, England, for the identification of the fungus.

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A New Leaf Spot Disease of *Plumeria acutifolia* Caused by *Alternaria alternata*

A severe leaf spot disease of *Plumeria acutifolia* a popular ornamental plant, was observed during the rainy season of 1975 around Guntur, Andhra Pradesh. The disease manifests itself in the form of brown necrotic spots measuring 1-4 mm. The spots appear all over the leaf surface. The young

Role of Tulsi Plant (*Ocimum sanctum*) in Control of Mango Fruitfly, *Dacus correctus* Bezzi (Tephritidae: Diptera)

Occurrence of fruitfly, *Dacus correctus* Bezzi on Mango and chiku in South Gujarat has been reported by Shah and Vora (1974). In working

out the extent and the time of incidence as well as the damage to Mango and chiku crop, it was found for the first time that tulsj plant, *Ocimum sanctum* worked as an attractant for the fruitfly in the area. Observations on the population counts revealed that all the fruitflies attracted to tulsj plants were males only. On chemical analysis it was found that the leaves contained 20.4% methyl eugenol in its total essential oil content, and thus, played a role in attracting male fruitflies as sex attractant. Preliminary biological experiments confirmed that methyl eugenol would act as a bait material (Sex attractant) for the male flies. This behaviour is taken advantage of in the studies of population density of fruitflies in the garden.

Gujarat Agricultural University, A. H. SHAH.
N. M. College of Agriculture, R. C. PATEL.
Navsari Campus, December 11, 1975.

1. Shah, A. H. and Vora, J. V., 1974 "Occurrence of *Dacus correctus* Bezzi (Tephritidae : Diptera) on Mango and chiku in South Gujarat," *Ind. J. Ent.*, 1974, 36 (1),

***Polygonum dumetorum* L. A New Host for *Puccinia polygami-ambibii* Pers.**

Polygonum dumetorum L. a wild growing plant in Kashmir between 6,000-9,000 ft was observed severely attacked by *Puccinia polygami-ambibii* Pers. collected during August-September 1975.

The disease manifests itself in the form of irregular brown patches measuring 2-5 mm across, found only on dorsal side of the leaf. Average patches of the disease per leaf was found between 10-15, only mature leaves were seem to be attacked.

The fungus is identified as *Puccinia polygami-ambibii* Pers. (IMI 197021). The present fungus has not been recorded on the above host and hence constitutes a new host record.

The author wishes his sincere thanks to Dr. M. B. Ellis and Dr. Mordue, CMI Ferry Lane, Kew, Surrey, England, for identification of fungus and to Dr. G. N. Javeid, Reader, Department of Botany, for providing the facilities.

Department of Botany, A. H. MUNSHI.
University of Kashmir,
Srinagar 6, November 14, 1975.

Alkaloid Distribution in the Fruit of *Solanum khasianum*

The variability in the steroid content in *Solanum khasianum* has been attributed to various factors. Saini *et al.*¹ and Chandra *et al.*² found maximum amount of steroid at a particular stage of fruit

harvest. Khanna and Murty³, however, reported that the plant maturity and the stage of fruit harvest at a particular period had an influence on the solasodine build up. The present note deals with the study of correlation of some characters with the steroid content.

Seeds of *S. khasianum* obtained from various sources were sown during October-November, 1967 and the seedlings transplanted in the field during January-February, 1968, at a distance of 90 cm. in rows 90 cm. apart. A number of plants were chosen at random and the data were collected on fruit size, number of seed per fruit and solasodine per cent. Solasodine was determined as described earlier⁴, from fruits at uniform stage of development. The correlation coefficient between solasodine content and other variables has been calculated and presented in Table I.

TABLE I

Correlation coefficient between solasodine content and other characters in *Solanum khasianum*

Characters	Correlation coefficient
1. Fruit size and seed number	+0.90
2. Fruit size and alkaloid	+0.21
3. Weight of the fruit and alkaloid	+0.12
4. Volume of the fruit and alkaloid	+0.13
5. Relative density of fruit and alkaloid	-0.15

It was pointed out⁴, that g-alkaloid is localised to the gelatinous layer covering seed surface. In the present experiment the seed number is correlated with fruit size, but no correlation was observed between the g-alkaloid content and fruit size.

Janaki Ammal and Bhat⁵ also observed increased g-alkaloid content in induced polyploids but with a reduced seed number. Thus it appears that the mucilage secreting cells responsible, for the g-alkaloid are not only confined to the seed coat but also to other parts of the fruit.

National Botanic Gardens, ANDRA S. MURTY.
Lucknow, October 27, 1975.

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2. Chandra, V., Basant Singh, Singh, A. and Kapoor, L. D., *Indian Forester*, 1970, 96, 352.
3. Khanna, K. R. and Murty, A. S., *Planta Medica*, 1972, 21, 182.
4. Saini, A. D., *Curr. Sci.*, 1966, 35, 600.
5. Janaki Ammal, E. K. and Bharati Bhatt, *Curr. Sci.*, 1971, 40 (3), 70.